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AN INVESTIGATION INTO THE UTILITY AND EFFICACY
OF TRAINING IN BEHAVIOR MODIFICATION
TO FIRST-LINE CLERICAL SUPERVISORS
IN AN ORGANIZATIONAL SETTING

presented by

DAVID H. KLEIN

has been accepted towards fulfillment
of the requirements for

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AN INVESTIGATION INTO THE UTILITY AND EFFICACY
OF TRAINING IN BEHAVIOR MODIFICATION
TO FIRST-LINE CLERICAL SUPERVISORS
IN AN ORGANIZATIONAL SETTING

by

David H. Klein

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ABSTRACT

This study looks at behavior modification techniques as training devices in organizational settings. The subjects were supervisors selected and assigned randomly from a population of volunteers from two major departments in state government. Subjects were assigned to either experimental or control groups. The experimental group was divided into two training groups which were each given an eight-week training program in behavior modification. Training consisted of eight one-hour sessions given one each week. A series of behavioral concepts were presented which included such topics as recording behavior, defining and pinpointing behavior, graphing behavior, reinforcing concepts, and the designing of intervention into problematic behavior. Data were kept on reactions to training and the learning of the training concepts. Each subject also demonstrated the actual application of the training concepts in projects done in their work units with actual problem workers. Finally, data were kept on the influence of training, on productivity, and on absence behaviors in work units. Results indicated that supervisors did not react more positively to training afterwards than before. However, supervisors did learn the concepts. They were able to apply the behavioral concepts in projects that largely resulted in the

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achievement of modifying defined problematic behavior in work units. Further data kept on absenteeism in work units of supervisors who went through training and a control group of supervisors showed no statistically significant differences between experimental and control group supervisors for absenteeism. There were small but statistically significant differences between experimental and control group supervisors on the productivity dependent variable.

DEDICATION

I wish to dedicate this dissertation to
my parents,
Rose and Mannie Klein,
who gave me the values and courage I needed for this task;

and to my children,
Aaron and Sarah Klein,
to whom I wish to teach these values and this courage;

and to my dear friend,
Paul,
who is gone.

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I wish to thank the members of my guidance committee: Dr. Victor Whiteman, my chairperson, a gentle soul who was always available when I needed him; Dr. Paul Freddolino, whose unbounding optimism and enthusiasm were infectious and whose eye for detail was very helpful; Dr. Ralf Levine, who is certainly a knight of the round table—he took on my project with the dedication of a quest and was always there to rescue me in my darkest moments; and Dr. Sigmund Nosow, whose teaching broadened me and whose respect I hope I have won—he certainly has mine.

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To my wife, Martha, who toiled endlessly taking care of the mundane tasks that allowed me time to work on my project, I give my thanks.

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

The techniques of training in organizations are varied and include role playing, sensitivity training, conferences, case studies, and behavior modification. Studies conducted to evaluate the effects of training in industry are sparse. By and large, the material written is anecdotal in nature and provides little in the way of controlled evaluation (Machinsky, 1977; Dowling, 1975). Reviews of literature in this area describe it as methodologically unsound, with a preponderance of results based on training participants' reaction to training being mistakenly used as a measure of training effectiveness (Bowers, 1976; Bass & Vaugn, 1968; Campbell, 1971). Catalanello and Kirkpatrick (1968) surveyed 154 companies and found that 77% were making an effort and showing an interest in evaluating the effectiveness of their training programs. Fifty-four percent of these companies were concerned with direct behavior changes on the job as a result of training. Clearly there is a desire and an identified need on the part of industry to find effective means of training employees in ways that will coincide with behavior change on the job that are consistent with organizational goals.

If a training program is aimed at behavioral changes in those trained that can increase their operational effectiveness on the job and are consistent with the goals of the organization, then it follows that two conditions are necessary. First, a training program must have measurable effects, and, second, it must remain within the parameters defined by the organization as its objectives.

Criteria for measuring the effects of training are suggested by Heyel (1963) to include increased production and reduction of absenteeism.

One training method that concerns itself specifically with behavior change is behavior modification. This technique involves systematically observing and assessing discrete units of behavior usually referred to as the target behaviors. This target behavior is then modified using a plan that employs a set of defined principles. Behavior modification has been predominantly employed in the field of clinical psychotherapy. It is used to change maladaptive behaviors into more socially acceptable modes. Such problems as sexual dysfunction, phobias, tension reduction, and a variety of other behaviors assessed as maladaptive are dealt with. Behavior modification is also used extensively in hospital and classroom environments. In these settings a variety of techniques is devised to maintain desired behaviors that facilitate what the organization defines as acceptable. In a classroom setting, this involves keeping students focused on appropriate material and tasks that optimize mastery of specific data being studied. Implied in the use of behavior modification is the idea that the organization or individual employing the techniques has a predefined idea as to the purpose and direction in which the behavior to be modified should go. This direction can be defined by the organization or its representative.

Behavior modification in organizational settings has been extolled by many authors (Leslie & Lippit, 1966; Holsinger, 1972; Griffing, 1965; Aldis, 1961; Luthans & White, 1971; Nord, 1970). However, few studies are found in which adequate methods of evaluation are used. Hence the literature tends to be anecdotal with little hard evidence as to the effectiveness or applicability of behavior modification in industry. Griffing (1971) suggests conditions necessary for behavior modification to be effective, they include the work environment being conducive to productivity, managers having control over reinforcers, and upper

level managers demonstrating support for such a program. Only a few studies made attempts at controlled evaluation of behavior modification in industry. These studies indicated favorable results, but go on to suggest the need for continued study of this training and intervention method (Allen, 1974; Otterman, 1974).

One area in industry that has been examined in terms of behavior modification principles is the area of misplaced incentives. This term refers to the phenomenon of reinforcing behavior in an unsystematic fashion. An example is the notion that a worker is rewarded by virtue of his/her performance when, in fact, s/he is not. Seniority is an example of this (Wexley & Semore, 1972). Duerr (1974) makes a plea for carefully designed reward systems in which the means of reward and criteria for it are carefully analyzed.

The purpose of this project is to determine whether behavior modification procedures can be compiled into a training program and taught to first-line supervisors. The question to be answered is, can supervisors master the techniques of behavior modification and use them to increase desired behavior in workers that is consistent with the goals of the organization and decrease behavior that is organizationally dysfunctional? Within the morass of non-controlled papers on training procedures, including the area of behavior modification to which reference was made earlier, an attempt will be made to measure the effects of a behavior modification training program in relation to its effectiveness as a method to be used by supervisors in their organizational settings. This project will attempt to demonstrate the viability of behavior modification as a training tool and technique in organizational settings.

One way to test this notion is to use the criteria suggested earlier as a means of evaluating training programs, specifically production and absenteeism. Production will be viewed as an organizational goal to be increased.

Absenteeism will be looked at as a dysfunctional behavior to be decreased. Projects by supervisors that attempt to modify individual worker behavior defined by the supervisor as dysfunctional to the work unit will also be done. This will allow for a direct measure of training effect by direct application toward dysfunctional worker behavior by supervisors who have been through training.

The role of the supervisor is central in this project. First line supervisors are the lowest level managers. They are often forced to balance and integrate a frequently diverse and inconsistent set of demands. On the one hand, the supervisor has the organization's production standards. On the other, s/he has the worker's reaction to management's demands. The supervisor is constantly forced to bring the workers and management's positions into line in such a way that his/her work unit can effectively meet quotas set for it.

Frequently, the supervisor has difficulty maintaining balance among the various expectations placed upon him/her by management and workers. S/He frequently encounters situation that s/he feels ill-equipped to deal with. These situations sometimes involve absenteeism, a variable this study is concerned with. When faced with conditions that interfere with operations of his/her unit, the supervisor has specific procedures to follow that are defined by the organization to deal with these problems. However, as mentioned earlier, misplaced incentives and reinforcers can exacerbate the situation rather than modify it in the desired direction. An example is when a worker is given time off as a punishment for some infraction in attendance. This time off is aimed at discouraging the absence behavior. However, according to behavioral principles, the organization is rewarding an attendance deficit with more time off—the very negative behavior the worker used! Training can be viewed as one means of

providing supervisors with ongoing ways of synthesizing and dealing with the diverse demands that are placed on them.

Behavior modification training emphasizes the use of contingency management to selectively reinforce desired behavior and depress undesired behavior. The behavior modifier and the individual whose behavior is to be modified relate to each other in a new fashion defined by the contingency system designed to modify target behavior. The modifier changes his/her way of distributing reinforcement or rewards and punishment and the worker responds behaviorally to this change. By learning to systematically study behavior and design plans to modify it in ways that are consistent with the organization's objectives, the supervisor can have at his/her disposal the tools needed to perform his/her task in an optimum way while integrating the varied demands placed upon him/her into this systematic way of approaching behavior changes on the job.

To summarize, this section reviews the following points:

1. controlled studies in the area of training in industry are very few,
2. training programs need to be evaluated and be consistent with organizational goals,
3. behavior modification is one training technique that deals specifically with ways of effecting behavior change in the setting in which it is used,
4. organizations are concerned with transfer of training to behavior change on the job,
5. reward systems are frequently used unsystematically in organizations,
6. there are few controlled studies regarding the effectiveness of behavior modification in organization settings,
7. supervisors need training as a means of assisting them in integrating the diverse demands placed upon them, and

8. this study will endeavor to examine whether behavior modification can be learned by supervisors and used effectively to decrease undesired behavior and increase organizationally defined objectives.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter will be divided into a number of topics. The first will outline the development of behavior modification and its current use in organizations. The next sections will review research in absenteeism and production, focusing especially on studies in which behavior modification was employed. Finally, some research will be reviewed that deals with the area of training and what has been done in organizational training.

Behavior Modification: Development and Uses

Behavior modification was influenced by a variety of early researchers. Perhaps the three primary contributors to the techniques we use today are E. L. Thorndike, E. R. Guthrie, and B. F. Skinner. Thorndike was credited with developing the law of effect in 1911. Based on observations of animal learning, it states simply that when a behavior is followed by satisfying consequences, it will be learned; and when it is followed by non-satisfying consequences such as punishment, it has a lower probability of occurrence. Hence, the consequences of behavior are immediate and do not need any mediating thought. An organism responds to the consequences of his/her behavior. Guthrie (1935) formulated his work on associative learning in which he believed association between a stimulus and response gave the stimulus the ability to elicit the response. Skinner (1953) formulated operant conditioning in which "operant" describes responses that operate on the environment to elicit consequences. He also used the term reinforcer which is any event that strengthens a behavior. When a behavior is

strengthened by a reinforcer, it is conditioned or has a higher probability of occurrence. Behavior modification, therefore, is a systematic approach that uses consequences of a behavior to change that behavior. Behavior that is adaptive is maintained and strengthened by reinforcement while negative maladaptive behaviors are extinguished or punished to decrease their response rate (Ullman & Krasner, 1966).

Bandura (1971) and Bandura and Walters (1963) have formulated a theoretical position about behavioral learning that varies from the stimulus-response operant position of Skinner. It emphasizes differences between animal learning and human learning. Humans have superior cognitive capacity including the ability to have insight and foresight and the ability to think symbolically. They postulate that humans are capable of vicarious learning or learning from models rather than direct experience. To do this, the individual learner must attend to the model, retain the information presented or convert it to a symbolic representation that can be called upon, as needed, into action. Reinforcement is the necessary factor under which the learner is motivated to recall the model behavior and perform it. Reinforcement is viewed as both a source of information about a behavior and as an incentive to perform or not perform a behavior. Bandura believes that experience does not control behavior but, rather, the awareness and expectations one has as a result of experience determine behavior. Hence, learning in this conceptualization is not simply stimulus-response-reinforcement but, rather, stimulus-response-reinforcement-and-other-variables. These other variables are such things as internal states and interpretations the human being encounters as s/he observes things, expects, and hypothesizes as s/he operates in the environment. The person is capable of choice and self regulation of behavior. This perspective, further, emphasizes the social nature involved in the process of learning. Though cognitive and symbolic

processes are largely representations of external events, they also mediate transactions between the individual and his/her environment, rather than purely internal events. The interactive nature of the learning process is expressed by Bandura when he states, "Behavior partly creates the environment and the resultant environment, in turn, influences the behavior. In this two-way causal process the environment is just as influenceable as the behavior it controls" (1971, p. 40). Hence, the position becomes one of interaction between the person and his/her unique internal states and the conditions that operate in the environment, and these each operate upon and influence each other. There has been little hard evidence of an empirical nature that delineates what is a theoretical position outside of some controlled laboratory experiments.

A major portion of work in behavior modification has been done in a clinical setting with individuals experiencing maladaptive behaviors and in experimental animal research. A representative example of this sort of research is the classic work done by Mower and Mower (1938) with enuretic children. They devised an electrical pad that rang a bell when it was wet. A nurse came to change the wet child when the bell rang. The authors reported 100% success with this technique with 30 children. Essentially, the bell and the coming of the nurse served as aversive stimuli which weakened the response rate of bed wetting.

Lang (1962) worked with a case of anorexia nervosa. He used a systematic desensitization program to reduce anxiety and a reciprocal inhibition procedure to decondition reinforcement to stimuli that elicited the target behavior.

This sort of research with individual problems was soon extended to modifying maladaptive behavior within organizational settings. These settings were frequently hospitals and schools. Ayllon and Azrin (1965) were among the first individuals to utilize behavior modification techniques in a psychiatric hospital. They used a token economy technique to increase desirable patient

behaviors such as good grooming, and performing task assignments (serving meals, doing laundry, cleaning floors). In a token economy desirable behaviors are first identified. Then some sort of symbol or token that can be given to an individual for performing a desirable behavior is found. This token can redeem various reinforcers that are meaningful to the individual. The token reinforces the desirable behavior because it can redeem important back up reinforcers. Procedures in this study were administered by ward personnel.

Token economies have also been used in classrooms by themselves and with other techniques. Besalel-Azrin, Azrin, and Armstrong (1977) used such procedures as token economy, self correction, positive practice, self selection of extensive reinforcers, contracting and frequent feedback to modify student behavior. In an article by Dow (1977), he looks at how effective behavior modification can be in a school setting with teachers. Crowder (1974) successfully taught children of elementary school age to change self identified behavior problems using a programmed text.

McGovern (1974) taught teachers how to use behavior modification techniques to assess and treat behavioral problems in a classroom environment. She found that once a teacher was trained, his/her consultation with another teacher was as effective as that of a behavioral psychologist. This finding suggests that transfer of training in behavior modification from one individual, who is naive, but, then, masters the material, to another naive individual is feasible. Also in this study, it was found that behavior modification was superior to traditional disciplinary measures in reducing problem behavior.

Bushell, Wrobel, and Michaelis (1968) were successfully able to modify group behavior with preschool children using contingency reinforcement. Their results suggest that reinforcement procedures for groups can be effective in managing behavior (in this case in a classroom). Rogers (1976) found that

positive reinforcement and other behavioral techniques are effective in shaping school behavior.

Skinner (1976) examined how behavior modification techniques could be used to increase the rate of mathematical accuracy of learning disabled children. This was compared to a variety of non-behavioral techniques. Results indicated behavior modification was more effective.

Koegel, Russo, and Rincover (1977) trained teachers in behavioral techniques using on the job training procedures, coupled with immediate reinforcement by trainers of correct effective responses. The techniques taught included successive approximation, positive and negative reinforcement, punishment, extinction, and assessing target behaviors. Along with on the job training, videotapes, a training manual, and modeling procedures were used. In essence the trainers reinforced desired responses.

Lindsley (1966) developed a method for training behavior managers in the use of reinforcement called the Precision Teaching Method. Four steps are identified: (a) defining behaviors to be changed, (b) systematically recording the frequency or rate of these behaviors, (c) using rewards or punishments systematically as consequences of defined behaviors, and (d) analyzing events in the environment which affect the response rate of the behavior. He taught parents how to follow these four steps, and in turn these parents demonstrated increased effectiveness as behavior managers.

Silber (1976) argues that behavior modification has a role in correctional organizations. He concludes these methods prove to be efficient, effective, and useful.

The above discussion points out how behavior modification has proved to be effective as an intervention method with groups of individuals and in organizational settings. Some of the studies suggest that a naive individual can

learn to utilize behavior modification effectively. The organizations' representatives, whether ward personnel, parents, teachers, or peers, can design and use programs aimed at further enhancing organizational goals either by increasing desired behavior or decreasing maladaptive behavior that detracts from institutional goals. Let us now turn to the use of behavior modification in industry and government and other organizational settings.

Few research studies have been done using behavior modification in organizations. By far the predominant part of the rather sparse amount of work done in an organizational setting using behavior modification is anecdotal and descriptive. Repucci et al. (1974) points out that the major difficulty in implementing a program in a natural setting is one of control. In a laboratory all contingencies can be controlled. In a natural setting this is virtually impossible. Hammer and Hammer (1976) discuss how a program using positive reinforcement and verbal feedback by managers can be effective in an industrial setting. They advocate training managers to follow guidelines in using behavior modification techniques. First, assess negative target behaviors to be modified in each worker. Second, set up value of reinforcement by giving it non-contingently for a short period. Third, praise and reward worker when doing desired behavior and withdraw praise when doing a negative behavior. If punishment must be given, they state, one should give it immediately, clearly, and in a way that does not alienate the worker ("I have to do this, but I'd like to help you overcome your difficulty"). Suggestions for types or reinforcers include type of job, number of breaks, and type of breaks. The authors predict that strict adherence to this type of program will lead to lower incidence of negative behaviors and an increase of desired behaviors.

Leslie and Lippit (1966) make a case for the need for behavior modification as a training method in industry. They review the history of behavior

modification concepts in simplified rather than technical terms. The authors state,

If anything is in print discussing in layman's terms individual or comparative learning theories, we have not found it. Learning theories are to be found in courses in educational psychology and require a strong background in psychology . . . to understand them (p. 5).

They suggest this is a reason why behavior modification is so rarely used in industry, and they advocate the development of materials that can be utilized by business.

Holsinger (1972) wrote an article that summarizes basic tools or principles of behavioral reinforcement. He states that if the immediate consequences of a behavior are rewarding, they will increase the response rate of this behavior--this is positive reinforcement. He discusses the need for schedules of reinforcement to switch from continuous to intermittent once a contingency reinforcer is established. Extinction he defines as a state of non-reinforcement that leads to extinction of a response. Negative reinforcement is defined as the cessation of a dissatisfying stimulus that increases the response rate of a behavior. Punishment involves introducing a negative consequence after a negative behavior to reduce the response rate of that behavior. The effects of punishment are shortlived and will not extinguish a behavior. It can also lead to secondary negative effects such as resentment and hostility. Successive approximation is using small steps or increments of learning to achieve desired behavior change. This article is written to introduce business people to behavioral principles. The author contends that most managers in industry attend to or reinforce what is undesirable and ignore what is desirable. Hence, a supervisor may verbally reprimand a worker who is late and ignore when s/he is on time. The author pleads for use of systematic behavioral principles in business.

Griffing (1965) discusses conditions under which reinforcement procedures are effective. He outlines four conditions: (a) the work environment must be conducive to productivity, (b) the manager must have control over reinforcers and punishers and subordinates must know this, (c) upper level management must demonstrate support for a reinforcement program, and (d) upper level management must reinforce the supervisor for using reinforcement principles in his/her work unit. After these four criteria are met, the supervisor must set a performance standard, make this known to the worker, and communicate directly or indirectly that contingent reinforcers are dependent on the worker's performance. The supervisor must then evaluate the worker's performance and reinforce desirable behavior with positive reinforcers. Workers must also be given periodic feedback regarding their performances.

Aldis (1961) provides another plea for the use of behavior modification in industry. He extrapolates laboratory findings to work settings using reinforcement and other principles of behavioral management. He points out that currently most industries do not utilize behavioral principles and, as a result,

Most of us fully realize that a large proportion of all workers hold jobs that are boring and repetitive and that these employees are motivated to work not by positive rewards but by various oblique forms of threat (p. 62).

He makes a case for reform to more consistent behavioral concepts.

Luthans and White (1971) suggest that reinforcement could be utilized effectively in industry. They suggest application to such areas as employee training and retraining and production. They see it as being useful with blue collar and white collar workers and with hardcore unemployed. They emphasize behavior and observation as primary areas of study, not the motivation behind problems.

Feeney (1972) received wide attention for his positive reinforcement program at Emery Air Freight Company. He did a survey and discovered freight handlers were using small containers as opposed to large ones which were cheaper to use. In his analysis, Feeney discovered a general lack of feedback at all levels of the corporation. Therefore, freight handlers had no idea that large containers were more economical and favored by management. They tended to see the filling of large containers as more difficult. Feeney developed a feedback system that reinforced large container usage and performance increased among freight handlers as they were reinforced for certain behaviors.

Bourden (1982) makes a plea for the use of behavior modification in a business setting. He believes that it can make a contribution in a variety of ways. It can help with recruitment of personnel by assisting in operationalizing behavior needed to perform specified jobs. It can aid in defining specific behavioral deficits and needs of workers or managers and be used to design a training program that will assist in learning incrementally. In terms of the overall organization, specific problems existing with regard to the climate of the environment can be defined. Performance problem solving of specific behavioral deficits or dysfunctions of workers can be modified. Bourden believes schools of management and labor and industrial relations should incorporate behavioral methods into their curricula. He is silent, however, with regard to cautions and ethical considerations in the use of behavioral methods.

Komaki (1982) defines a series of activities to which behavioral modification techniques can be applied to increase organization effectiveness from a managerial perspective. She suggests that desired performance can be clearly specified by supervisors to workers. Feedback on performance can be provided to workers and work units at least monthly and more frequently if necessary, and a direct relationship between performance and organizational

incentives should be established with attention given to desired as well as undesired behavior of workers. She advocates a behavioral analysis approach to management which includes analyzing the work environment, clarification of expectations of workers by managers, guidelines on how to measure performance, reinforcement procedures that result in improved motivation, and, finally, evaluation procedures that allow for some measure of effectiveness. She believes that managers in organizations can master such techniques and apply them successfully.

Collins et al. (1980) believe that the behavioral approach to analyzing behavior has a major advantage over other approaches in organizational settings. This advantage stems from its emphasis on performance response measures. They state that most work settings use measures of performance that do not, in fact, accurately measure performance. Quantity of output, for example, tells little about how effective a manager or work unit is operating. They believe that managerial performance is, too often, determined using such indices that could be due to alternative factors such as exceptional work unit output. Specific performance measures, defined frequently, they advocate, is an effective means of determining managerial behavior. They believe the role of behavior modification in management should be a central one.

Heinzman et al. (1980) report on a study examining the effects of training on a vehicle maintenance unit. Their results indicate that training in procedures by itself was not effective in learning and applying safety procedures. When training was accompanied by consequences in the form of feedback, performance improved significantly. They conclude that knowledge of consequences is critical to the improvement of performance. Further, they advocate a behavioral approach to management which includes monitoring and

defining desired performance and pairing this with consequences so that employees know what is expected of them and are motivated to perform based on rewards.

Foxworthy et al. (1981) develop the idea of behavior modification in organizational settings further. They report on a management team system for using organizational behavioral techniques. This system had three components. The first was classroom training in behavioral principles for managers. Second, performance improvement projects were implemented to gain direct experience in the application of behavior modification with workers. Third, a method was devised for integrating the behavioral technology imparted into the fabric of managerial activities. In this way the methodology could be learned, applied, and sustained in the organizational system. This system utilizes upper level management support for the program and mutual accountability through team interdependence. The authors believe the techniques can be learned and used by managers and that some institutional system for maintaining the use of behavioral technique is critical to continued usage.

Komaki (1977) develops the Foxworthy group's ideas further. She advocates the need for some method of ongoing evaluation of behavioral application by management. Such designs as within-subject designs, multiple baselines, and experimental and control groups are necessary for ongoing program evaluation. Without such evaluation procedures, it becomes difficult to make informed decisions regarding the effectiveness of a program and to allocate resources to specific projects.

Luthans and Martinko (1982) describe a model of organizational behavior management. They emphasize five steps in applying this model. First, performance related behaviors or target behaviors must be identified. Second, this target behavior must be counted and charted to establish a frequency or

baseline. Third, the behavior and environment must be broken down into functional components of antecedents, behavior, and consequences. Fourth, the development of an intervention strategy, that alters the consequences in the environment, to change the target behavior in the specified direction is required. Finally, the fifth step involves evaluation of the intervention to determine if they are the reason for the behavior change. They also advocate the use of reversal, multiple baselines, control group methodology, and other such procedures in evaluation. These authors believe it is possible for managers to learn and implement their five step program effectively in work settings.

Kreitner (1981) also promotes the use of organizational behavior management. He believes that a preponderance of management theory and technique is based on hypothetical needs presumed to be occurring within the worker or manager, such as motivations or deprivations. Organizational behavior management is based on observable environmental events and the performance of workers and provides a specific methodology for measuring and intervening in dysfunctional behavior. This viewpoint includes the belief that the environment, in interaction with the individual, dictates how workers behave. The author points out that there is no one sure reinforcer of behavior but, rather, what reinforces motivate behavior change are largely idiosyncratic to specific individuals. The basic idea involves reinforcing desired behavior by making conditionally granted consequences contingent upon the demonstration of desired behavior. Kreitner is aware of the power of such behavioral technology and reflects on its potential in organizations. However, he makes little reference to the possibility of abuse of such methods.

The potential for beneficial results using behavioral techniques is discussed in most of the foregoing articles. They attempt to demonstrate and promote the application of behavior modification in a variety of ways. The few articles

reviewed on behavioral management advocate this method as an important management technique that can enhance the organizational environment and increase organization effectiveness. No review of behavior modification can be considered complete without an examination of potential abuses of the methodology. Because this dissertation is concerned with the use of behavior modification in organizational settings, this discussion will focus largely on this setting.

There have been a variety of writings that describe the possible detrimental effects and ethical concerns in the use of behavior modification in natural settings, such as those found in large organizations. Locke (1979) criticizes behavior modification as a procedure on moral grounds. He fears that the possibility of precise behavioral control in organizations, for example, can lead to the dehumanization of employees. He believes that people could begin to be treated as if they were all behavior and not capable of the ability to think and feel. Philosophically, Locke believes there is the danger of reducing a person to the level of the rat that just responds to rewards and punishments.

Kreitner (1982) agrees with Locke. He discusses an ethical imperative in the use of behavior modification. This imperative involves responsible use of the techniques and points toward the potential for abuse. He believes that those who abuse the methods and exploit subjects, such as managers in organizational settings, should be removed from positions of authority. In organizations managers should be concerned with enhancing the quality of life in the work environment. Krietner cautions that the ends and means must be considered carefully before utilizing behavioral techniques.

Woods (1981) speculates on a variety of issues concerning a moral imperative in behavior modification usage. He reflects his ideas in the form of questions to be asked. He asks who should be empowered to determine if a

person's behavior is undesirable? Does society, in general, have the ability to define undesirable behavior in such an exact way that behavior modification can be used to change it? This is less complicated in extreme cases such as a clinical treatment instance of head banging. In organizations, however, it is less clear-cut. Woods wonders if the targeted individual has a right to know about all aspects of the intervention, including the right to refuse it. Clearly freedom of choice and informed consent are major issues in the use of behavior technology. He cites the idea of obfuscating freedom of choice of the subject, so that dysfunctional behavior that limits freedom can be eliminated, is a very sensitive argument that can be used to justify coercive intervention. He advocates stringent guidelines and review by objective individuals of all procedures and rationals in the use of behavior modification in naturalistic settings.

Scott and Hart (1979) operationalize some of the concerns that have been discussed. They reflect on the use of behavior modification to specifically control the behavior of workers in large organizations. In their view, managers control the operations of large organizations and can use behavioral methods to manipulate workers. They fear the ease with which management can exercise social control over employees. They caution that those being taught to use behavioral methods and those doing the teaching should reflect carefully on their motivations and the implications of their actions. Hawkins (1974) carries this discussion further. He believes that behavior modifiers need more than a simple sense of responsibility in their actions. In applying behavioral technology, they need a commitment to the values of the society at large and to protecting them. He feels that such a commitment is based on specialized knowledge about social values and ethical concerns. This knowledge is supported by such fields as philosophy, social work, and psychology. In order to use behavior modification ethically, some training in such fields of expertise and membership in

professional organizations that have specific codes of behavior in their charters seem critical to any application of behavior modification.

Van Houten (1979) describes two methods for selecting target behaviors in an ethically appropriate manner and for seeing that they are properly applied. The first method is called the social comparison method. This involves comparing the targeted behavior of workers or subjects with that of their peers who did not require intervention. The goal then becomes trying to bring the subjects' behavior into the range of peers. This is a matter of social validation. The second technique establishes a group of "judges" or individuals with special expertise who are able to serve as objective evaluators. They rate the subjects' behavior before and after intervention and compare it to standards they have set based on their objective and expert knowledge of the social system. In this way a measure of treatment effect is established. It further allows for some check to be put on the selection of target behavior so that the inherent bias of the behavior modifier can be controlled and appropriate goals and methods are set. These sorts of controls are strongly advocated and may permit non-professional behavior modifiers to operate under the scrutiny of objective professionals.

The above discussion clearly points to the need to protect subjects from potential abuse from behavior modification technology. It also discusses the need for control over the behavior modifier him/herself, the selection of target behaviors, selection of techniques to be used, and evaluation of this intervention. Strong emphasis is placed on ethical codes of conduct and the need for moral imperatives in the use of behavior modification. The potential for abuse and the precise methodology and ability to change behavior require caution in the application of the principles of behavior modification. Issues of the right to choose one's own behavior and the concept of personal freedom must be weighed against the societal proscriptions for appropriate or acceptable behavior. All of

this must be considered when applying a change technology within the normative structure of a specific organization. This view is important, and there are a number of authors who discuss some problems in effectively utilizing behavior modification and who relate to ethical concerns. The issue of contextual variables is also a critical one and needs to be considered.

Turner et al. (1978) raise the issue of control in behavioral applications. They point out that much of the work done using behavior modification exercises precise controls in a laboratory or simulated, experimental setting. The Skinner boxed pigeon is an example. The authors point out how this sort of precision may be difficult to achieve in natural environments that are complex such as work settings. Lynch (1975) comments on another area that must be considered in the application of behavior modification to people. He states that behaviorism must look at subjective phenomena such as ideas, feelings, and other internal states. These are present in any situation in which people are involved. Michaels (1981) brings in the notion of environment. In behavior modification the individual interacts with the environment which includes prior interactions or learned responses, the effect of the behavior on the environment, and existing environmental conditions. This author wonders if behavior modification concepts could one day be used to produce changes in social systems. Certainly the use of behavior modification in organizational settings raises consideration of the environment and the lack of controls over it. Further, in dealing with people, it leads to a possibility that subjective states operate.

One area that is emerging and that, though still in largely discussion stages, may one day impact on the use of behavior modification in organizational settings, is that of behavioral sociology. Michaels and Green (1978) describe a behavioral sociologist as one who attempts to apply the principles of behaviorism from a psychological perspective, to social questions. This individual uses

operant conditioning concepts and applies them to human social behavior such as individuals, groups, organizations, societies, or as units of study. Friedrichs (1974) believes that behavioral concepts are emerging into sociological applications such as groups and organizations. Molin (1981) discusses behavioral sociology. This area is considered to derive from psychological behaviorism which much of this review has focused upon. Micro-behavioral sociology differs from the psychological variety in that they both study the conditioned relationship between the reinforcers and the behaviors of persons studied; but, where the psychologically oriented behaviorist usually looks at how the subject's behavior is affected by independent contingencies, the sociologically-oriented behaviorist focuses on how two or more subjects' behaviors are affected by mutual social contingencies or relationships in which the subject's reinforcers are dependent on the behavior of one or more individuals in his/her environment. Molm and Wiggins (1979) expand on this idea by explaining dyadic social exchange in which social contingencies are operative. These differ from individual contingencies which describe the relationship between the individual and his/her own behavior. Social contingencies in a dyad involve a reciprocal situation in which either a person's reinforcers are dependent on another's behavior or where the person's reinforcers are contingent upon the behavior of him/herself and another person in a dyad. The researchers examined these notions in laboratory-created situations and not naturalistic environments. The results of this exploration suggest that individual contingencies are important in a behavioral experiment, but they also point to the complexity and variation of dyadic contingencies. The authors suggest further study of this area. Certainly this raises the issue of dyadic interaction in natural environments. What influence does the relational aspect that exists between the behavior modifier his/her subject have on the outcome of a behavioral intervention? Do pre-existing

internal and relational states affect the treatment? Certainly this area of investigation of behavioral sociology must be expanded in future research in order to apply the conceptualizations to behavioral interventions in organizational environments. This tract of thinking may well help in understanding the processes and implications of behavior modification in organizational setting.

The examples cited above demonstrate the largely unscientific and issue-oriented, descriptive nature of behavior modification in organizations' literature. Let us now turn to some examples of more controlled attempts at research in this area.

Ahr and Kopust (1977) conducted a study in which they identified target-maladaptive behaviors in a population of blind workers who performed an industrial task in a sheltered workshop setting. Once target behaviors were found, supervisors were taught how to use behavioral techniques to modify these behaviors. A multiple baseline design was used to determine changes in target behaviors of workers. This was considered a measure of supervisor effectiveness in using the new techniques. Results indicated a great deal of change in target behaviors after supervisors were trained.

Nord (1970) investigated two settings: a school district and a hardware company. He found that there was a strong need to reduce absenteeism. He developed some methods by which consistent attendance would be positively reinforced. He then took measures of attendance following the new procedures and compared them with earlier rates. Nord found absenteeism rates in both settings had decreased and had reduced costs and increased operating effectiveness. Nord used a lottery and a \$50 cash prize as reinforcers for attendance.

Preiser (1975) compared two training methods. The first was a classroom setting where students presented actual work-related problems and tried as a group to find solutions. The second was an on-the-job behavioral training with an on-site instructor who worked with only one trainee. The instructor looked at diagnosis of a problem behavior in the work unit and then looked at behavioral principles that could help them design a solution. The behavior modification method proved to be more expensive, but it also had an immediate impact and seemed to work better.

Goldberg, Katz, and Yekutieli (1973) used an A-B-A design to measure the effect on productivity of a token economy system set up with moderately retarded adults in an industrial sheltered workshop. Results indicated that the token economy increased production by 42% during the reinforcement period. Production dropped below baseline measures of productivity when reinforcement stopped.

Otterman (1974) taught a group of supervisors contingency techniques in a 10-week training program. He took subjective measures of supervisors' reactions to training as well as baseline measures of specific behavior difficulties in various work areas of an industrial plant. He had two groups, an experimental and a control, each consisting of nine supervisors. Each supervisor in the experimental group identified what s/he considered difficulties with employees in his/her work area. Measures were taken pre-training and post-training for both groups. Data were analyzed by looking at changes between post-measure and pre-training which gave a performance figure. Results indicated that favorable supervisor reaction to the behavioral training program was accompanied by employee behavior change. Increases in performance criteria for intervention groups were significantly higher than those for non-intervention groups. The author concludes there is a strong indication that contingency

methods can work effectively in industry. He also cites that further investigation needs to be conducted into the specific problem areas in which behavioral contingency management can be most effectively applied. This study is one of the best pieces of work done in industry using behavior modification. However, the samples used by the author are small. Although his results are encouraging regarding this technique in industrial environments, it is clear that a wider knowledge base is needed before wide-spread use can be accepted.

Allen (1974) used a behavior modification training program to investigate whether this technique was effective in managing specific work area problems encountered by supervisors. He also looked at how organizational expectations affected supervisors' use of behavior modification techniques. His results indicate supervisors being successful in mastering behavior training and effectively applying these techniques to problem areas regardless of what goals the organization was pursuing.

Perhaps the best study examined is by Pedalino and Gamboa (1974). They used an A-B-A design of A—baseline measure taken, B—intervention occurs, and A—intervention is withdrawn while measures are again taken. They also used a control group design where four controls were compared to an experimental group. The experiment took place in an industrial setting. The authors believed that by using an intermittent reinforcement schedule with financial reward as the reinforcer, absenteeism could be decreased. Their procedure involved using an innovative method of reinforcement. Supervisors in the experimental group gave each worker a chance to pick a card from a deck each day he showed up on time. At the end of a week each worker would have a five-card poker hand. The eight highest hands would win \$20. Results indicated that under this program, looking at A-B-A data, there was a decrease of 18.27% in absenteeism during treatment phase and a 30.08% increase in absenteeism when the experimental

phase was removed. Comparison groups showed no change in absenteeism rates except that one of the control groups had a higher rate. The authors conclude that behavior modification techniques can reduce absenteeism, and they encourage further study of this area.

The above study is the most comprehensive attempt to affect absenteeism directly using behavior modification reviewed by this author. Because this project uses absenteeism as a dependent measure, some exploration of research in this area, both related to behavioral contingency management techniques and to what has been studied under the term absenteeism is reviewed.

Absenteeism

A comprehensive paper by Muchinsky (1977) reviews the literature on absenteeism. Muchinsky states, "It is hypothesized that many of the conflicting and contradictory findings reported about absenteeism are in part attributable to the ill-defined concept of absenteeism" (p. 316). Frequently the concept of absenteeism and employee turnover have been studied as if they were the same topic. Assumptions have been made that they are due to the same causes. Muchinsky reviewed an article by Gaudet (1963) in which it was reported that 41 different measures of absenteeism had been used in the past. Muchinsky stated,

While many indices of absenteeism have been used in the past, they do not have comparable psychometric properties. While few studies have reported the reliability of absenteeism measures, those that were reported revealed widely different results. No studies to date have directly addressed the validity of absenteeism measures (p. 319).

He goes on to state, "More than any other consideration, the methodological 'hodgepodge' surrounding absenteeism indices plagues the evaluation and interpretation of absenteeism research" (p. 320). Among the various definitions of absenteeism include were frequency of times absent, time lost, lateness, medical absences, days absent, times absent, excused and unexcused absences.

Clearly absenteeism has been ill-defined and is not well researched methodologically.

Breaugh (1981) looked at absenteeism as a phenomenon. His review found that this concept is neither well understood nor accurately predicted. The author used a longitudinal design to determine if absenteeism could be predicted from previous rates of absenteeism. The results show that past absenteeism is a good predictor of future absenteeism. The author believes more research is needed in this area, particularly in developing accurate absence measure. Fitzgibbons et al. (1980) attempted to refine absence measures by separating excused and unexcused absences and those attributable to illness at two distinct points in time. Data were gathered by questionnaire from employees of a packaging and assembly plant. The findings were that there was a lack of stability in absence patterns. They attribute this result in part to economic conditions but also point out that other factors must be operative. The authors strongly recommend continued work on the development of a model of absence behavior that is stable and that can define the other factors included. This study points toward a major difficulty in this sort of research, that of defining absence behavior. It also shows a direction toward attempting to break down absence behavior into subsets.

Hamer et al. (1981) suggest that the most serious deficit in the measurement of absenteeism, that also limits theory development is the instability of the behavior and the non-normal sample distribution. They conclude that care must be exercised in using the variable of absenteeism, especially regarding criteria for measurement. Smulders (1980) carries this discussion further. He believes two issues are central. First, it is not legitimate to treat all absences as a homogeneous set of behaviors, as is common in absence research. Second, from a practical and theoretical viewpoint, absence behavior

measures are preferable to attendance measures. He suggests more refinement of absence variables is needed.

Another comprehensive review on absenteeism was done by Porter and Steers (1973). They looked at both employee turnover and absenteeism. In their review they state that earlier reviews of this literature by Brayfield and Crockett (1955), Herzberg et al. (1957), and Vroom (1964) were all dated and based on poor methodological studies. Muchinsky (1977) echoes this finding of earlier reviews of the literature in his review. Porter and Steers point out that the authors of the papers in their 10 year review tended to consider employee turnover and absenteeism together as one factor called withdrawal behavior. They state, "Much less can be concluded about . . . absenteeism (than turnover) due to a general lack of available information" (p. 169). Later in their review, they note that organizations tend to have

. . . a somewhat unconcerned attitude toward absenteeism. Perhaps this is due in part to an inability in many cases to distinguish accurately between avoidable and unavoidable absenteeism for the purposes of measurement. It may be, however, that the costs to the organization due to poor attendance may be far greater than costs due to turnover (p. 172).

The authors go on to point out how absenteeism has been considered an analogue to employee turnover. It has been assumed that the two share similar causes. However, of the 22 tested relationships reviewed in this article that had data available on both absenteeism and turnover for the same samples, only six found significant relationships between the factors under study and absenteeism and turnover. There is little empirical evidence to suggest that the two are due to the same causes. The authors suggest that major differences exist between the two withdrawal behaviors that need to be studied.

Porter and Steers (1973) also point out that a trend that has been identified in the literature is that "increased work unit size is strongly related to

absenteeism" (p. 169). Porter and Lawler (1965) review 12 studies on absenteeism and conclude similarly that the larger the work unit, the higher the rate of absenteeism. Certainly in a large industrial plant where work units are large evidence points to predicted higher absenteeism than in small work groups. This suggests that large organizations with big work units encounter absenteeism as a focal problem in their daily operations. These authors also point out methodological concerns in the studies of absenteeism they received, and they believe better defined variables are needed.

Porter and Steers go on to point out a trend in the literature findings. They state, "In addition, tentative evidence suggests that opportunities for participation in decision making and increased job autonomy are inversely related to such behavior (absenteeism)" (p. 169). Studies by Ross and Zander (1957) and Turner and Lawrence (1965) found this relationship to be operative (both summarized in the Porter and Steers article). Lawler and Hackman (1969) did an experiment in which they found that absenteeism was reduced when employees were allowed to participate in the establishment of an employee incentive program. They looked at absenteeism rates in a group of employees who were allowed to give their ideas about the incentive plan and a control group that had the plan imposed upon them. The experimental group had lower absence rates. Authors emphasized participation as the explanatory variable for the lower rate which is consistent with the research cited above. However, an alternative explanation is that contingent reinforcement of being seen by the organization as having a valued opinion and the reinforcement of the plan itself may have accounted for the decrease in absenteeism. Gamboa and Pedalino (1974), whose study was reviewed in an earlier section of this paper, feel that the Lawler and Hackman experiment is a good comparison paper to their own. Both studies decrease absenteeism but come up with alternative explanations for their

success. Gamboa and Pedalino believe that Hackman and Lawler's participation idea is, in fact, more precisely defined and operationalized using behavior modification principles. Clearly, the idea that participation may be a means of applying reinforcement is intriguing.

A review of relevant literature by Bhatia (1981) indicates that worker absenteeism is associated with personal factors such as family size, travel distance to work, and anxiety level. High absenteeism is associated with low job satisfaction, negative perception of working conditions, high task repetitiveness, and perception of job status, in most studies reviewed. The author concludes that studies that use employee participation in decision making and those that utilize behavior modification programs have proven successful in reducing absenteeism.

Orpen (1981) used behavior modification techniques to reduce absenteeism among factory workers. After random assignment of subjects to experimental and control groups, the experimental subjects received a small monetary bonus for each complete week of attendance on the job. An A-B-A-B design was used in which A was intervention of bonus and B was the removal of the bonus. Results show that the bonus had a positively reinforcing effect and decreased absenteeism in the experimental group, both as compared to their own baseline rates and to the control group. Shoemaker et al. (1980) also used a behavioral program to effect absence rates. They set up an attendance program for 15 workers identified as chronic attendance abusers in a state institution. The program had three components. First, employee-supervisor conferences were held for each subject in which feedback on attendance and target behavior was defined. Second, there were letters of commendation for each subject who achieved criterion attendance levels or a positive goal or reward. Finally, a lottery system by which workers could win a reward for appropriate attendance

was instituted. Results showed that 11 of the 15 subjects reduced their absenteeism during the program. There was great variation in the level of improvement. This study demonstrates a link between behavioral techniques and a decrease in absence behavior. Kopelman et al (1981) report a study conducted in a medical center over a six year period. They found that behavioral techniques are useful in reducing absence behavior. Further, they show better results for a mixed consequence intervention system using both reinforcement and punishment over one using just reinforcement. These studies are examples of a growing literature that points toward the feasibility of using behavior modification technology to alter the rate of absence behavior.

This reinforcement explanation for reduced absenteeism suggests some reasons why traditional methods of dealing with this behavior have failed and why other areas of employee incentives have failed. Yukl, Weiley, and Seymore (1972) discuss how industry rewards workers in a non-contingent manner. Most industrial systems claim to reward their workforce for performance, but, in fact, do not do so. Seniority and age are two good examples of non-contingent reward systems. Duerr (1974) also makes reference to how misdirected incentives can lead to poor performance. Hence, a worker who is receiving as much overtime pay as s/he wants may purposely be absent from work in order to be "punished" by a mandatory time-off period. This time-off period is designed to deter the worker from negative behavior; but, in fact, it encourages such behavior. Duerr emphasizes the need for carefully-designed reward systems in which the population to be rewarded and the reason and criteria for reward are analyzed. Morgan and Herman (1976) found that employees tended to view the consequences of absenteeism to be equally likely regardless of their past record of it. Authors advocate changing contingencies so that one finds effective means of controlling absenteeism. They suggest rewarding employees for not

being absent. They even believe a sound approach would be to reward attendance behavior with consequences that usually motivate absence, that is, time off work for good attendance. Cherrington, Deitz, and Scott (1971) found that the nature and magnitude of the relationship between performance and satisfaction depend on the performance-reward contingencies that have been arranged. One condition in this study called "random reward" in which workers were reinforced for low task performance intermittently is analogous to industry reward systems based on non-reward contingencies. Again, age and seniority are examples.

Virtually every study reviewed in three comprehensive literature reviews of absenteeism and in this author's subsequent search of other data point toward the methodological inadequacies of a vast host of the research. Many studies that dealt with the issue of control of absenteeism or some part of it used behavior modification principles directly or indirectly while looking at some other means of controlling absenteeism. Though the number of studies in this area of control of absenteeism is small, the studies do suggest behavioral principles are an effective mode of absenteeism regulation.

Productivity

Productivity is another dependent measure in this study. Little has been done regarding behavioral intervention in productivity. The bulk of the work using behavior modification is in problematic areas as reviewed earlier in this paper. Zenger suggests that behavioral scientists are needed to increase productivity in industry. Among the 10 areas of intervention he believes would be beneficial are increasing supervisory skills, modifying managerial behavior, and non-monetary reward systems. All of these are embodied in this project. King (1976) demonstrated that when expectations of increased productivity were

made known to two groups of managers, productivity increased while control groups to whom no expectations were made known remained about the same. Expectations, of course, are a form of reinforcement; and an explanation of these results using this framework is feasible. Succinctly put: as managers are told that their superiors expect them to achieve higher productivity, they are, in effect, positively reinforcing these workers in that, first, they are interested in their efforts and, second, they have faith that these workers can increase their productivity. Dowling (1975), in his description of a project called System 4, done at the General Motors Oakwood Plant, draws attention to the idea that the key variable in the success of the plan implemented was feedback which he believes is a form of positive reinforcement. He believes this project's success is similar to the success Feeney had at Emery Air Freight in which he used positive reinforcement. This work is reviewed in an earlier section of this paper. Locke, Sirota, and Wolfson (1976) did a study on job enrichment. They found that their intervention was successful in leading to behavioral changes but not attitudinal changes in employees. They believe the behavior changes in workers were due to enrichment factors such as more efficient use of the workforce, feedback, controlled competition, and the elimination of unnecessary workers. These factors, they believe, led to positive increases in production. The authors ignore a reinforcement explanation for the effects of their intervention. However, reinforcement principles are consistent with the factors they used to increase production. All of the factors they analyzed have reinforcing properties and were applied systematically in a manner that is very similar to a behavioral approach. Studies cited earlier in relation to other topics also relate to production in that many of the studies were successful in eradicating or modifying behaviors of employees that detracted from production efforts. Pedalino and Gamboa (1974), Allen (1974), and Otterman (1974) show how this is

possible. Luthans and White (1971) believe production can be affected by using behavioral methods. Nord (1970) points out how, by reducing absenteeism, he increased operating effectiveness. Golding, Katz, and Yekutieli (1973) found that production was increased using a token economy system with retarded adults in a production setting. Brown (1980) describes the development and use of the production achievement monitor in the sewn products industry. This monitor is an electronic feedback display unit that provides a visual read out to workers of their production level as compared to defined goals. The use of this system has led to increased levels of production. The system, of course, uses a form of feedback which is a behavioral intervention that is applied consistently and has reinforcing properties. Pritchard et al. (1981) looked at the effect of feedback and goal setting on the production levels of 133 employees in a clerical unit. Results showed that both feedback and goal setting by themselves were effective in increasing productivity. Goal setting and feedback combined were more effective than either alone. Poor performers were affected positively by the intervention while better performers were largely unaffected. The authors conclude that behavioral techniques of goal setting and feedback are useful in increasing the productivity of low performers. In short, there is evidence in the literature for the contention that behavior modification can effectively increase production. Little of this work is from direct study of this topic. Some is anecdotal, and some has to be extrapolated from work done in other areas.

Training

Training is a major independent variable in this study. In reviewing previous studies in which behavior modification was used in an earlier section of this paper, it became clear that only a few controlled studies exist in this area. However, let us turn to what has been done in regard to training programs in

industry in general. Dowling (1975) reviews the state of organization development training programs. He believes them to be mostly anecdotal with little in the way of controlled studies. Bowers (1976) reviews the past 15 years of work done under the heading of organization development. He believes that this area is an outgrowth of a concern for using human resources optimally in industry. This area relies heavily on paper and pencil and questionnaire data in which individuals involved in training programs evaluate what they believe they have learned in the program. Bowers feels few controlled studies have been produced that assess the results of training. He feels this is a one billion dollar industry within industry that has little evidence that justifies its existence. Bass and Vaughn (1968) believe training has frequently been episodically faddish. Frequently, they believe further training is a result of how a trainer feels about the success of his/her method in a particular project. Also, participants in a program are asked for feedback, and their assessments of the success of the program are the measure used to determine if the training session was effective. Campbell (1971) reiterates these statements, pointing toward the non-experimental nature of organization development in his review of 73 training studies. He believes that companies are, in fact, measuring reaction to training rather than training effectiveness. Catalanello and Kirkpatrick surveyed 154 companies in regard to how they evaluate and measure the results of their training programs. They found that 77% were making some effort to evaluate their programs by looking at participant reaction to training, 50% were measuring classroom training results, 54% were trying to evaluate behavior change on the job, and 45% were looking at end result changes produced by training. They note that little systematic, controlled analysis was used.

Allen (1974) summarizes the specific techniques employed in industrial training. The format of training has largely been in the form of several

techniques. In the case method, a case history illustrating a specific problem area is reviewed, and it is hoped that individuals being trained will learn something that applies to their jobs. In the critical incident method, a trainer presents information, the incident is then discussed, and the problem is evaluated. Again, it is hoped that learning from this conference around an incident will transfer to the work situation. In the conference method, an identified trainer presents material to an audience, and it is hoped the material will be absorbed and transferred onto the job. Sensitivity training is designed to use group exercises and activities to increase participants' sensitivity to certain problems. It is hoped this sensitivity will aid the manager in being more effective on his/her job by tuning into problems quickly. In role playing, key situations managers must face are play-acted and discussed. It is hoped that by rehearsal and experience in the conflict areas, a manager will be better able to cope with the situation on the job. In problem solving and decision making, managers are taught certain models that, if applied, should assist them in these activities as the need arises. Behavior modification, the principle method used in this study, has been discussed earlier. The emphasis in industry, according to Allen's work, is on techniques rather than measurement of effectiveness in regard to the companies' objectives. Otterman (1974) states, regarding the techniques of training:

Unfortunately, the extent to which these development programs achieve or realize their objectives is largely unknown because of the limited number of attempts to empirically evaluate programs and because of methodological problems or lack of sophistication of attempted evaluations (p. 12).

He goes on to say, "The design of training programs with little or no thought as to how they will be evaluated is perhaps the largest reason why training evaluation is so weak" (p. 12). This, then, is a brief statement as to the condition and background of training programs in organizations.

The following topics have been covered in this literature review:

1. historical development of behavior modification;
2. the use of behavior modification in industry and organizations has been reviewed;
3. the literature on absenteeism, with special reference to behavior modification studies;
4. the area of production in relation, specifically, to how contingency management might prove useful and effective; and
5. the area of training to determine the state of training and training techniques currently and traditionally in use in industry.

CHAPTER III

METHODOLOGY

Introduction

This study is designed to examine the feasibility and efficacy of behavior modification as a technique to change behavior in specified directions within an organizational setting. It does so by using a training program in which clerical supervisors learn defined methods of behavior modification and employ them to modify work behaviors within their work groups, for individual problematic employees, and the work unit as a whole.

The Setting

This study was conducted under the auspices of the State of Michigan, Department of Civil Service, Division of Personnel and Training. Training was conducted in two classrooms usually used for such purposes and provided by the Department. The Department of Civil Service is responsible for overseeing guidelines and procedures regarding hiring and firing of employees and their disciplinary actions, as well as training and employee rights within the state system. In doing so, it relates to virtually every department within Michigan state government. The specific department assisting in this research, the Division of Personnel and Training, screens and arranges for ongoing training of civil service employees throughout the state system, among its various responsibilities. It also attempts to identify the training needs of employees and to meet these needs by contracting for programs that address these identified

needs. Training can range from learning how to use a word processor to increasing managerial skills.

Sampling

All subjects participating in this project were selected randomly from a population of supervisors who had identified an interest in participating in some ongoing training. This population of volunteer supervisors was limited, for this study, to only those who supervised clerical units in the Departments of Management and Budget and Treasury and who held such positions for at least five years. In this way, the randomly selected supervisors were all involved with work units that performed similar functions. These functions consist primarily of typing and processing forms with some telephone contact.

From this group of voluntary supervisors from Management and Budget and Treasury, an experimental and control group consisting of 20 subjects each was selected. Subjects from this population were randomly assigned to experimental and control group conditions.

Characteristics of the Subjects

All supervisors in this study were female Caucasians who had been employed by the State of Michigan for at least five years as supervisors, had received no prior training in behavior modification, had work units ranging in size from 5 to 23 employees, and had expressed an interest in ongoing training. The technology employed in their work units was of a similar type. Age range was from 26 to 54 years old. The number of years as supervisor ranged from 5 to 16.

Method

Those subjects selected to be in the experimental group were divided randomly into two groups consisting of 10 subjects each. Both of these groups received the same training program, but each had a different trainer. The reason for setting up two distinct training groups with different trainers was to control for the possibility that a single trainer might be extremely effective due to personality traits, rather than the merits of the training material. In this case, treatment effects might appear to be due to the training program when they could, in fact, be due to the trainer. Hence, external validity was controlled by having two separate trainers.

The two trainers in this project were both experienced in the use of behavior modification. Both trainers have graduate level education in behavioral methods. They also were trained in using the training program they taught to the supervisors. One trainer was 24 years old; the other was 35 years old. Both were male.

Subjects in the experimental groups were trained in eight one-hour sessions, held one per week for eight successive weeks, in a site customarily used for such purposes within the organization. The training sessions progressively introduced a variety of concepts and techniques used in behavior modification. These techniques were applied by supervisors in structured exercises and in projects within their work units with employees.

The 20 subjects assigned to the control group received no training and had no further contact with the project. Measures of the rates of absenteeism and production were taken for the purpose of comparison with similar data obtained from the experimental group.

It was presumed that a third group which would receive unrelated training to control for the Hawthorne effect was not needed. This is due to the fact that

it is unlikely the Hawthorne effect would remain stable over the length of time that training occurred in this study. Furthermore, a reexamination of Hawthorne experimental data by Parsons (1974) makes a compelling case for the idea that the Hawthorne effect is, in fact, a result of uncontrolled response contingencies. Parsons describes how certain behaviors were reinforced in a variety of ways in Hawthorne workers. These were uncontrolled reinforcers, but did result in changes in the productivity of workers. The major focus of this project is to demonstrate the utility of applied behavioral techniques, to obtain desired results, within an organizational setting. Reinforcement of subjects by training processes is a legitimate method by which desired ends can be reached. It makes little sense to control for an effect that is desired and implicit within the training program. Supervisors serving as subjects in this project were intentionally reinforced for training in a variety of ways including attention, encouragement, prompting, feedback, etc. The need to factor out which reinforcers were most effective is a question for future research.

Dependent Measures

Production

Production is one dependent variable. This was taken on a weekly basis for six weeks prior to training, for the eight-week training period, and for six weeks after training was completed. Data were collected for both experimental and control group subjects. Production figures were defined as the amount of work produced by a worker as compared to a unit standard set by the organization. The production figures for all workers under a particular supervisor is the aggregate sum of production levels of all workers in that unit compared to the total unit standard for a one-week period. A supervisor's average weekly production figure, which is also the level of production for the entire work unit

compared to the unit standard, was then added into a total for a given period of measurement for six weeks before and after the training and eight weeks during training; and an average for that period was taken. The production average for all supervisors in experimental and control groups respectively was summed across all subjects in that group and an average was taken. Analysis was then performed.

Absenteeism

Another dependent variable was absenteeism. This was initially conceived of having four components: sick leave, late time, unexcused absence, and excused absence. However, informal arrangements within the organization permitted workers who were late to use a flex time system and simply stay later or make up time using breaks. Unexcused absences were incorporated into annual leave or excused absence categories. This process obviated the late time and unexcused absence categories. Absenteeism was, therefore, forced to consist of measures of sick leave and excused absence. Sick leave was defined as any time away from work due to illness or injury. Excused absence was defined as any time away from work which was not due to illness. This included unexcused absences and late time which were charged to this category. Frequency counts were taken for these measures for six weeks prior to training, during the eight-week training period, and for six weeks following training.

Reaction and Problem Data

This dependent variable consists of data collected before and after training that pertains to the training program directly. These data fall into two categories, reaction and problem. Reaction data are information collected on a Likert scale that measures reactions and attitudes to training before and after

going through the program. Problem data measure how well the subjects actually learned the training material. The pretest and posttest consist of hypothetical problems a supervisor could encounter in his/her work unit. The subject is asked to describe how s/he would deal with the problem. The pretest mode provides information on the supervisor's approaches to the problems. The posttest obtains similar data after training has taken place. Problem data were scored by independent raters looking for use of information and techniques and demonstration of knowledge of the concepts taught in training. These two independent raters had both academic and direct field application knowledge of behavior modification techniques. One rater holds a doctor of education degree in behavioral psychology. The other has a master's degree in social work with a strong background in behavior modification. A correlation between rater scores was taken and is reported in the results section.

Project

Each supervisor in the experimental groups was asked to do at least one complete project utilizing the training concepts. Projects consisted of selecting a target behavior from among workers in their work units, taking baseline measures or a measure of the rate of target behavior before intervention on this behavior, designing an intervention plan, implementing the intervention plan, and recording and reporting on these interventions. Projects served as demonstrations in the field of the application of training material by supervisors. All projects were of an A-B design or baseline-intervention type. Hypotheses were essentially directed at either increasing a behavior deemed as positive or decreasing a behavior seen by the supervisor as negative to the functioning of the work unit. The start of projects was variable, but none began before training session five. The length of a project varied among supervisors, but most were

considered to be ongoing, although data were presented for no more than eight weeks. The A-B design was believed to be appropriate because the level of sophistication of supervisors in behavioral techniques and the fact that lack of control in the naturalistic work environment did not provide adequate control mechanisms for more sophisticated reversal designs.

Data Analysis

The dependent variables of productivity, sick leave, and excused absenteeism were analyzed using a one-way analysis of variance to determine differences between control and experimental groups on pretest scores. A one-way analysis of variance was used on change scores or posttest scores minus pretest scores to obtain statistically significant differences between the groups. Contrast scores were obtained between the two experimental groups and the control group. Each of these variables was analyzed independently of the others.

A 2x2 analysis of variance looking at experimental and control groups by pre- and posttests was done to look for significant interactions between these factors.

Reaction and problem data were each analyzed using a two-way analysis of variance consisting of group by test factors.

Projects were all single subject designs. Hence, data concerning baseline and intervention phases were presented in graphic representation in which data were plotted on points on a graph and appear in the appendix. A t-test comparing baseline with intervention phase means was done. This was run after autocorrelations were calculated to determine the independence of observation points in the project data. A chi square analysis was completed between projects done by supervisors who had been in each of the two training groups. That is,

successful projects from training group one were compared with those from training group two.

Independent Variables

Training is the set of independent variables. Training is as follows: it consisted of eight 60-minute sessions in which the experimental group was taught a wide range of topics relating to behavior modification.

Each session allowed time for question and answers as well as ample group discussion of use of procedures outlined. Subjects were encouraged to bring in examples of behaviors they encountered and any difficulty they had with the material. Sessions were once a week. The week interval enabled supervisors to synthesize and utilize material on the job. Assignments for each session were given to subjects. Specific topics covered were as follows:

target behavior: defined as the behavior one wishes to modify either by increasing or decreasing its occurrence or by extinguishing it entirely

recording procedures: method by which one quantifies and studies the frequency of a target behavior

antecedent behavior: any behavior or event that occurs just prior to a target behavior and may affect its frequency

consequent behavior: any behavior or event that occurs after a target behavior and may affect its frequency of occurrence

positive reinforcement: any event or object whose occurrence increases the response rate of a target behavior

negative reinforcement: any event or behavior whose absence increases the response rate

punishment: introducing a negative consequence following a target behavior for which one wishes to depress or reduce the frequency of occurrence; it is effective for only a short duration

extinction: a condition of non-reinforcement that will eventually depress the response rate of a behavior until it is no longer elicited

shaping: a method by which small defined steps or successive approximations of one's goals are made that eventually lead to the desired behavior

Although training is, in fact, a composite of a number of variables, it is treated as if it were a single variable. This is due to the fact that this project is applying a set of principles from behavior modification literature to an individual setting. This is one of the first times such an intervention has been attempted. Rather than being interested in what specific facets of the training proved effective, the interest here is primarily in demonstrating the utility and feasibility of applying behavior modification in organizations.

Hypotheses

The following hypotheses are to be tested:

1. absenteeism rates of workers will be lower under supervisors who receive training in behavior modification than under those who do not,
 - 1A. there will be lower frequencies of sick leave rates for those workers under supervisors who received behavior modification training,
 - 1B. there will be lower frequencies of unexcused absence among workers whose supervisors receive behavior modification training;
2. there will be higher levels of productivity in work units where the supervisors receive behavior modification training than in units of supervisors who did not;
3. supervisors will have more positive attitudes toward training at the end of the training than before it; and
4. supervisors will have higher levels of knowledge in the use of behavior modification following training than before it.

CHAPTER IV

RESULTS

This chapter will be divided into three sections. Section one looks at data concerning dependent variables of absence behaviors and productivity. The next section examines the effects and reactions to training of the experimental groups of supervisors. This is labeled "problem and reaction data." Training is the set of independent variables. The final section scrutinizes individual projects done by experimental subjects to demonstrate the application of training principles in a natural setting of the work unit.

Analysis of the Five Dependent Variables

This study originally conceptualized five categories of dependent variables. These were sick leave, late time, excused absenteeism, unexcused absenteeism, and productivity. Due to the nature of the informal rules operating within the various work units identified in this experiment, it became necessary to delete the dependent variables of late time and unexcused absences. This is because all supervisors in this study treated unexcused absenteeism as if it were sick time or annual leave. Late time was considered annual leave or workers were permitted flexible starting and ending times for their work days. Starting and ending times were formally fixed, but the informal normative structure allowed wide ranging flexibility. If a worker arrived for work 15 minutes late, s/he was permitted to make the work up during the course of the day. There was, therefore, no formal record on late time and unexcused absenteeism maintained. Data could not be collected on these variables, and they were dropped from the study.

The remaining dependent variables of sick leave, excused absenteeism, and productivity stayed intact. Sick leave was defined as any time away from work due to illness or injury. Excused absenteeism was defined as any time away from work authorized by an organizational representative that is not due to illness or injury. Productivity was considered to be the output of a worker as compared to a unit standard summed across all workers in a supervisor's unit and averaged to give a unit figure. For both sick leave and excused absenteeism, a frequency count was kept of absences for a given work unit.

Hypotheses tested that relate to these data are as follows:

- 1A there will be a lower frequency of excused absenteeism among workers whose supervisors receive training in behavior modification than in those units of supervisors who do not receive training in behavior modification,
- 1B there will be a lower frequency of sick leave used by workers in units whose supervisors receive behavior modification training than in those units of supervisors who do not receive training in behavior modification, and
- 2 there will be higher production figures in work units whose supervisors receive behavior modification training than in those work units whose supervisors do not receive training in behavior modification.

Table 1 presents a distribution of actual mean scores for each subject for pretest scores. It should be remembered that this score represents an average score for that subject's work unit across the variable being examined.

A one-way analysis of variance on pretest scores for all groups was performed across the three dependent variables. The results of the one-way analysis of variance on the dependent variable of excused absenteeism appears in Table 2 for pretest scores.

Table 1
Distribution of Mean Scores for Each Supervisor's
Work Unit for All Dependent Variables

Distribution of Frequency Count of Excused Absences Averaged Across Work
Units for Pretest Scores

<u>Frequency in Pretest Period</u>	<u>Experimental Group 1 (N=9)</u>	<u>Experimental Group 2 (N=7)</u>	<u>Control Group 3 (N=19)</u>
0-2	0	1	2
3-4	0	1	2
5-6	6	4	4
7-8	1	1	4
9-10	1	0	4
11-12	0	0	2
13-14	0	0	0
15-16	1	0	1
	Mean=5.3647	Mean=5.0971	Mean=6.6421

Distribution of Frequency Count for Sick Leave Averaged Across Work
Units for Pretest Scores

0-2	5	1	-6
3-4	3	1	7
5-6	1	4	5
6-7	0	0	0
7-9	0	0	0
10-11	0	1	1
12-13	0	0	0
14-15	0	0	0
	Mean=2.4467	Mean=5.0971	Mean=3.1684

Distribution Percentage of Productivity Averaged by Each Work Unit for
for Pretest Scores

0-20	0	0	0
21-40	0	0	1
41-60	1	0	0
61-80	2	4	6
81-100	6	3	12
	Mean=.8586	Mean=.8027	Mean=.8512

Table 2
One-Way ANOVA on Pretest Scores for Experimental and Control Groups on
Excused Absenteeism

<u>Group</u>	<u>N</u>	<u>Mean</u>	<u>Std.Dev.</u>	<u>Std.Err.</u>	<u>Level/Sig.</u>
1 (ex)	9	5.3647	2.3460	.7820	
2 (ex)	7	4.8143	1.8881	.7136	.3850
3 (con)	19	6.6421	3.9633	.9093	

<u>Source</u>	<u>DF</u>	<u>Sum of Squares</u>	<u>Mean Squares</u>	<u>F-Ratio</u>
Between Groups	2	21.4047	10.7024	.948
Within Groups	32	348.1645	10.8801	

The results indicate that there are no significant differences between the groups on pretest scores for this variable. A pairwise contrast performed between the groups yielded no significant results. A summary of these contrasts appears in Table 3.

Table 3
Contrast Scores Between Groups for Excused Absenteeism

<u>Pairwise Comparisons</u>	<u>Level of Significance</u>
Group 1 and Group 2	.623
Group 1 and Group 3	.291
Group 2 and Group 3	.128

The results of the one-way analysis of variance on the dependent variable of sick leave for pretest scores appears in Table 4.

Table 4
One-Way ANOVA on Pretest Scores for Experimental and Control Groups on Sick Leave

<u>Group</u>	<u>N</u>	<u>Mean</u>	<u>Std.Dev.</u>	<u>Std.Err.</u>	<u>Level/Sig.</u>
1 (ex)	9	2.4467	1.2987	.4329	
2 (ex)	7	5.0971	2.9538	1.1164	.0856
3 (con)	19	3.1684	2.4811	.5692	

<u>Source</u>	<u>DF</u>	<u>Sum of Squares</u>	<u>Mean Squares</u>	<u>F-Ratio</u>
Between Groups	2	29.3260	14.6630	2.656
Within Groups	32	176.6422	5.5201	

The results indicate no significant difference between the groups on this variable. The results of a pairwise contrast between the groups yield no significant results. These results appear in Table 5.

Table 5
Contrast Scores Between Groups for Sick Leave

<u>Pairwise Comparisons</u>	<u>Level of Significance</u>
Group 1 and Group 2	.058
Group 1 and Group 3	.322
Group 2 and Group 3	.158

The results of the one-way analysis of variance on the dependent variable of productivity for pretest scores appears in Table 6.

Table 6
One-Way ANOVA on Pretest Scores for Experimental and Control Groups on Productivity

<u>Group</u>	<u>N</u>	<u>Mean</u>	<u>Std.Dev.</u>	<u>Std.Err.</u>	<u>Level/Sig.</u>
1 (ex)	9	.8586	.1571	.0524	
2 (ex)	7	.8027	.0721	.0273	.6560
3 (con)	19	.8512	.1346	.0309	

<u>Source</u>	<u>DF</u>	<u>Sum of Squares</u>	<u>Mean Squares</u>	<u>F-Ratio</u>
Between Groups	2	.0148	.0094	.427
Within Groups	32	.5549	.0173	

The results indicate no significant differences between the groups for this variable. A pairwise contrast yielded no significant differences between the groups. The results of this test appear in Table 7.

Table 7
Contrast Scores Between Groups for Productivity

<u>Pairwise Comparisons</u>	<u>Level of Significance</u>
Group 1 and Group 2	.363
Group 1 and Group 3	.906
Group 2 and Group 3	.253

It can be concluded by the above analysis of pretest scores that there are no significant differences between the control group and experimental groups across the three dependent variables.

Table 8 shows a distribution of means for all supervisors' work units across the three dependent variables for change scores. Each number shows the position of the given supervisor's unit after the mean score on the pretest period is subtracted from the posttest period.

Table 8
Distribution of Mean Scores for All Three Groups
Across the Three Dependent Variables for Change Scores

EXCUSED ABSENTEEISM			
<u>Frequency Scale</u>	<u>Group 1 (N=9)</u>	<u>Group 2 (N=7)</u>	<u>Group 3 (N=19)</u>
Below -10	1	0	0
-8 to -6.1	0	0	1
-6 to -4.1	0	1	0
-4 to -2.1	0	0	2
-2 to 0	1	0	2
0 to 2	3	0	3
3 to 4	3	0	2
5 to 6	1	4	3
7 to 8	0	2	0
9 to 10	0	1	1
Above 10	0	0	2
	Mean = 2.6222	Mean = 4.6857	Mean = 10.8526
SICK LEAVE			
<u>Frequency Scale</u>	<u>Group 1 (N=9)</u>	<u>Group 2 (N=7)</u>	<u>Group 3 (N=19)</u>
-10 to -8.1	0	0	0
-8 to -6.1	0	1	2
-6 to -4.1	0	0	0
-4 to -2.1	0	3	0
-2 to 0	3	0	8
0 to 2	4	2	6
3 to 4	2	0	2
5 to 6	0	1	1
7 to 8	0	0	0
9 to 10	0	0	0
	Mean = .6578	Mean = 1.7400	Mean = .1105

PRODUCTIVITY

<u>% of Production</u>	<u>Group 1 (N=9)</u>	<u>Group 2 (N=7)</u>	<u>Group 3 (N=19)</u>
-.1 to -.081	0	0	0
-.08 to -.061	0	0	1
-.06 to -.041	0	0	5
-.04 to -.021	0	1	1
-.02 to 0	0	1	2
0 to .02	4	1	6
.021 to .04	2	1	2
.041 to .06	0	1	2
.061 to .08	3	1	0
.081 to .10	0	1	0
Mean = .0234	Mean = .0346	Mean = -.0101	

A one-way analysis of variance on change scores or post- minus pretest scores for the experimental groups and the control group was performed for each of the three dependent variables. A pairwise contrast-test was also done. ETA is .21. The results of the one-way analysis of variance on change scores for excused absenteeism frequency for pre- and posttest periods appears in Table 9.

Table 9
Results of ANOVA on Change Scores for Experimental and Control Groups on
Excused Absenteeism Frequency

<u>Group</u>	<u>N</u>	<u>Mean</u>	<u>Stnd.Dev.</u>	<u>Level/Sig.</u>
1 (ex)	9	2.6222	2.5311	
2 (ex)	7	4.6857	4.3633	.4852
3 (con)	19	10.8526	23.9022	

<u>Source</u>	<u>DF</u>	<u>Sum of Squares</u>	<u>Mean Squares</u>	<u>F-Ratio</u>
Between Groups	2	483.1382	241.5691	.740
Within Groups	32	10449.1259	326.5352	

The results show that there are no significant differences on change scores between the groups on these variables. There may be an underlying trend that shows the means increasing at a slower rate for experimental groups than the control group. The results of pairwise contrasts appear in Table 10.

Table 10
Results of Contrast Scores
on Experimental and Control Groups for Excused Absenteeism

<u>Pairwise Comparisons</u>	<u>Level of Significance</u>
Group 1 and Group 2	.294
Group 1 and Group 3	.154
Group 2 and Group 3	.294

There are no significant differences due to the groups. A 2x2 analysis of variance looking at experimental and control groups by pre- and posttests yielded no significant interactions between the variables.

It can be concluded that the data provide no support for hypothesis 1A. The means show an increase in excused absenteeism frequency over pretest scores which is not statistically significant but may point toward a trend in the data.

The results of an analysis of variance on change scores on the dependent variable of sick leave frequency for pre- and posttest periods appear in Table 11.

Table 11
Results of ANOVA on Change Scores for Experimental and Control Groups
on Sick Leave Frequency

<u>Group</u>	<u>N</u>	<u>Mean</u>	<u>Std.Dev.</u>	<u>Level/Sig.</u>
1 (ex)	9	.6578	1.3580	
2 (ex)	7	1.7400	3.6861	.1303
3 (con)	19	.1105	2.1916	

<u>Source</u>	<u>DF</u>	<u>Sum of Squares</u>	<u>Mean Squares</u>	<u>F-Ratio</u>
Between Groups	2	24.8249	12.4125	2.174
Within Groups	32	182.7335	5.7104	

The results indicate that there are no significant differences between the groups on this variable. ETA is .35. Pairwise contrast was done, and the findings are shown in Table 12.

Table 12
Results of Contrast Scores Between
Experimental and Control Groups for Sick Leave

<u>Pairwise Comparisons</u>	<u>Level of Significance</u>
Group 1 and Group 2	.146
Group 1 and Group 3	.427
Group 2 and Group 3	.247

The results of the pairwise comparisons show no significant differences between the groups. A 2x2 analysis of variance looking at experimental and

control groups by pre- and posttests yielded no significant interactions between the variables.

It can be concluded that the data show no support for hypothesis 1B. The means show an increase in the frequency of sick leave as compared to pretest scores, which is against the directions of the hypothesis.

The results of a one-way analysis of variance on change scores for the dependent variable of productivity showing the difference between average production percentage figures for all groups across the pre- and posttest periods appear in Table 13.

Table 13
Results of ANOVA on Change Scores for Productivity Variable for Pre- and Post-Periods Showing Average Production Changes for Each Group

<u>Group</u>	<u>N</u>	<u>Mean</u>	<u>Std.Dev.</u>	<u>Level/Sig.</u>
1 (ex)	9	.0234	.0245	
2 (ex)	7	.0346	.0517	.0169
3 (con)	19	-.0101	.0372	

<u>Source</u>	<u>DF</u>	<u>Sum of Squares</u>	<u>Mean Squares</u>	<u>F-Ratio</u>
Between Groups	2	.0133	.0066	4.646
Within Groups	32	.0457	.0014	

The results show a significant difference between the groups on this variable. This difference is in the desired direction, indicating that average production figures for each group changed so that figures for the experimental groups each increased, while figures for the control group went down. The results of the contrasts appear in Table 14.

Table 14
Contrast Scores Between Experimental and Control Groups for Productivity

<u>Pairwise Comparisons</u>	<u>Level of Significance</u>
Group 1 and Group 2	.614
Group 1 and Group 3	.009
Group 2 and Group 3	.070

Results of the pairwise comparisons indicate no significant difference between experimental groups, significant differences between Group 1 and Group 3, and a near significant difference between Group 2 and Group 3. It can be concluded that these data provide tentative support for hypothesis 2.

A 2x2 analysis of variance looking at experimental and control groups by pre- and posttests yielded no significant interactions between the variables.

The results of statistical testing on the dependent variables of excused absenteeism, sick leave, and productivity demonstrate that on pretest measures, there were no statistical differences between the experimental and control groups on pretest scores. The three groups can be considered to be alike across the three variables. On an ANOVA for change scores, there proved to be no statistically significant differences on the dependent variables of excused absenteeism and sick leave. It must be noted that the mean scores for excused absenteeism displayed a trend in which the increase on this variable occurred at

a slower rate for experimental groups than for the control group. It can be concluded that neither of these dependent variables was affected by the experimental intervention. The relevant hypotheses were not supported.

The dependent variable of productivity was found to be statistically significant on change scores between the groups. The magnitude of these changes appears to be small. These differences are small enough that it seems wise to be cautious about these results. The possibility exists that these differences are due, in part, to measurement error or less than reliable reporting of data by supervisors' regarding production figures upon which these analyses are based. However, even small differences in production can be very important to an organization. Hypothesis three is supported statistically.

Problem and Reaction Data

The two training groups were each given a pretest and posttest in which four problems of a nature that they might encounter in their work units were presented. These subjects in the training groups were asked to delineate in written form how they would handle these problematic situations. These were scored on the basis of utilization of behavior modification techniques and concepts by independent raters with a background in behavior modification. One rater held an Ed.D. degree in behavioral psychology, and the other has a Master's degree in social work with a strong behavioral grounding. The data are called problem data. A Spearman-Brown reliability test was performed on pre- and posttest data. The results show that the problem pretest had a reliability of .49254 while the posttest showed a reliability of .82205. The pretest reliability is somewhat low. The posttest reliability is acceptable.

Subjects were also given five Likert items concerning reactions to training both before and after training. The pretest determined feelings and attitudes

about the impending training program while the posttest elicited information pertaining to reactions about the training sequence. These data are referred to as reaction data. A Spearman-Brown reliability test was performed on pre- and posttests. The results indicate a reliability of .60393 on the pretest and .74406 on the posttest. These are both within acceptable limits.

A Pearson correlation coefficient was run on the scores assigned by the independent raters on both pre- and posttest data for problem categories. The results appear in Table 15.

Table 15
Results of Pearson Correlation Coefficient Between Raters
on Both Pre- and Posttest Scores for Problem Data

<u>Test</u>	<u>Rater 1 and 2 Correlation</u>	<u>Level of Significance</u>
Pretest	.9207	.001
Posttest	.9783	.001

The results show a very high correlation between raters' scores for both pre- and posttests. The correlation is statistically significant at the .001 level.

Hypotheses that relate to problem and reaction data are (3) "Supervisors will have more positive attitudes toward training at the end of training than before it" for reaction data. For problem data, the hypothesis is (4) "Supervisors will have higher levels of knowledge in the use of behavior modification following training than before it."

These data were analyzed using analysis of variance. This was a 2x2 design looking at both training groups on pre- and posttests for reaction data. Table 16 shows the design and includes the cell means for this statistical procedure for reaction data and direction of change.

Table 16
ANOVA Design for Reaction Data Including Cell Means and Direction of Change

<u>Group/Test</u>	<u>Pretest</u>	<u>Posttest</u>	<u>Post-Pre</u>
Training Group 1	23.1000	19.7778	-3.3222
Training Group 2	22.4444	21.5556	-0.8888

The means indicate a negative trend between both training Groups 1 and 2 on pre- to posttest changes.

The results of the analysis of variance performed on reaction data using a group by test design appear in Table 17.

Table 17
Summary of ANOVA on Reaction Data, Groups 1 and 2, by Pre- and Posttest

<u>Source</u>	<u>Sum/Squares</u>	<u>DF</u>	<u>Mean Squares</u>	<u>ETA</u>	<u>Level/Sig.</u>
Group	2.594	1	2.594	.01	.476
Test	42.173	1	42.173	.43	.006
1-way interact.	13.664	1	13.644		.106

These results indicate a significant outcome by test, but not by group. Interactions are also not significant. The test variables were able to determine significant differences between the pre- and posttest scores for the training groups. However, in examining the cell means from Table 16, it is evident that the change is in a negative direction. This is against the predicted direction of hypothesis 3. Hence, there is no support for hypothesis 3.

Table 18 shows the ANOVA design used to analyze problem data and the cell means and differences, post-pre, between these means.

Table 18
ANOVA Design for Problem Data Including Cell Means and Direction of Change

<u>Group/Test</u>	<u>Pretest</u>	<u>Posttest</u>	<u>Post-Pre</u>
Training Group 1	5.1500	12.5000	+7.3500
Training Group 2	4.8889	14.7222	+9.8333

The results of an analysis of variance performed on problem data using a group by test design appear in Table 19.

Table 19
Summary of ANOVA on Problem Data, Groups 1 and 2, by Pre- and Posttest

<u>Source</u>	<u>Sum/Squares</u>	<u>DF</u>	<u>Mean Squares</u>	<u>ETA</u>	<u>Level/Sig.</u>
Group	8.314	1	8.314	.11	.416
Test	676.790	1	676.790	.78	.001
2-way interact.	14.231	1	14.231		.289

The results indicate a statistically significant finding by test but not by the group variable. Interactions are not significant. The test variable was able to determine significant differences between the pre- and posttest scores for the two training groups. The cell means in Table 18 shows that the changes occur in a positive direction. This is consistent with the relevant hypothesis 5 and provides support for hypothesis 5.

Project Data

These data consisted of single subject design projects carried out by subject supervisors during and after training. Each supervisor identified either a problematic behavior that was displayed by a worker in his/her work unit or a

behavior that was not a problem but needed to be increased. S/He then designed and implemented an intervention project and recorded and reported data concerning the project. Each supervisor did at least one project and a few did more than one. Projects were begun only after five weeks of training had been given. Hence the basic behavioral concepts that would enable a supervisor to design and implement a project had been imparted before any design was initiated. These projects were a means for determining whether information presented during training could be translated into interventions within actual work units.

Each single subject design project was checked to determine if the events reported over time were independent of each other. The possibility of autocorrelation or non-independence is very real in N of 1 studies, such as these, in which change is measured over time. If such non-independence exists, then statistical procedures, such as ANOVA or t-tests, cannot be used because the assumption of independent observations is violated. If, however, no autocorrelation is found, then the events are considered independent, and it is possible to apply statistical procedures (Jayartne, 1978).

Table 20 shows autocorrelations for each project.

Table 20
Autocorrelation for Each Project

<u>Proj.No.</u>	<u>r</u>	<u>Autocor.</u>	<u>Proj.No.</u>	<u>r</u>	<u>Autocor.</u>
1	.085	NO	11	NONE	NONE
2	.241	NO	12	.500	NO
3	.05	NO	13	.500	NO
4	.385	NO	14	.213	NO
5	.085	NO	15	.014	NO
6	.5852	NO	16	NONE	NONE
7	0	NO	17	.0491	NO
8	.211	NO	18	0	NO
9	.678	NO	19	.146	NO
10	.133	NO	20	.098	NO

The results indicate that there is no condition of autocorrelation in any of the projects. This means that the data show independent observations and, therefore, statistical procedures can be applied in analyzing the project data. It should be noted that there is no project 11. Also, no baseline data were provided for project 16, and no autocorrelation could be calculated. In projects 7 and 18, the r value is 0. This is because these projects involved initiating behaviors that did not exist previously, hence there was no baseline other than 0.

The major statistical procedure used to examine the data is a t -test. In using a t -test procedure, the mean of the baseline was compared to the mean of the intervention data. Confidence intervals are reported along with t -test results. It should be pointed out that in the majority of the projects, the baselines consist of limited numbers of observations as compared to the intervention phase data. This makes the power of the t -test suspect, and it must be considered within the context of each project. Summaries of each project appear in the appendix.

Table 21 shows the characteristics of subjects involved in projects. That is to say that every supervisor did one or more projects with workers in their work units. The relevant features of these subjects are reported.

Table 21
 Characteristics of Subject Workers Participating in Supervisors' Projects

<u>Proj. Subj.</u>	<u>Age</u>	<u>Race</u>	<u>Sex</u>	<u>Yrs. Empl. w/ Michigan</u>	<u>Time in Cur. Job</u>	<u>Time w/ Cur. Supervisor</u>
1	34	W	F	16	9	9
2	38	W	F	14	7	7
3	26	W	F	7	5	5
4	42	W	F	22	9	6
5	34	W	F	12	7	4
6	55	W	F	33	11	8
7	52	W	F	27	9	3
8	47	W	F	21	3	3
9	31	B	F	12	5	5
10	22	B	F	2	2	2
11	--	-	-	--	-	-
12	52	W	F	31	22	13
13	45	B	F	26	13	11
14	39	W	F	20	12	9
15	28	B	F	9	9	9
16	41	B	F	7	4	4
17	45	W	F	23	17	13
18	37	W	F	21	21	13
19	39	W	F	17	12	8
20	29	W	F	11	8	3

All subjects of projects were female. The age range was from 22 to 55. There were 14 white and 5 black subjects. The range in terms of state employment was 2 to 33 years. Time in current job ranged from 2 to 22 years. Time with current supervisor went from 2 to 13 years. There were no discernable patterns regarding age or years of service in current job and under current supervisor. Further, there was a racial mixture. There appeared to be wide variation among subjects involved in projects.

Table 22 shows a brief description of each project, the predicted direction desired, the confidence intervals, and the level of significance.

Table 22
Relevant Data Regarding All Projects

Proj.	Description of Project	Pred. Direct.	95% Confidence Interval	.05 Level of Signif.
1	Increase neatness	up	-4.885 $\leq$ D $\leq$ -2.715	.000
2	Decrease complaints	down	-4.042 $\leq$ D $\leq$ -1.017	.000
3	Decrease temper tantr.	down	-3.100 $\leq$ D $\leq$ -.7343	.001
4	Decr. start. work late	down	-12.11 $\leq$ D $\leq$ -8.31	.000
5	Decrease coffee breaks	down	-3.29 $\leq$ D $\leq$ -1.59	.001
6	Increase interaction	up	.04 $\leq$ D $\leq$ 5	.001
7	Incr. phone answering	up	1.19 $\leq$ D $\leq$ 1.93	.000
8	Decr. late. from breaks	down	-2.3 $\leq$ D $\leq$.3	.186
9	Decr. Pers. phone calls	down	-8.629 $\leq$ D $\leq$ -7.771	.000
10	Increase praise	up	1.38 $\leq$ D $\leq$ 2.14	.000
11	NO PROJECT #11			
12	Increase work output	up	2.814 $\leq$ D $\leq$ 4.703	.009
13	Incr. fill. out messages	up	-4.87 $\leq$ D $\leq$ -.53	.020
14	Incr. data entry time	up	-.46 $\leq$ D $\leq$.32	.836
15	Decr. time or documents	down	-.9365 $\leq$ D $\leq$.0235	.140
16	Increase productivity	up	-63.52 $\leq$ D $\leq$ -50.28	.000
17	Decr. time away from desk	down	-1.7037 $\leq$ D $\leq$.4363	.362
18	Decrease late time	down	07.32 $\leq$ D $\leq$ 1.08	.140
19	Decr. excessive talking	down	-9.19 $\leq$ D $\leq$.38	.355
20	Decrease questions	down	-3.76 $\leq$ D $\leq$ -.96	.027

These data indicate that 13 of the projects appear to be successful in the desired direction, while six of the projects were not successful. Success here is considered to be a difference that is statistically significant in the desired direction between baseline and intervention periods. An unsuccessful project is one that shows no statistically significant results. Visual inspection of graphic data, which appear in the appendix, confirm the results depicted in Table 21. It should be noted that some projects were done by the same supervisor. Projects 19 and 20, 14 and 15, and 17 and 18 were done by only three supervisors, each doing two projects, respectively.

A chi square test was run to test differences between successful and unsuccessful projects broken into those supervisors who did projects that were in

training Group 1 and those in training Group 2. The results indicate that it was not significant at the .05 level but was significant at the .30 level. This suggests the possibility of a trainer effect. Using Fisher's exact test, the differences between the groups were not significant at the .05 level.

CHAPTER V

DISCUSSION

Discussion of Productivity and Absenteeism Dependent Variables

In considering these results, it seems prudent to realize that the relevant hypotheses involved a training effect that would presumably generalize out to work units of experimental supervisors. It was expected that these effects would be reflected in the dependent variables that were defined and measured. In practice the training focused on the dissemination of specific concepts about behavior modification. These concepts were largely applied in projects that each supervisor in the experimental groups carried out. These projects were directed toward individual workers who displayed some sort of problematic work behavior as defined by the supervisor. An examination of projects disclosed that many were directed at behaviors that affected the productivity of targeted individual workers, either directly or indirectly. Small but important increases in productivity by individual targeted workers, as a result of interventions perpetrated as part of projects, led to small changes in productivity figures of work groups. This explanation accounts for many of the increases in the productivity dependent variable. The production data of the entire work unit in which a targeted worker was embedded was not affected greatly because projects focused on individual problem workers, not the work unit as a whole. Hence, the production figures rose for a specific work unit by about the amount a project changed a given targeted worker's productivity. It is possible that the training process made the supervisor extremely sensitive to the supervisor-

subordinate relationship and its importance to work unit functioning. Disregarding the specific techniques of training utilized, this sensitivity to the worker-supervisor relationship could alter the work group climate so as to encourage group goals of output increase and can, therefore, account for the direction of change in the predicted direction for this variable.

Regarding the absence behaviors of excused absenteeism and sick leave, no statistically significant findings were evident. It is important, once again, to examine supervisor projects. Some projects did focus on absence behaviors such as returning late from break or being a few minutes late for work regularly. However, because no figures were recorded on these sorts of absences due to the normative practice, operating across all work units, in which they were treated as flex time or annual leave, it was not possible to accurately collect data on these behaviors within whole work units. Categories concerning the recording of these short absences in data collection procedures were, therefore, not utilized by supervisors. Hence, unexcused absence and late time were not measured. These reflected short term absences that might be affected by projects about individual problematic worker behavior, as productivity appears to be. It is possible that changes in short term absence behavior due to project intervention could have yielded significant results of a small magnitude across work units, as it appears happened with the productivity variable. It should be noted that the excused absenteeism data, though not statistically significant, does show a trend in which experimental group means increase at a slower rate than the control group means and may well reflect a change in the supervisor-worker relationship in which the training made the supervisor keenly aware of the importance of this worker-supervisor relationship. In doing so a change in group climate would likely result which could influence members of the work group to comply with organizational expectations of lower absenteeism which could, in part, explain

this directional finding. It is possible that, measured over longer periods in a more exact manner, these short term absence differences might, therefore, show an effect in the data. The remaining categories of absence behavior seem to be reflective of wider time frames of one day or more. Individual projects did not deal with these sorts of absences. Hence, sick leave and excused absenteeism were not apparently affected by projects, which were the most direct demonstrable result of training. They were not sensitive enough to pick up small changes due to training supervisors in behavior modification and from project implementation.

It was, perhaps, grandiose to expect that the training of supervisors in basic behavioral concepts would lead to major changes in such variables as sick leave and excused absenteeism and productivity. In order for this to occur it appears that a more specific intervention plan focusing specifically and directly on these variables and carried out over a longer time frame would be needed. The dependent variable of productivity did show a statistically significant result in the predicted direction. These figures, however, are of a small magnitude. Hence, findings regarding the three dependent variables are not powerful or convincing. More focused intervention, longer time frames, and more precise experimental control over data collection and intervention procedures may be necessary to understand data along these variables more comprehensively. Suggestions about how this study could be modified in regard to these three dependent variables appear in a subsequent section.

Discussion of Reaction and Problem Data

Reaction Data

These data yield no support for hypothesis three: "Supervisors will have more positive attitudes toward training at the end of training than before it."

Reaction data attempted to elicit feelings and attitudes about training. In the pretest, these reactions were based on expectations of training while posttest data yielded actual feelings about the training program through which the subjects went. The analysis of variance done on training groups one and two by pre- and posttest designs showed statistically significant results for the test variable indicating significant differences from pre- to posttest for each training group. The group and interaction variables showed no significant differences. Cell means for each training group going from pre- to posttest show a negative trend in direction. That is, the mean scores for each group went down in the posttest as compared to the pretest. These negative directional results suggest that subjects had higher expectations of training before going through it than after. The training failed to live up to subject expectation. The range of possible scores for both pre- and posttests for both training groups is from 5 to 25 points. The negative directional means were from 23.1000 on the pretest to 19.7778 on the posttest for training group one and from 22.4444 on the pretest to 21.5556 on the posttest for training group two. Though in a negative direction, the scores themselves are rather high in pre- and posttests. It can be concluded that, although the hypothesis was not supported and the training did not live up to the expectations of the subjects, it did meet many of these expectations, leading to high posttest scores for both training groups. It must be remembered that the Spearman-Brown reliability test performed on pre- and posttests showed an acceptable reliability on the pretest and on the posttest. This suggests that the directional results are accurate.

In interpreting these data, it is useful to describe some of the factors considered by the subjects in evaluating training. Anecdotal discussion among group members as well as written comments on pre- and posttest forms and in individual discussions suggest that subjects in both training groups had been

exposed to training that did not involve active participation and homework assignments as this training program did. Participants may well have found this training format more demanding than expected. Many subjects reportedly viewed training in general as a break from normal routines and as a quasi social event. They looked forward to sharing experiences with colleagues. The structured format embodied in this program, compressed into a single hour of training each week, left little time for social interaction. Homework also increased work responsibilities. Hence expectations did not coincide with the reality for many subjects.

Problem Data

These data showed support for hypothesis four: "Supervisors will have higher levels of knowledge in behavior modification at the end of training than before it."

Both training groups one and two show large increases in the means from pretest to posttest. These increases are in the hypothesized direction. This indicates that subjects in both training groups one and two did have higher levels of knowledge in behavior modification techniques after receiving training. The subjects could demonstrate and apply behavioral technology to specific hypothetical problems more effectively and expertly after training than before. Reliability on the pretest is low, as shown by a Spearman-Brown reliability test. The same test showed a solid reliability for the posttest. It is possible that subjects did not fully comprehend how to do the pretest and hence their scores varied and were not highly reliable. On the posttest, it may have been clearer what was required and, hence, the test was reliable. The mean score changes from pre- to posttest are so large, however, that it is unlikely this possible explanation would affect the stability of these changes. A Pearson correlation

coefficient between the two raters on scores given for both training groups on pre- and posttests is very high, which suggests that any variation is not due to the raters.

The results of the analysis of variance performed between the two training groups over pre- and posttest variables showed that these results are due to differences of a statistically significant nature in the test variable. The group and interaction factors were not significant. It can be concluded that subjects did learn the techniques of training in behavior modification imparted during the training program. Further, subjects could apply these techniques to hypothetical problems presented in both pre- and posttests, showing a statistically significant change in scores from pre- and posttest.

Discussion of Project Data

The overriding concern of this study is that behavior modification techniques can be learned and applied effectively by supervisors in work environments. Though no formal hypothesis regarding the actual field implementation of training information was postulated, these data provide evidence for the fact that supervisors in this study could utilize the procedures learned during training in their work settings.

Of the 19 projects completed and reported, 13 can be considered to be successful. This means that they demonstrated statistically significant changes between the baseline and intervention phases that were in the desired direction. These projects shared a number of common trends. Most of these projects had baselines in which there was a limited number of observations as compared to the intervention period. The majority of these projects display, in graphic representation (see Appendix), a large number of observation points in the intervention period below or at the lowest baseline observation points (or above

the highest baseline points where an increase in target behavior was sought). Intervention period observations show great variability as compared to baseline data, which are more stable. It is possible that longer baseline periods would have showed similar variation to that of intervention periods.

The variation of observation points, in intervention periods, could reflect demands made upon the supervisor that might inhibit implementation of the intervention plan, such as being called away to meetings, or being mired down in other projects away from the environment in which the targeted worker operated. This could lead to recovery of target behavior. The supervisors' ability to consistently re-implement planned intervention procedures would then account for sudden changes in the defined target behaviors. Certainly, the very complex role of supervisor, with its inherent demands, could affect the carrying out of a consistent behavior change project and lead to variation in data.

Successful projects utilized a combination of direct and indirect feedback that provided a change in the desired direction of target behavior. The project data suggest a need for ongoing awareness and consistent implementation of the intervention plan. A tightly controlled examination of implementation procedures and the feasibility of such procedures in a naturalistic setting with its myriad, uncontrolled, environmental influences would be a useful area for future researchers to investigate. Such extensive observation was beyond the scope of this study. It should be noted that data were not recorded on projects over long enough time periods to produce the complete eradication of or increase in goal levels of target behavior, and this might also be a further area of investigative concern. An A-B-A-B design modality would be useful in such an endeavor but was not necessary to answer relevant questions in the project and was beyond the limits of the training program.

It is believed that these identified successful projects will eventually fail, over time, in their intent of changing behavior. The major reason for this is that, in order for target behavior to change, a change in supervisor behavior in utilizing the training techniques is needed. The formal training period provided administrative sanction for such changes as well as a number of positively reinforcing experiences during training sessions that encouraged compliance with intervention plans by supervisors. However, when training ended, the group support experienced by supervisors from co-trainees, as well as support of trainers, was removed. Training was sanctioned by superiors by their permission to attend training sessions. The end of training removed this sanction which may or may not extend to the utilization of training techniques. In any event no actual institutional changes in the structure of their work units or divisions were made that might support and maintain newly learned supervisor behavior. There were no methods of maintaining supervisor behavioral changes within their environments built into the immediate relevant organization system. It is possible that the effects of training and the reinforcing properties of successful projects would affect a retention of procedures and methods for a period of time. However, without ongoing reinforcement of such procedures and supervisor behavior changes built into the work environment itself, it is unlikely that the methodology learned in training will be strong enough to continue being utilized over an extended time. This planned institutional support system should be an area of major concern to any future studies involved in behavioral training.

There were six projects that can be called unsuccessful in that the t-test showed no significant differences between baseline and intervention phases. These projects are numbers 8, 14, 15, 17, 18, and 19. All of these projects share small baselines in comparison to intervention periods. Project 17 has the longest baseline encompassing 15 observation periods in relation to 33 for the

intervention phase. In looking at these projects, it is useful to note that although there was not a significant difference between the means, visual inspection demonstrates some effect in the intervention phase. Project 8 shows an immediate drop in target behavior for 9 days following intervention. During this period scores are below or equal to the lowest point in the baseline. Following that, there is a return to baseline levels with no indication of continued treatment effect. It is clear that the intervention plan had some impact. The recovery of baseline rates is quite likely due to a failure to maintain consistency with the intervention. Whatever contingencies were implemented at the initial intervention dropped away later on, it is possible that such variables as increased work load for the supervisor or restricted response contingencies were related factors.

Project 14 showed great variability and little sustained change in the desired direction during the intervention phase. It is possible that the behavior was very resistant to change and that response contingencies were not strong enough or consistently applied. The data do not indicate consistent periods of improvement and cannot demonstrate any intervention effect.

Project 15 shows great variability and, although there are a few times in which intervention phase data go below baseline limits, this cannot be seen consistently enough to conclude a true or clear intervention result. Both projects 14 and 15 dealt with similar themes and problems. They both deal with changing the rate of data entry. It may be that such a problem is extremely resistant to change in that it involves a large number of transactions per day. Neither supervisors nor workers could likely be available consistently enough to produce change because they could attend to only a small percentage of transactions due to time limitations and logistical considerations. Hence reinforcers could not be applied consistently. In fact, the effect of the reinforcement in inconsistent

application may have served to strengthen the target behavior. If the workers found changes in reinforcement intrusive to their dominant response mode, the cessation of this intrusion could provide negative reinforcement for target behavior, increasing or maintaining the response rate. Intervention plans for such frequent target behavior need to be better thought out and more consistently carried out.

It should be pointed out that both projects 14 and 15 were done by the same supervisor. Though the explanations cited for lack of success apply, another factor could be this supervisor's making similar errors in doing each project or encountering problematic conditions of a similar sort in the work unit or simply being unable to transfer learned material in training to the work environment.

Project 17 shows no real improvement in target behavior during intervention when viewed in graphic form. Virtually all but one data point fall in the range of the baseline. The previously mentioned reasons such as inconsistent reinforcement may well apply. The write up of this project alludes to the idea that the target behavior was maintained, in part, by social reinforcement from co-workers. The intervention plan utilizes reinforcement and feedback from the supervisor alone. Hence the very powerful reinforcement of peer attention and contact is not taken account of in the plan. Further, the amount of contact the supervisor has with the targeted worker is likely less than that of the work group. This may account for the lack of change in the desired direction in this project. More recognition of work group and/or environmental reinforcers seems appropriate for such a project.

Project 18 was not statistically significant on a t-test comparing baseline and intervention phase means. It is clear that some effect did occur in the desired direction. Thirty-three data points of 47 in the intervention phase fall below the baseline on the graphic representation of data. This suggests a

phenomenon of feedback plus consistent reinforcement and a drop in target behavior. This is followed by a recovery perhaps due to a slackening of reinforcement procedures, then another reinstitution of the plan and another drop in target behavior. Further, the possibility of increased work load demands on the supervisor may explain the inconsistency. It should be noted that the very short baseline may not give an accurate depiction of pre-intervention levels of behavior. An extended baseline could possibly be similar to extended treatment phase behavior. This cannot be determined from these data. Projects 17 and 18 were done by the same supervisor. Their lack of success could be due to all of the factors stated earlier in the description of these projects, but may also reflect an idiosyncratic supervisor condition such as making the same kind of errors in both projects or in not being able to implement training material in the work environment.

In project 19 most data points are within baseline ranges during intervention. It appears that, over time, the direction of change is in the desired direction, though not statistically significant. More data over a greater period of time would be useful in discerning whether this trend does apply. The nonvariability could well be due to inconsistent reinforcement by the supervisors.

Several factors might be investigated regarding unsuccessful projects. These include (a) the need for larger baselines, (b) the possibility of gathering data over a longer period of time to better discern trends, and (c) keeping track of the consistency with which project plans are implemented. Poorly chosen reinforcers and intervention plans and restricted response contingencies may also be factors.

Another possible explanation for project results that must be considered is that of trainer effect. Every supervisor was either in training group one or two. Hence, they had different trainers. Training group one had eight successful and

two unsuccessful projects. Training group two had five successful and four unsuccessful projects. A chi square done between trainers on successful and unsuccessful projects was not significant at the .05 level. It was, however, at the .30 level. Hence there is a 30% chance that trainer effect operated on project success rates in some way. Using Fisher's exact test, the differences between the two groups were not significant at the .05 level.

A variety of problematic concerns existed for all supervisors who were carrying out projects. These include (a) the norms of the work environment limiting contingency reinforcement choices. Certain factors like work output were determined by system values, not by the supervisors directly, unless output was in major violation of organization goals; (b) unionization by workers limited what reinforcers were available to supervisors. They could not, for example, vary break times, treat a worker differentially or penalize a worker unless specific defined areas of behavior were violated; (c) apprehension about not getting support from superiors limited supervisors' choices regarding projects. Though upper management was clearly in favor of the training program and allowed supervisors time away from their duties to attend training sessions, they were, reportedly, less interested in the implementation of projects. The concern was that projects might be controversial or cut across tenuous boundaries with the union which might lead to repercussions in the form of grievances; and (d) due to cutbacks and layoffs, the demands on supervisors to run their units efficiently was great and very time consuming. This may have affected the level of attention and commitment subject supervisors could provide in carrying out projects.

Supervisors did largely have control over work assignment, work flow, and verbal feedback such as praise or displeasure with a behavior. They also could

utilize non-verbal behavior such as smiles, frowns, or simply their presence in an area. Their chances to display reinforcers were limited.

It can be concluded from project data that supervisors could demonstrate the application of principles learned during training in actual projects performed in work settings. A majority of these projects showed significant statistical results. Visual inspection of graphic representation of data show that a majority of projects had an effect during the intervention phase in a desired direction.

General Conclusions

This study showed the following results:

1. supervisors involved in training in the project did not feel as positively about training after going through it as they did before,
2. subjects demonstrated knowledge of training materials in posttest measures that were superior to pretest scores and statistically significant,
3. a majority of subjects were able to carry out successful projects demonstrating direct application of behavior modification procedures taught in training,
4. post-training measures indicate a statistically significant finding in the predicted direction regarding the dependent variable productivity, and
5. the dependent variables regarding absence behavior were found not to be statistically significant.

Before discussing some practical ideas regarding why the findings turned out as they did and how a replication might be done, as well as suggestions for future research that comes from questions asked about this project, it seems expedient to tie the study together using a unifying, theoretical perspective.

Unifying Position

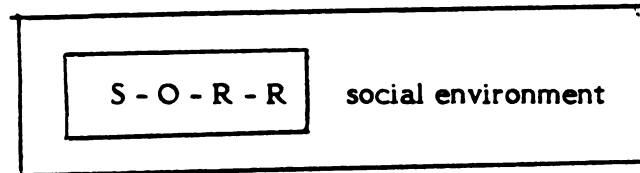
The training program in behavior modification is the basis of project generation which, further, appears to be the major factor in the statistically

significant change in the desired direction of the dependent variable of productivity. The training program uses behavioral concepts and posits a stimulus-response-reinforcement theory. That is, the technique imparted to supervisors during training involves analyzing behavior in terms of antecedents, the target behavior, and the consequences of the behavior. It then teaches how to change the behavior by changing antecedents or consequences with the greater emphasis on changing consequences using reinforcement principles. The majority of projects show that when these ideas are applied in the work setting, the desired outcome results.

In examining this stimulus-response-reinforcement idea in the context of this study, it is clear that this process occurs in a naturalistic social environment, that is, the work group. The discrete removal of stimulus-response-reinforcement process, in this instance, from its context is impossible. This social setting raises the issue that it is unlikely that a S-R-R explanation alone can account for all the results of this study. To do so, it appears to be necessary to look at the social context in which the research took place. In any of the projects in this study, at very least, there is the S-R-R behavioral unit that provides the focus of the project, but there is also an interaction among the target worker, the larger environment in which s/he operates, and his/her unique internal reaction or need satisfaction. Hence, for example, in project eight where a target worker returned late from breaks and the supervisor attempted to change this behavior using an S-R-R framework, additional factors such as the social reinforcement of extended peer interaction, work avoidance, and control over work starting time are operative. Some of these are external events while others involve internal needs of the worker. As Bowers has stated, " . . . the interaction between the person and the situation is both conceptually satisfying

and empirically sound" (p. 307). This concern has been echoed by many other authors (Wachtel, 1975; Mischel, 1973; Straats, 1980).

Theoretically, this process is conceived of as not simply S-R-R, but, rather, a more complex phenomenon that includes internal worker variables and the external social environment. S-R-R is conceptually modified to include "other" or "O" variables that are internal reactions or interpretations of the stimulus event, yielding an S-O-R-R or stimulus-other-response-reinforcement paradigm. Further, the social environment must be included because it, also, can affect the process. Hence, we have the following model.



If we examine a few of the projects done, it is possible to get a sense of this theoretical conceptualization. Project two, for example, is an attempt to lower the rate of excessive complaining about work conditions by a worker. The project focused on the response of complaining and the reinforcement for it by the supervisor and attention accorded this worker by complaining. What is not examined is the "O" variable or the internal response or reaction the worker experiences, such as control over the environment or meeting an internal need for reassurance. Further, the environment's social context, which includes all other workers, is largely ignored, including the specific relationship between the supervisor and worker. The focus of the project involves the target behavior and changing reinforcement contingencies, but does not focus on how the relationship between the worker and supervisor will change or how the other workers may relate more positively to the targeted worker as a result of the project. It also ignores the idea that the worker's internal needs will possibly be met more effectively as a result of these changes. Similar comments can be made

regarding virtually every project. Project three looks at worker temper tantrums as a response needing to change, but it does not look at this as an internal state involving need satisfaction or the social relations with other workers. Project five looks at coffee seeking behavior, but not the internal needs satisfied by it or the external influences by other workers. In fact, one explanation for projects that were not found to be statistically significant may involve not taking a broad enough viewpoint that considered altering relational and social contextual variables that might be contributing to the target behavior. Project eight may be an example in that it focused on feedback and approval by the supervisor for desired defined behavior but largely ignored the social reinforcement that the worker obtained from other workers and the internal need served by the behavior.

One problem, of course, is that internal states are largely inferred and not readily observable. The manifestations of this state in behavioral form is what S-R-R deals with. Further, social environmental factors that affect a behavior may not be readily discernible or may be difficult to find without a much more complex strategy that may obviate the desire to change a target behavior. Hence, there appears to be a practical reason for using S-R-R, even though it cannot fully describe a largely inferred complex interactional process.

The inclusion of the "O" variable and the social environment recognizes that people can think and manipulate symbols. This separates human learning from that of animals. A pigeon pecks to get a pellet. A person decides what type of meal s/he wants and its price range, visualizing and remembering information about food and the satisfaction of a meal. This "other" variable includes need states and emotions. Thus, a worker who returns late from break and has his/her behavior reinforced by factors such as a sense of control over the environment and a feeling of being specially privileged by exercising this control

is being affected not by just observable events but by internal events as well. Further, factors from the environment include any interactions or social reinforcers that occur as a result of the behavior and maintain it. The S-R-R instrumentation reduces the behavioral sequence to observable time. This instrumentation, learned by supervisors in training, may be a mechanism by which larger phenomena, those of internal states and external environmental factors, are influenced. In implementing a behavioral change plan of an S-R-R type, as all projects were, a number of things happen. One major change is that the internal perception of the supervisor alters. As the training principles are used, s/he comes to understand the worker behavior in a different way than s/he had. The supervisor now also has a mechanism that lets him/her exercise some influence over the behavior in a constructive way, using reinforcement ideas that allow a modification plan to be instituted. The supervisors' perception changes from one of frustration to a sense of comprehension and control over the target behavior. To accomplish this, his/her perception of the environment and cognition of the behavior in question, as differentiated from the worker as a whole, must shift. From the worker's perspective, the change in the supervisor's behavior and attitude elicits a new method of meeting needs that the target behavior, such as returning late from break, formerly accomplished. The two can relate on a new basis. Hence the methodology is of an S-R-R type, but, in fact, the relational system between the worker and supervisor and of each with important elements in his/her respective environments changes.

Support for this idea comes from a variety of sources (Michaels, 1978; Fredericks, 1974; Molm, 1979, 1981; Kahn, 1982). In essence the literature on this concept points toward the idea that behavior modification in naturalistic settings with people must look at subjective phenomena such as ideas, feelings, and other internal states. Further, if it is to be used in social settings such as

organizations and work groups, as in this experiment, the social contingencies and complexities of this environment must be considered. Traditional research settings using behavior modification typically exercise external control over the environment, as in a laboratory. Settings such as the work place cannot provide such control. This requires that behavior modification techniques and frameworks be able to adapt to the realities of the environment in which they are being used. The environment in which this research took place included at least the training sessions, projects in work units, and the people involved. Supervisors focused on the application of the training principles to single subject projects of behavior change. The process of operationalizing intervention plans appears to have produced a dyadic shift in the relational pattern between the supervisor and the worker. In other words, during training the trainers' behavior is fixed around the training process. In applying training principles in the work place, the supervisor' behavior is free to vary considerably. It is only fixed in the application of the training to the targeted worker. Their relationship, however, can vary in a variety of other ways. The worker may now be consistently reinforced for target behavior or the eradication of it, but this opens the door for a variety of other means of interacting to occur. Where a negative interaction valence may have existed around targeted worker behavior, quite possibly other areas of interaction that the systematic application of reinforcement for desired behavior now permits allow the relationship to occur on a new basis. The behavior modifier behaves toward the targeted individual differently than s/he had. The worker can respond by operating differently in relation to the modifier's change. The interactional system between them is changed. The worker behavior changes not just in relation to the intervention plan but also in relation to the interactional change. This can meet the worker's needs so as to obviate the rise in frequency of target behavior.

A major conclusion of this study, inferred from the data, is that behavior modification, which is a change technology that is action-oriented, can be learned and applied to change-defined behavior. It further, and perhaps more importantly, appears to free a dysfunctional relational pattern between the targeted worker and the social environment in which s/he works. In this way the stagnated interactions between the worker and supervisor can likely be unfrozen, permitting a new pattern to emerge in their relationship.

Ethical Implications

The question of the morality of behavior modification is frequently discussed (see Locke, 1979; Kreitner, 1982; Woods, 1981; Scott & Hart, 1979; Hawkins, 1974; Van Hooten, 1979). The question of the ethics of teaching an organizational representative a change technology that can be utilized to manipulate and exploit workers is a critical one that must be addressed. Behavior modification methodology does present the possibility of more effective worker exploitation if used for this purpose. Workers could be treated as if they were simply robotic creatures that only displayed behavior and were not capable of being able to think and feel and interact. To prevent this, a moral imperative that involves responsible use of techniques and methods is necessary in organizations. The ends and means must be considered carefully before undertaking a behavioral change project. Questions about what behavior is undesirable, the ability to define such behavior, and the subjects' right to know about any planned intervention and provide consent must be addressed to protect the rights and freedoms of subjects. Further, learning behavioral methods alone may be inadequate protection for potential subjects. Some grounding in social values and ethics seems appropriate. Such fields as social work and the other social sciences can provide such training based on their ethical codes of conduct

and experience in applying social science methods to people. In balance, however, its potential for reducing conflictual relational patterns seems important and may outweigh its possible abuse. One factor that relates to the issue of worker exploitation is that of control in natural environments. Where social interactive factors exist and entwine with individual personality characteristics, it seems unlikely that institutional representatives can exercise enough control over factors to exploit workers using behavior modification. Rather, they may be able to change behavior with worker participation in the process. Jobs affect workers, but workers are not passive and can also affect jobs. Oppressive working conditions do produce distress in workers, and job conditions are rarely designed to meet the needs of workers (Kahn & Schooler, 1982). Over time the worker can succeed in modifying the job to meet his/her needs, or s/he has the option of leaving it, though poor working conditions can produce increased stress during the process of modification. Hence caution is necessary in teaching or using behavior modification to produce change, but its potential and the fact that workers are not like animals and can exercise a variety of options if exploitation is suspected must also be considered.

The Relationship to Social Work

Many of the steps taken in this training program resemble concepts used by the social work profession. Certainly assessment, feedback, an intervention plan, observation of behavior, and an interview, all used in training and implementation of projects, are functions of social work and other clinical professions. Behavioral techniques are increasingly being used in clinical practice and as a means of quantifying accountability concerns in clinical social work practice in the mental health field in general. Further, the social work profession is beginning to define the organization as an arena for practice

(Akabas & Kurzman, 1981; Akabas et al., 1979; Bakalinski, 1980; Kurzman, 1979). This study clearly involves a clinical methodology presented in a training format by a social work professional in an organizational environment. Therefore, this area of practice for social work in organizations requires some examination.

Social work has utilized the concept of social functioning extensively. This concept includes assessment of an identified client in terms of intrapsychic, interpersonal, and vocational functioning. Certainly work has a central place in this framework. More recently, social work has begun to focus on the work environment as a direct site for service, as opposed to simply a diagnostic idea in evaluating a client (Akabas & Kurzman, 1981; Kurzman, 1979; Bakalinski, 1980). By and large services have consisted of setting up facilities nearby or within an organization that are problem-focused, such as alcohol and drug abuse programs. A case has been made for expanding services (Germain, 1981) to include the entrance into organizations of professionals who attempt to alter the functioning of these systems in the interest of human needs. The impact of the organization-client interface in the client's difficulty must be scrutinized. This should include, in any intervention plan, the alteration of that interface where it is detrimental to the client. This can involve intervention into organizational systems. Hence a rationale for social work intervention into organizational settings is defined.

Four stages of social work intervention have been hypothesized (Ozawa, 1980). These include Stage I, a specific problem focus such as drug abuse; Stage II, including the development of more generalized services and programs such as employee assistance programs; Stage III, involving the awareness that identified individual problems of previous stages are symptomatic of organizational difficulties and seeks to intervene on this level; and Stage IV, requiring a value shift for the organization as a whole away from profit focus and towards the

contribution of the organization to society as a whole. The majority of social work services in organizations focus on Stages I and II.

If social work is to operate in industrial-organizational settings and attempt to exert influence over them, it must expand its consciousness about organizations and the needs of workers. Further, values may conflict between the organization and the profession of social work. If organizations are concerned with survival and effectiveness, they may only be concerned with worker needs as they serve the ends of increased production. Social work and the clinical professions operate under clearly defined codes of ethical conduct which regulate them. The transfer of these professional standards into a work environment must be reconciled. One way to do this is to increase the study of organizations into social work training. In this way, by learning about the functioning and philosophy of organizations, social workers can be better prepared to deal with issues of providing services to workers within these settings.

This study uses a clinical, behavioral training system in an organizational context. It contributes to the profession of social work entering into organizations, as spheres of practice, by demonstrating that it is possible to offer workers and organizations, as a whole, not just traditional services, but also a technology that can be used to alter the relational systems in the work setting. In this instance clinical, behavioral concepts were used, but future research can certainly explore how other clinical concepts and the understanding the social work profession has amassed regarding human interactions can contribute.

This study also introduces a new role for the social worker, one of consultant and interventionist on organizational problems. The role of the social

worker in this study was as trainer and provider of expertise for which the organization contracted.

This study, further, raises questions about value conflicts and concerns in attempting to use the expertise of the professional in an organizational context. It reflects the dilemma of the professional trying to identify with the standards of the profession while serving the needs of the organization. In attempting to serve clients, the professional is faced with the real problem of defining who the client is, the organization, some component of it, or the worker.

Suggestions for Redoing the Current Study

In order to look at how this study might be redone in a more effective way, based on experience gained by doing this project, it seems expedient to look at relevant hypotheses that were not supported by the data.

1. Essentially all of the hypotheses concerning absence behaviors were found to be unsupported. This may well be because none of the measures used in these dependent variables were sensitive to small, but possibly significant, differences between experimental and control groups on these variables. It must be remembered that the organization had informal rules which circumvented the categories of unexcused absence and late time. Hence no measure of short term absence was possible itself but, rather, was included in the larger absence categories. It would seem that long-term absence behavior was not affected, but nothing can be said regarding short term absence. If this is coupled with the small but significant finding on the variable of productivity, where small changes were discerned and attributed to the impact of the training on specific worker behavior, the importance of small difference measures becomes apparent. Future research should make an effort toward developing and measuring small absence categories to adequately test if the training can impact upon this variable.

Under the current conditions, it is not at all clear if the measures used could discern small differences.

2. Regarding projects, most were statistically significantly different when comparing baseline and intervention periods. It appears that more control over how these projects were implemented would be useful in future research. For example, such control would permit longer baseline measures which would be useful in determining the trend in the behavior being studied. This would allow for a more meaningful comparison to intervention data.

3. Project data could, further, be enhanced by giving more attention to defining intervention behaviors. The more precise compilation of data and evaluation of results using independent observers of those performing the behavioral plan would be useful.

4. It would, further, be useful to keep data on the longevity of changes produced. That is, data on whether the changes produced would continue over time would be important in further research. An examination of how long supervisors utilize the techniques of training, both with and without institutional support might also be an important and relevant question for study.

5. The hypothesis regarding reactions and attitudes toward training was not upheld by the data. It would be useful to examine more directly why this occurred. Another attempt at doing this study might look carefully at subject attitudes, prior to beginning the study, so that information about the program could be more carefully presented so subjects were more aware of the sort of training they were to receive.

6. This study used subjects from two specific departments who were all volunteers. This limits the generalizability of the results in that we can only generalize to volunteer supervisors from Management and Budget and Treasury who worked with clerical workers. A future study might look at different

populations within the organization to see if this training is relevant to other populations.

Suggestions for Further Research

This research leads in many directions. A number of possible research areas are implied by this experiment and are discussed below.

1. The application of behavioral techniques to specific, pre-defined organization problems might be an important area for future research. That is, a particular problem being experienced in a certain component of the organization could be investigated. Such variables as sick leave and other absence behaviors, for example, could be researched directly, rather than as a byproduct of training.

2. How behavioral training is utilized in different sorts of organizations ranging from simple to complex open systems might be a question for further research.

3. The value conflicts between a professional operating within an organization context and his/her professional standards might be an important question for further research. For example, can a social worker balance his/her profession's code of ethics with conflicting needs of an organization contracting for service?

4. One major question of relevance involves the transfer of behavioral training techniques outside of the organization. Does a supervisor begin to use the methods in other settings, and what are the implications of this occurrence?

5. Perhaps the most salient area of investigation would be into how the behavioral methodology leads to changes in the interaction patterns between supervisor and worker. Of special focus is the idea of how the instrumentation of behavior modification can unfreeze a stagnant, unproductive, relational pattern so that it can be replaced by a more appropriate need-satisfying system.

APPENDICES

APPENDIX A

PROJECTS

Project 1

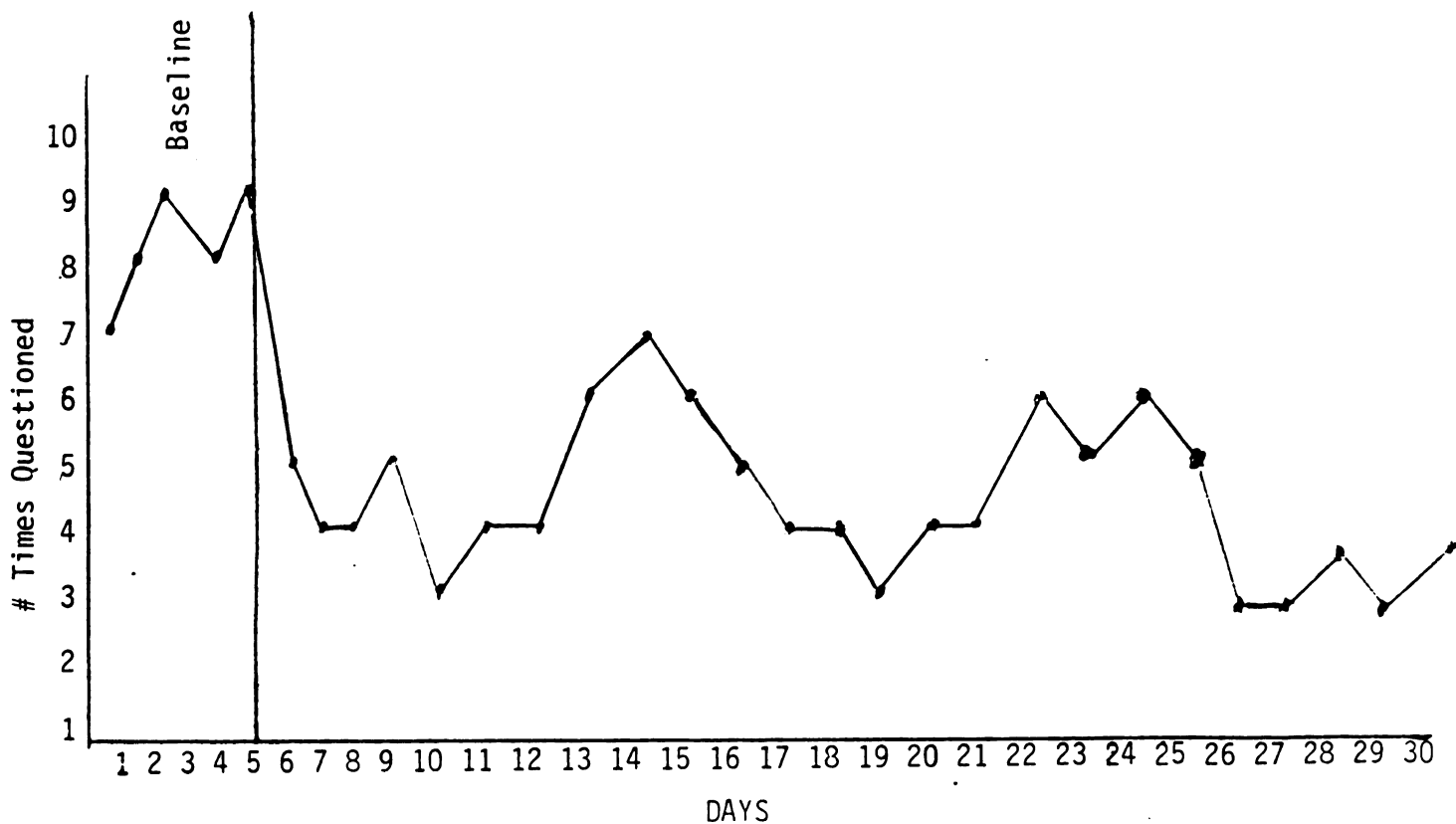
Project 1 involved an attempt by the supervisor to use behavioral techniques to increase the neatness and decrease the sloppy work of a particular worker. A one-week's baseline was maintained. The supervisor kept a tally on the number of times a day that this worker's work was questioned because it could not be read by other workers. At that point a treatment plan consisting of a discussion with the worker stressing the importance of neatness was instituted. Negative feedback was provided when the worker had to re-do sloppy work. Positive feedback was given for neat work. Data were reported for six weeks, though the plan was considered ongoing.

The results of a t-test comparing the baseline and intervention means appear in Table A.

Table A

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	5	8.2000	.837	.000
Intervention	25	4.4000	1.118	

These data indicate a significant difference in the desired direction between the means, which suggests an intervention affect.



Project 2

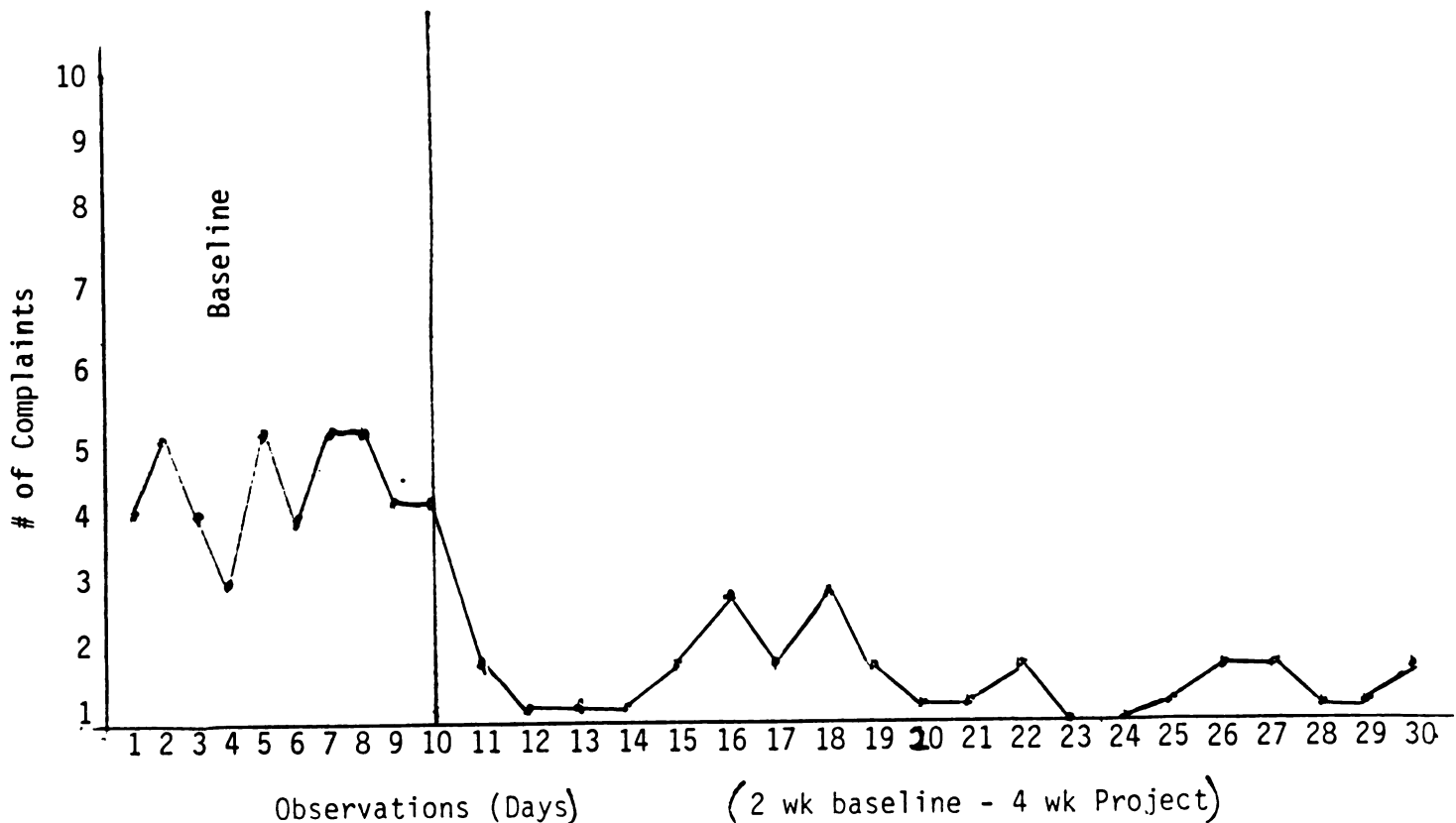
This project involved the supervisor's trying to lower the rate of complaints about work conditions by one worker. The complaints were, reportedly, excessive, attention-getting, and interfered with the output of other workers. Baseline data on number of complaints was kept for 10 days. At that time, the worker met with the supervisor to discuss the problem. Expectations of less complaining and less interference with the work of others were set. A condition of non-reinforcement of complaining behavior and positive reinforcement of on-task behavior was instituted. The worker was given the option to utilize time specified around breaks to consult the supervisor about complaints.

A t-test comparing baseline and intervention phase means appears in Table B.

Table B

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	10	4.3000	.675	.000
Intervention	20	1.5500	.887	

The data indicate a significant treatment or intervention effect in the desired direction.



Project 3

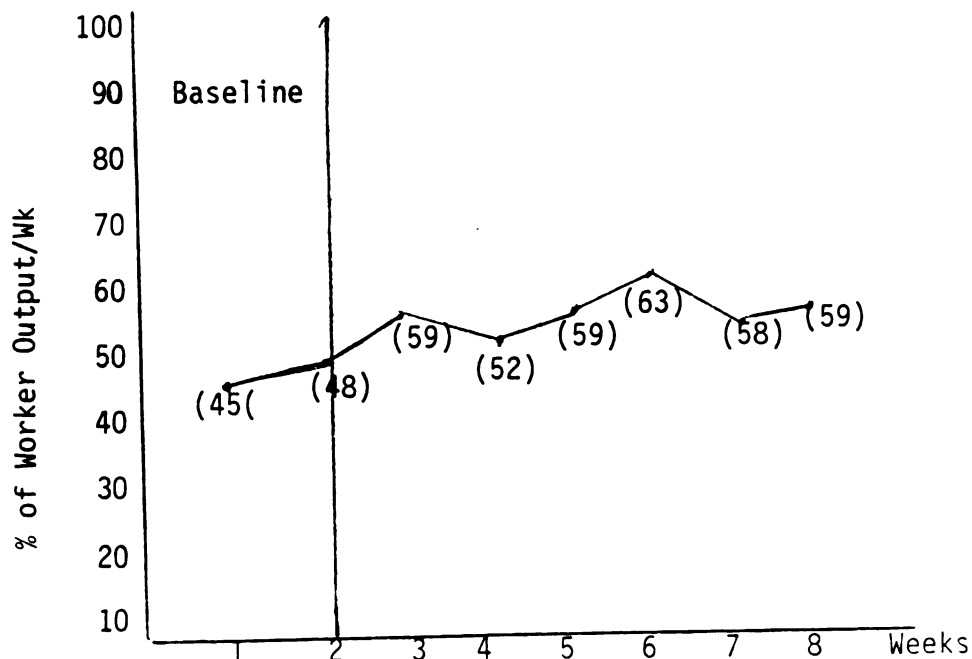
This project concerned an employee who would have temper tantrums when asked to drop a particular project and attend to work that had become a higher priority. Behaviors included slamming desk, throwing pencils, and becoming hostile. This behavior disrupted the unit and interfered with this worker's performance of the job. Phone calls were also considered disrupting by this employee. Much work time was lost before the worker could calm down and return to on-task behavior.

Baseline data were kept in terms of percentage of worker output per week for a two-week period. At that time, the intervention plan was instituted. It consisted of moving the worker to a less-active location, setting work priorities and appropriate expectations of worker behavior. The supervisor provided positive reinforcement for on-task behavior and firmly directed the worker to return to work when negative behavior was displayed. Minimal reinforcement for negative behavior was attempted.

The result of a t-test comparing baseline and intervention phase means appears in Table C.

	<u>Table C</u>			
	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	1	4.5000	0	.001
Intervention	7	5.6857	.508	

The results indicate that the intervention mean was significantly different from the baseline periods. Further, this change was in the desired direction.



Project 4

The target behavior involved a worker who arrived on time, but started to work late by avoidance behaviors like getting coffee, hanging up her coat, going to the bathroom, etc., for long periods of time. This worker's behavior was reportedly resented by others because they started working within a few minutes of arrival and this worker did not. the supervisor viewed this as an ongoing project.

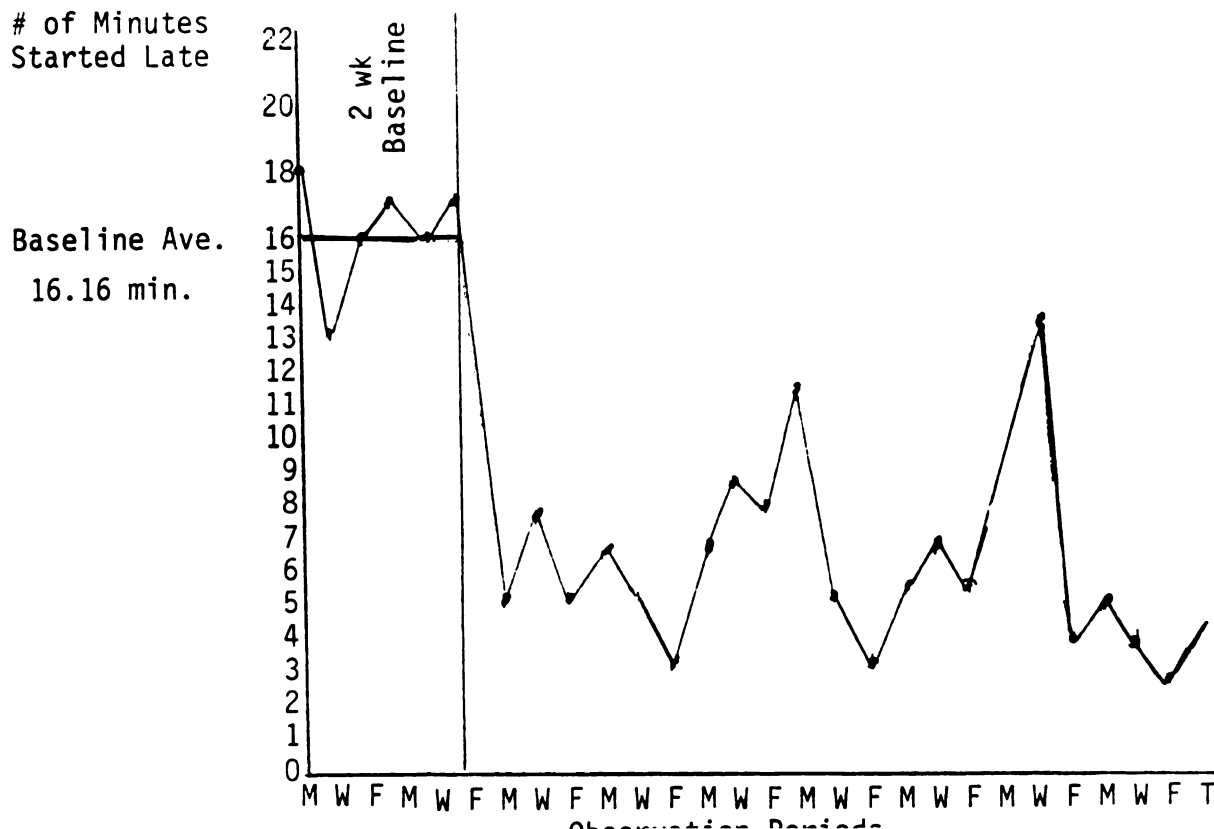
Baseline data were kept for obseration periods lasting as long as necessary until the worker began assigned tasks, on Monday, Wednesday, and Friday, for two weeks. Intervention data were reported for seven weeks. The intervention plan involved assigned high priority work to the individual immediately upon arrival and gave positive and negative feedback for appropriate and inappropriate behavior. The plan was discussed with the worker before starting.

The results of a t-test comparing baseline and intervention means appears in Table D.

Table D

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	6	16.1667	1.722	.000
Intervention	23	5.9565	2.567	

This indicates a significant difference between the means, signaling an intervention effect. Visual inspection of graphed data suggests a treatment effect. The data appears to support the statistical results.



Project 5

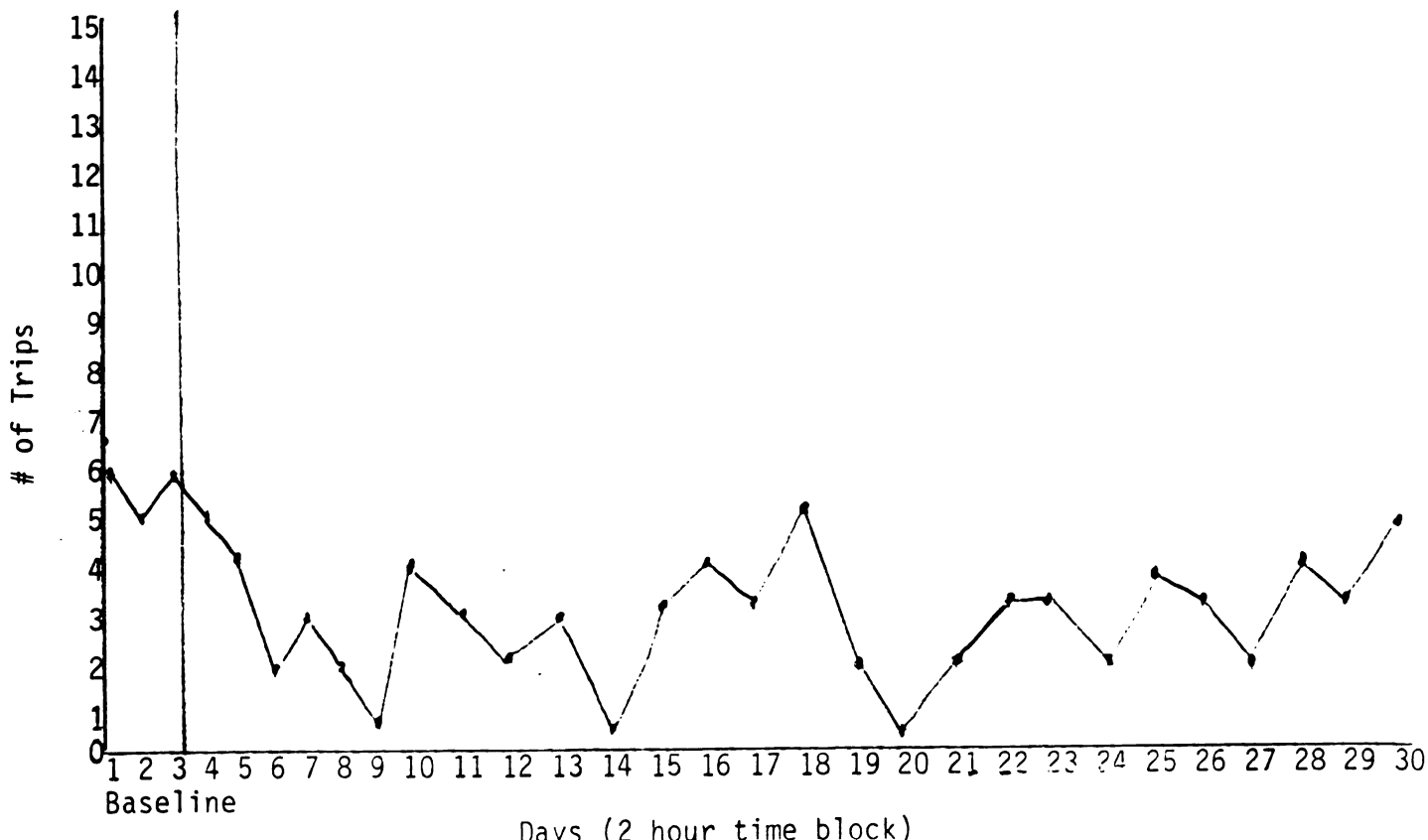
This intervention involved a worker who got up to get a cup of coffee excessively, so that she disrupted other workers' concentration and interfered with completion of assignments.

Baseline data were kept for one week, daily, for a period of two hours of observation. Intervention data were recorded for a period of 27 days. The intervention plan consisted of discussing the problematic behavior with the worker, showing her baseline data. The supervisor gave a negative look of disapproval when the worker went to get coffee and asked how many times she had gone. A smile and compliment were given by the supervisor to the worker when she went 20 minutes without going for coffee.

A t-test performed on the data appears in Table E.

	<u>Table E</u>			
	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	5	5.2000	.837	.001
Intervention	25	2.7600	1.052	

This result indicates a significance of .001 which means there was a significant difference between the baseline and intervention means. This suggests an intervention effect in the desired direction. Visual inspection of graphed data suggests a clear intervention effect consistent with the t-test result.



Project 6

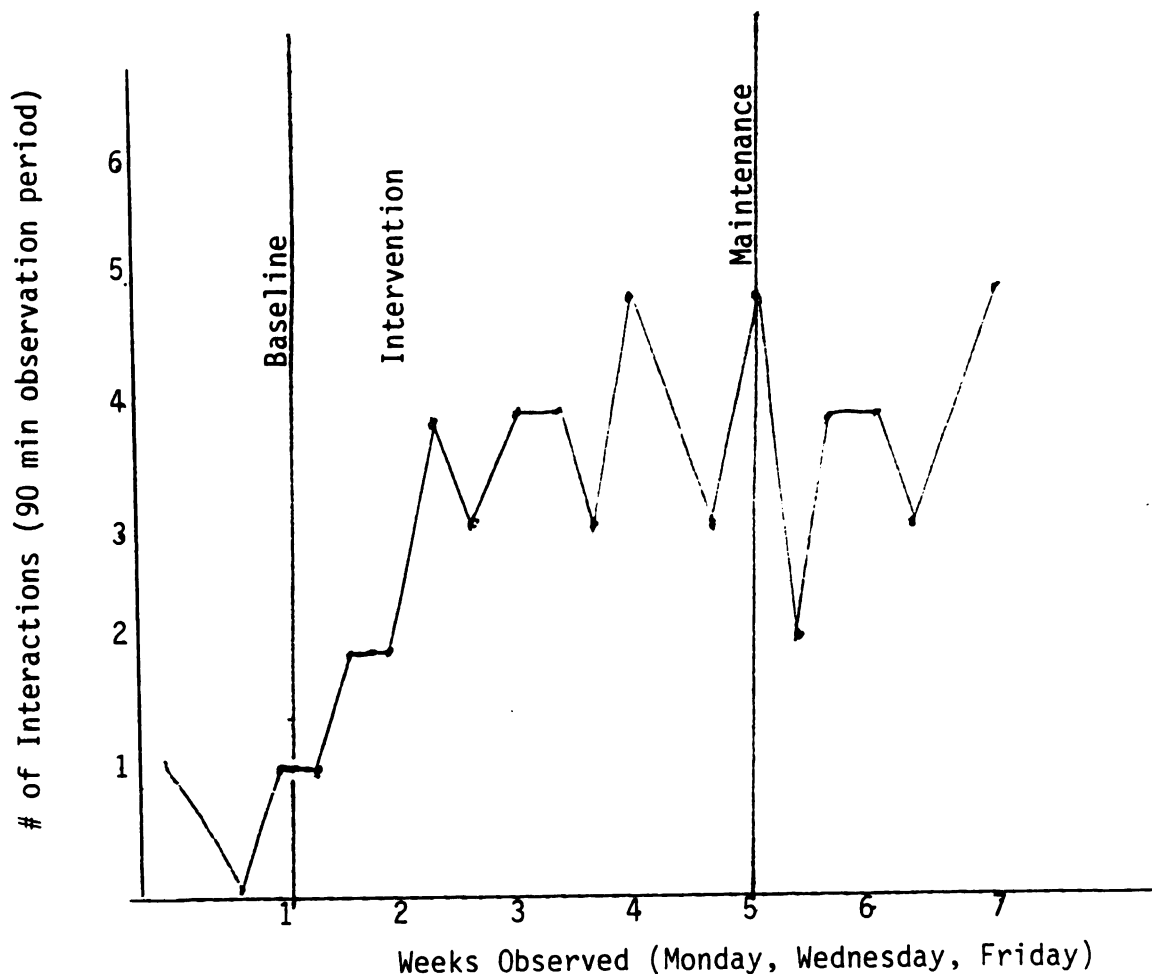
This project involved attempting to get a worker to interact more with peers and become more integrated into the work unit and less withdrawn. Baseline consisted of three 90-minute observation periods held on Monday, Wednesday, and Friday for one week. Intervention consisted of nine 90-minute observations periods on the three days per week. A three-week maintenance plan was also reported. The plan included the supervisor's pointing out to the worker her isolation and encouraging her to get more involved in the unit. Praise was given when the worker was observed initiating an interaction, either verbally or non-verbally.

A t-test was conducted comparing baseline and intervention means. The results appear in Table F.

Table F

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	3	.6667	.333	.001
Intervention	18	3.4444	.271	

The results suggest a significant difference at .001 level. The means confirm a large difference in value.



Project 7

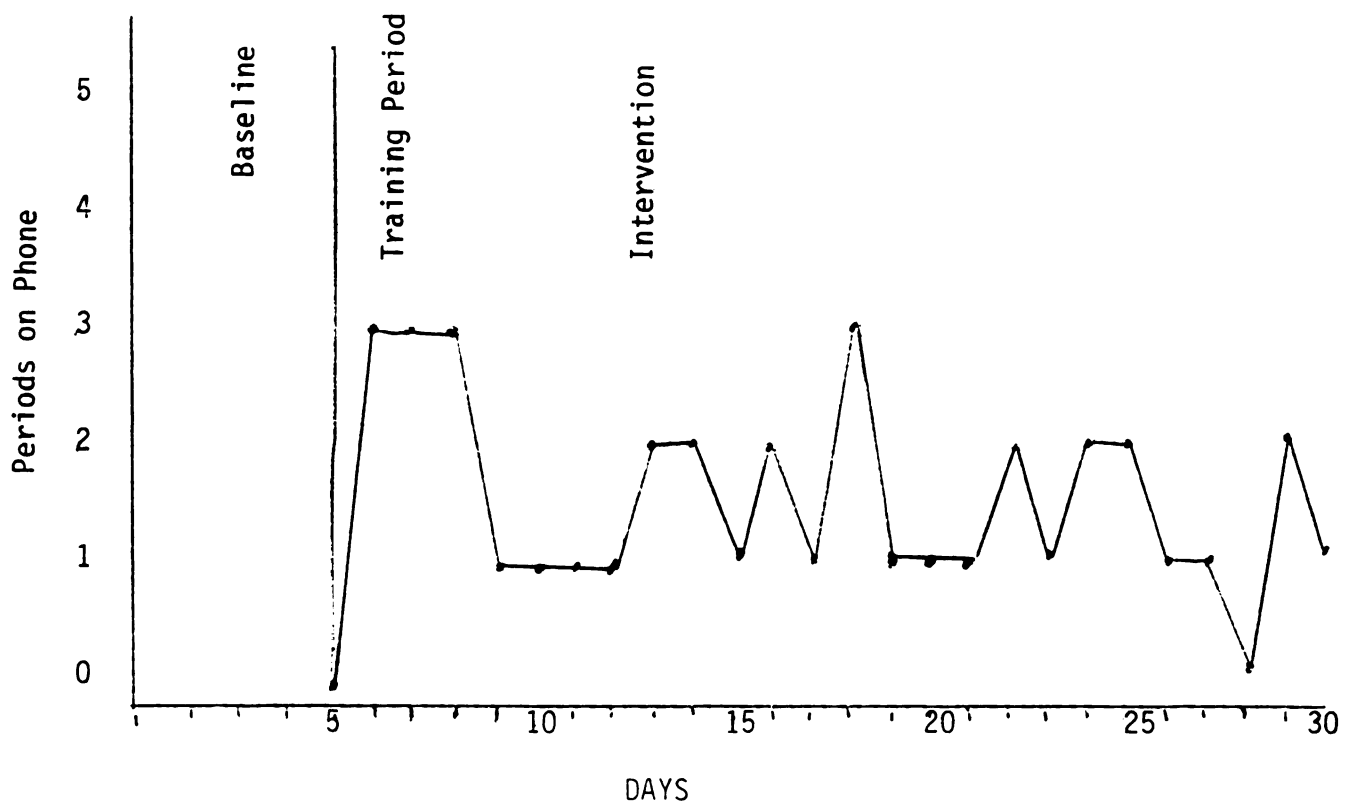
This intervention concerned an individual who was, reportedly, afraid to answer the phone, even though this was part of her job. Phone answering was done on a volunteer basis and this individual would always avoid this task. The supervisor tried for a period of time not to have this person answer the phone, but other workers viewed this as preferential treatment and resented this.

The baseline period was one week in which the number of times the individual failed to answer the phone was recorded. The intervention plan involved the supervisor's discussing the behavior with the worker and then giving her a one-week training period in correct phone responses. Following this, a five week intervention period was reported. The supervisor positively reinforced on-task behavior.

A t-test was attempted, and the results appear in Table G.

	<u>Table G</u>			
	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	5	0	0	.000
Intervention	25	1.5600	.821	

The test shows a significant result at .000 level of significance. Baseline values are 0. Visual inspection of data support the finding in that all points but one in the intervention phase are greater than 0. This indicates an intervention effect in the desired direction.



Project 8

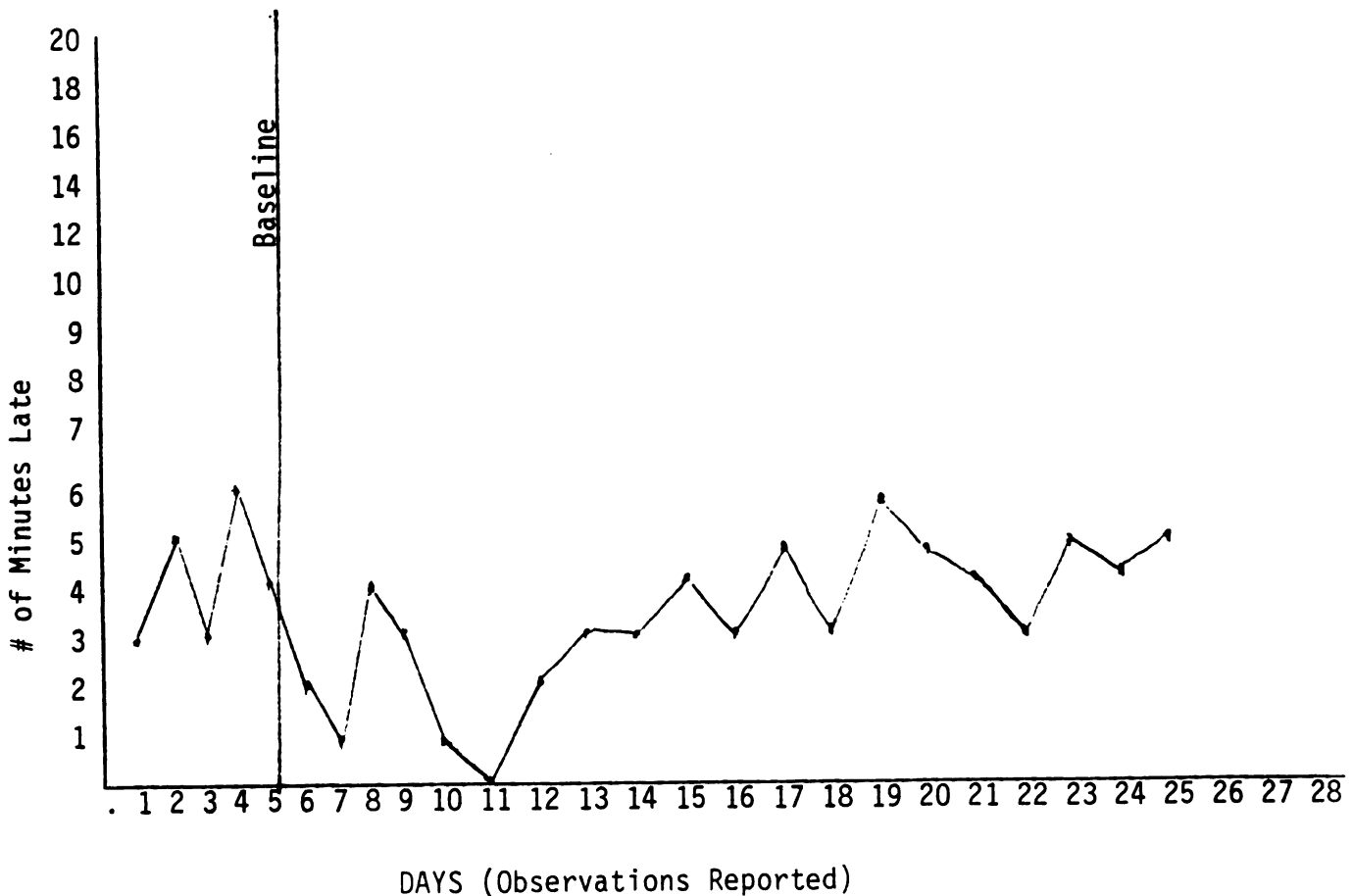
This project dealt with a worker's behavior of returning late from breaks, practically every day. A one-week baseline was observed and recorded, and four weeks of intervention data are also reported. The supervisor kept track of the number of minutes the worker returned late from break per day. The intervention plan involved providing extra work every time the worker returned late from break. Positive and negative reinforcement were provided in the form of feedback and gestures.

A t-test comparing means of baseline and intervention phases was performed. The results are summarized in Table H.

Table H

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	5	4.2000	1.304	.186
Intervention	20	3.2000	1.576	

The results indicate a non-significant finding. Although there was a difference between means, it was not statistically significant. Visual inspection of graphed data shows some difference between baseline and intervention data, but not enough to be significant statistically.



Project 9

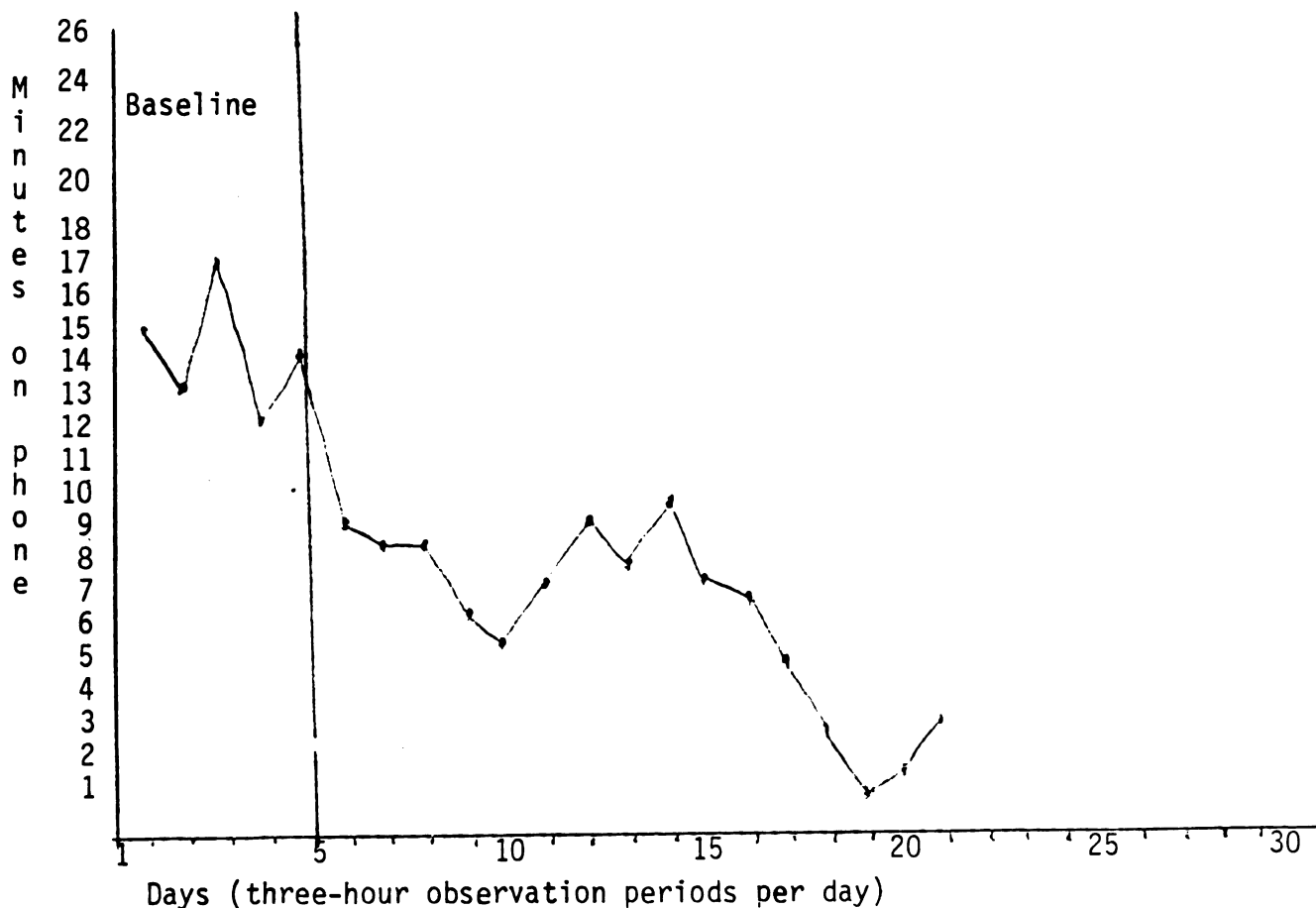
This project involved reducing what were called loud, lengthy, personal conversations on the phone by a worker. The supervisor believed this behavior annoyed other workers and reduced productivity. The baseline data consisted of the supervisor's recording each morning the number of minutes spent on these phone conversations during a daily, three-hour observation period. This observation period continued through the intervention phase. The intervention plan involved pointing out the behavior as it occurred, assigning more involved work to this individual that was more challenging, and positively reinforcing on-task behavior. The project was carried out over four weeks.

A t-test comparing baseline and intervention phases yield a .000 level of significance, and relevant data appears in Table I.

Table I

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	5	14.2000	1.924	.000
Intervention	16	6.000	2.733	

Graphic representation of the data concur with this t-test finding. Clearly there is a dramatic change between baseline and intervention phases in the desired direction, signaling a significant treatment effect.



Project 10

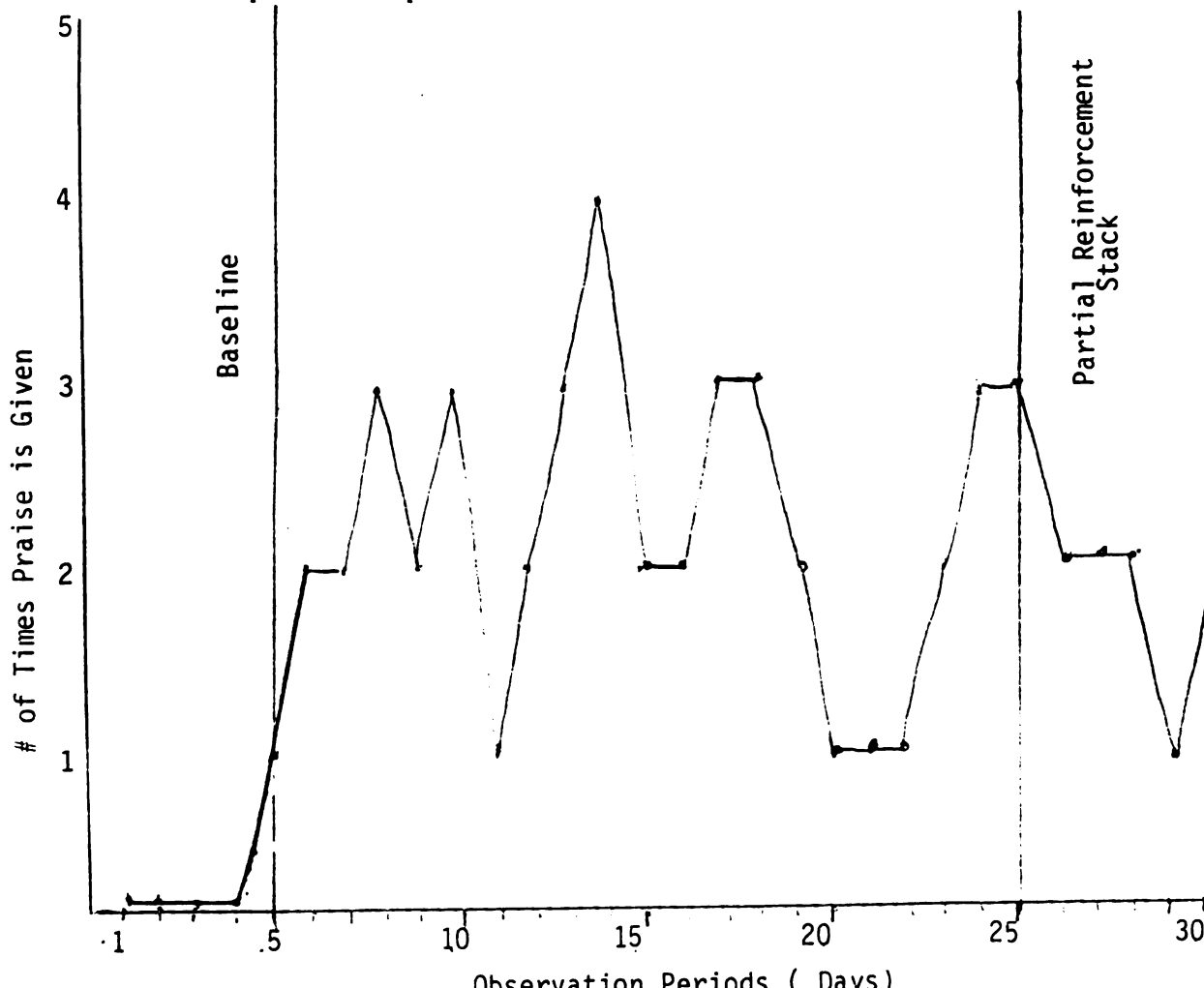
This project involved getting a worker in a quasi-administrative position to increase the amount of praise given to other workers. Baseline data consisted of a tally of number of times praise was given to workers by the targeted worker for each day. The baseline lasted five days. The intervention phase recorded data in the same manner for 20 days. The intervention plan involved setting the expectation that more praise would be given. The supervisor then praised the worker for complying with expectations.

A t-test on the means between baseline and experimental or intervention phases is summarized in Table J.

Table J

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	5	.4000	.548	.000
Intervention	25	2.1600	.800	

The result suggests significance at lower than the .000 level. visual inspectio graphically confirms a great difference between baseline and experimental phases in the desired direction.



Project II

Deleted: there is no such project.

Project 12

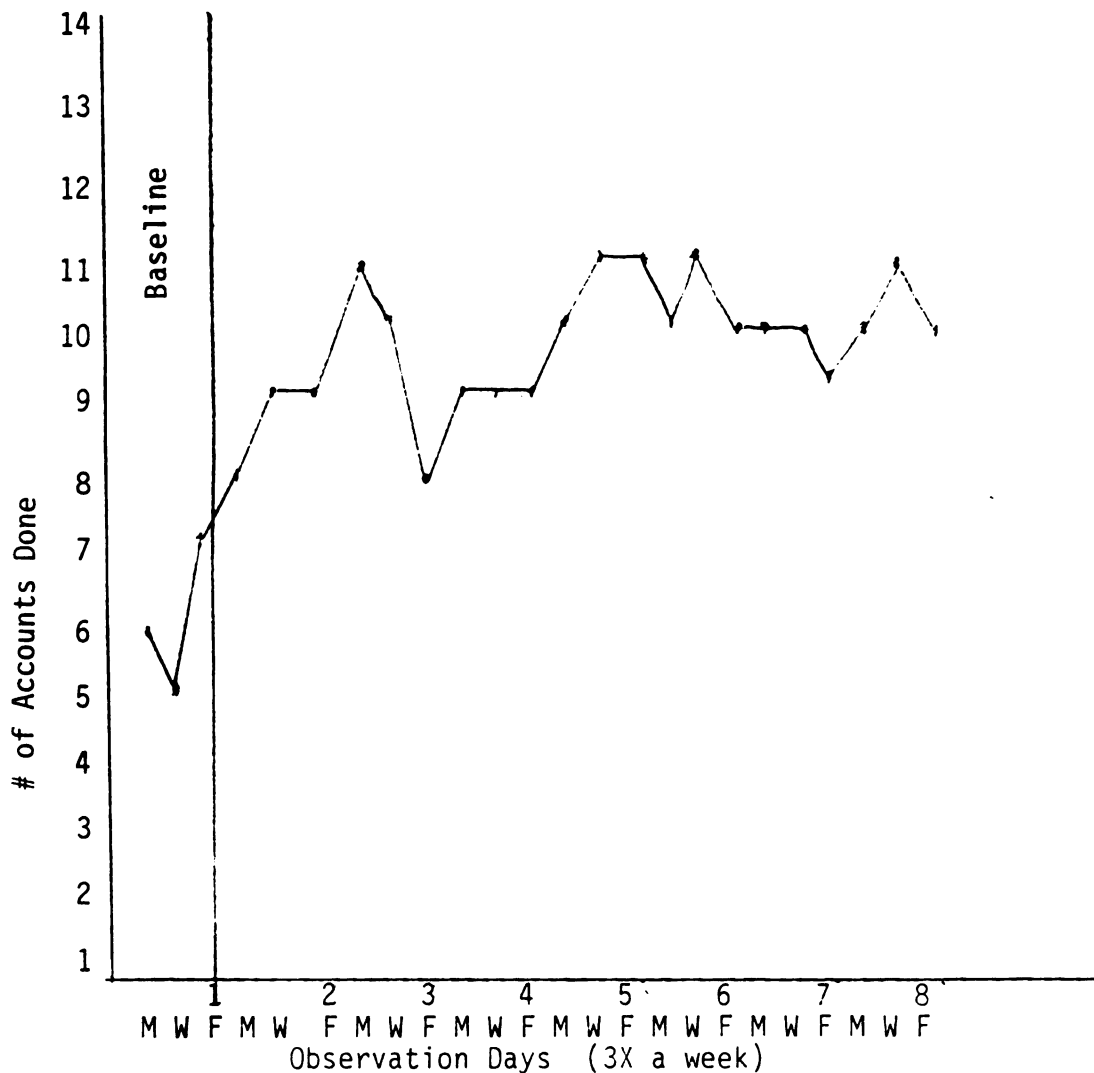
This project involved the supervisor's wanting to increase the work output of a worker. The supervisor collected baseline data on Monday, Wednesday, and Friday for a one-week period. Intervention phase data were reported for seven subsequent weeks in the same manner. The percentage of accounts done on observation days was recorded.

A t-test comparing the baseline with the treatment phase showed a .009 level of significance which is a great difference. Relevant data appear in Table K.

Table K

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	3	6.0000	1.000	
Intervention	21	9.7619	.944	.009

A visual inspection of the graphed data for this project clearly indicates a significant intervention effect in the desired selection which is consistent with statistical findings.



Project 13

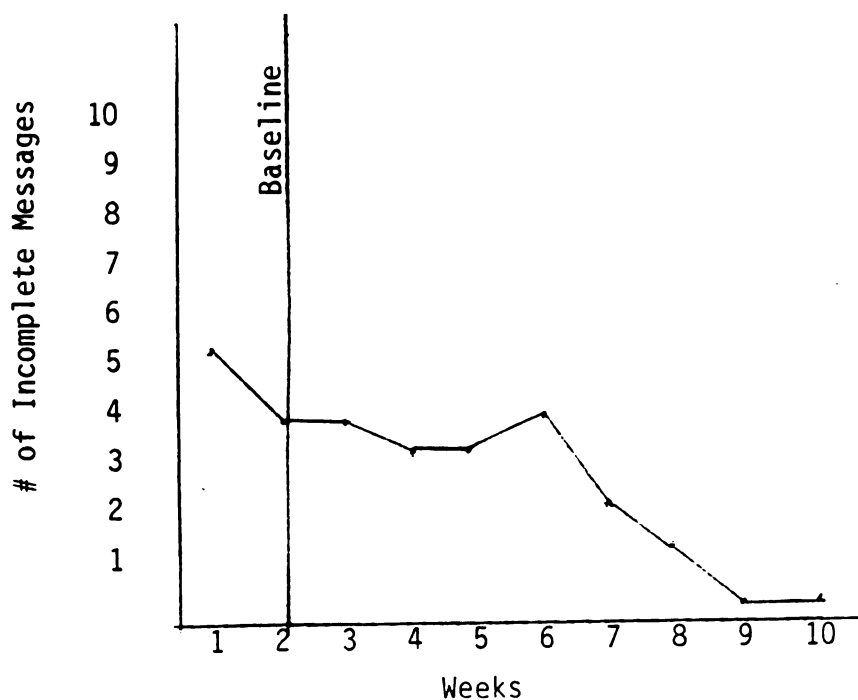
This project involved trying to modify a worker's behavior of not filling out phone message slips completely, so that those receiving the messages could not call the people back. Baseline data were collected for two weeks and consisted of a tally of incorrectly filled out slips or no slips filled out by the target worker, summed across weeks. The worker viewed phone answering as not being part of her job. Intervention measures were taken the same way as the baseline. The intervention plan involved making it clear that phone answering was part of the worker's job. Positive verbal reinforcement was provided for adequate work. Negative consequences were initiated for not doing the defined task (such as more time on phones for not doing a good job of answering and recording messages).

A t-test comparing baseline and intervention phases showed a .020 level of significance and appears in Table L.

Table L

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	2	4.5000	.707	.020
Intervention	10	1.8000	1.619	

Visual inspection of graphed data confirm a significant decrease of target behavior in the desired direction each week. The intervention phase never goes above baseline lowest point.



Project 14

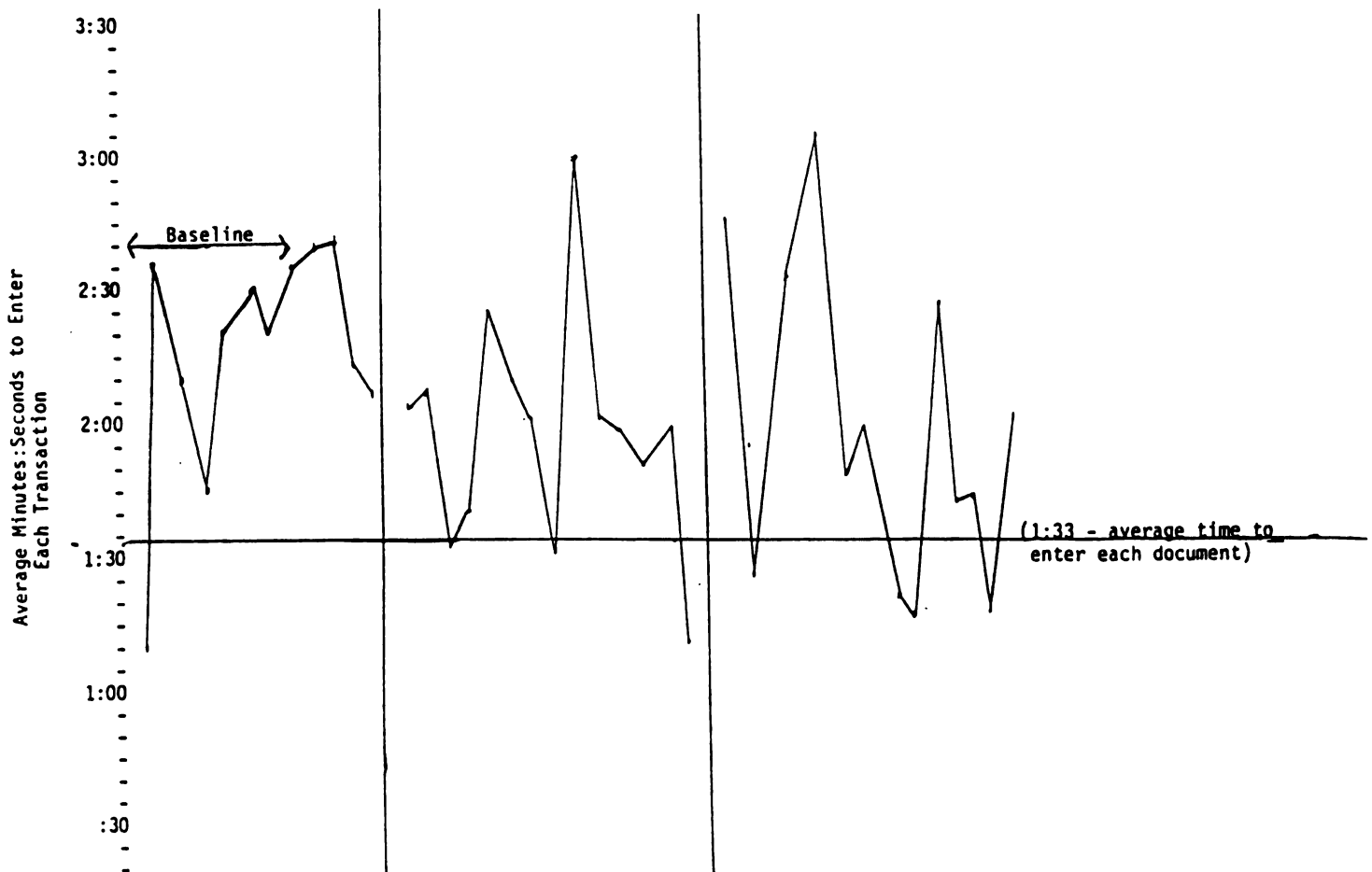
This project involved trying to increase a worker's entry of documents. The worker was slow, particularly on certain types of data, which she disliked working with. Baseline data were collected daily for five days and intervention data were collected in the same manner. The intervention plans involved discussing observational baseline data with the worker and setting up a system by which the worker would get started on the sort of documents she likes right after she finished a disliked document, if her rate were faster than the baseline. Verbal praise was another reinforcer utilized.

A t-test was run to compare baseline and intervention phases. The results appear in Table M.

Table M

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	5	2.1260	.643	.836
Intervention	35	2.0609	.495	

These results show that there was no significant difference between baseline and intervention phases. A visual inspection of the graphed data confirms the findings in that the data points for intervention appear to be close in value to those of the baseline.



Project 15

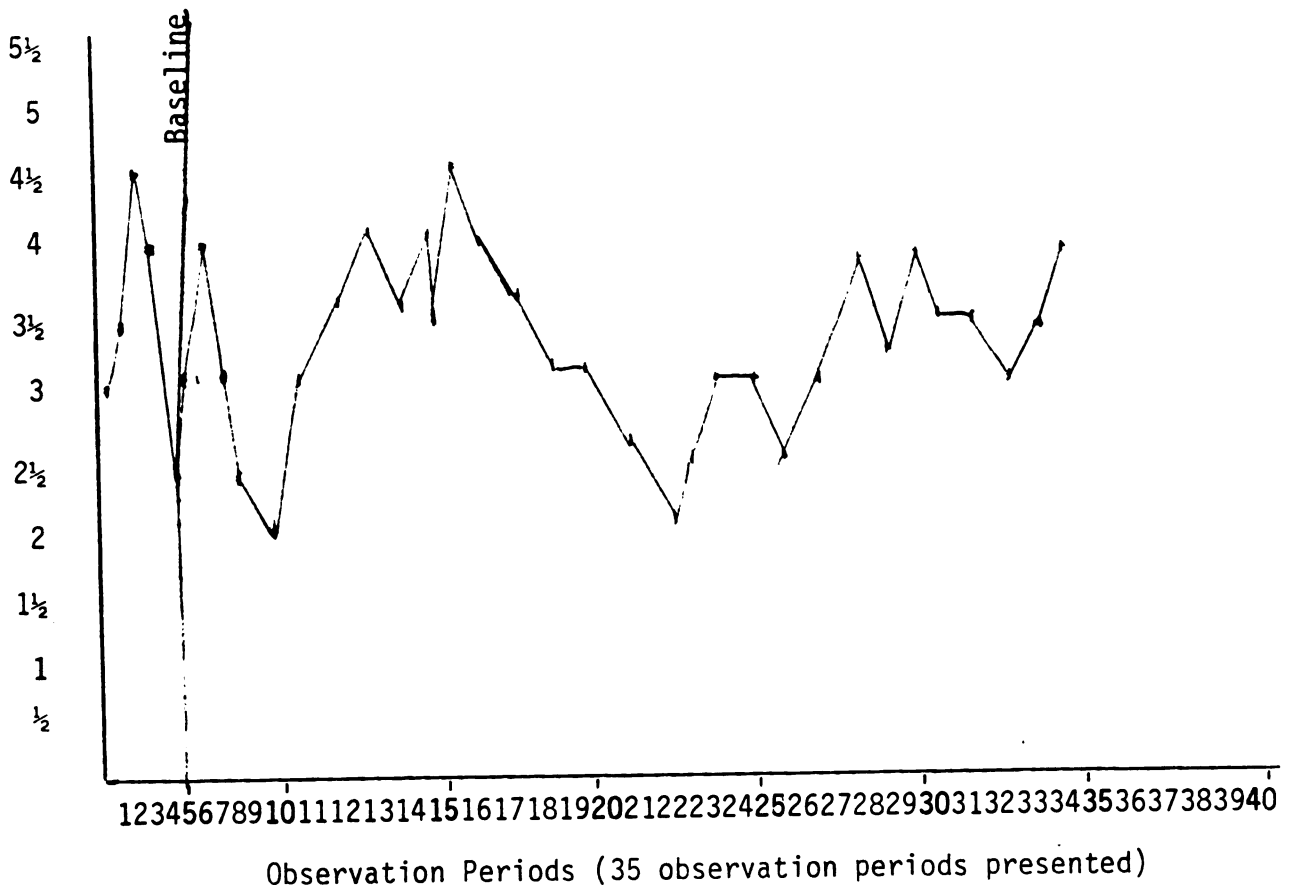
The project involves a worker who dislikes doing a specific task associated with her job related to specific types of documents. When working on this particular task, it was reported by the supervisor that it took the worker longer to complete it than other tasks she did. The baseline consisted of five observation periods. Intervention phase consisted of 30 observation periods. The plan included positive reinforcement for faster work on disliked jobs and being assigned work that she liked only after adequate completion of disliked work.

The results of the t-test as shown in Table N.

Table N

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	5	3.7500	.559	.140
Intervention	30	3.2830	.628	

The means are close in value for both baseline and intervention data and are not significantly different. Visual inspection of graphed data shows a narrow range of variation between both phases.



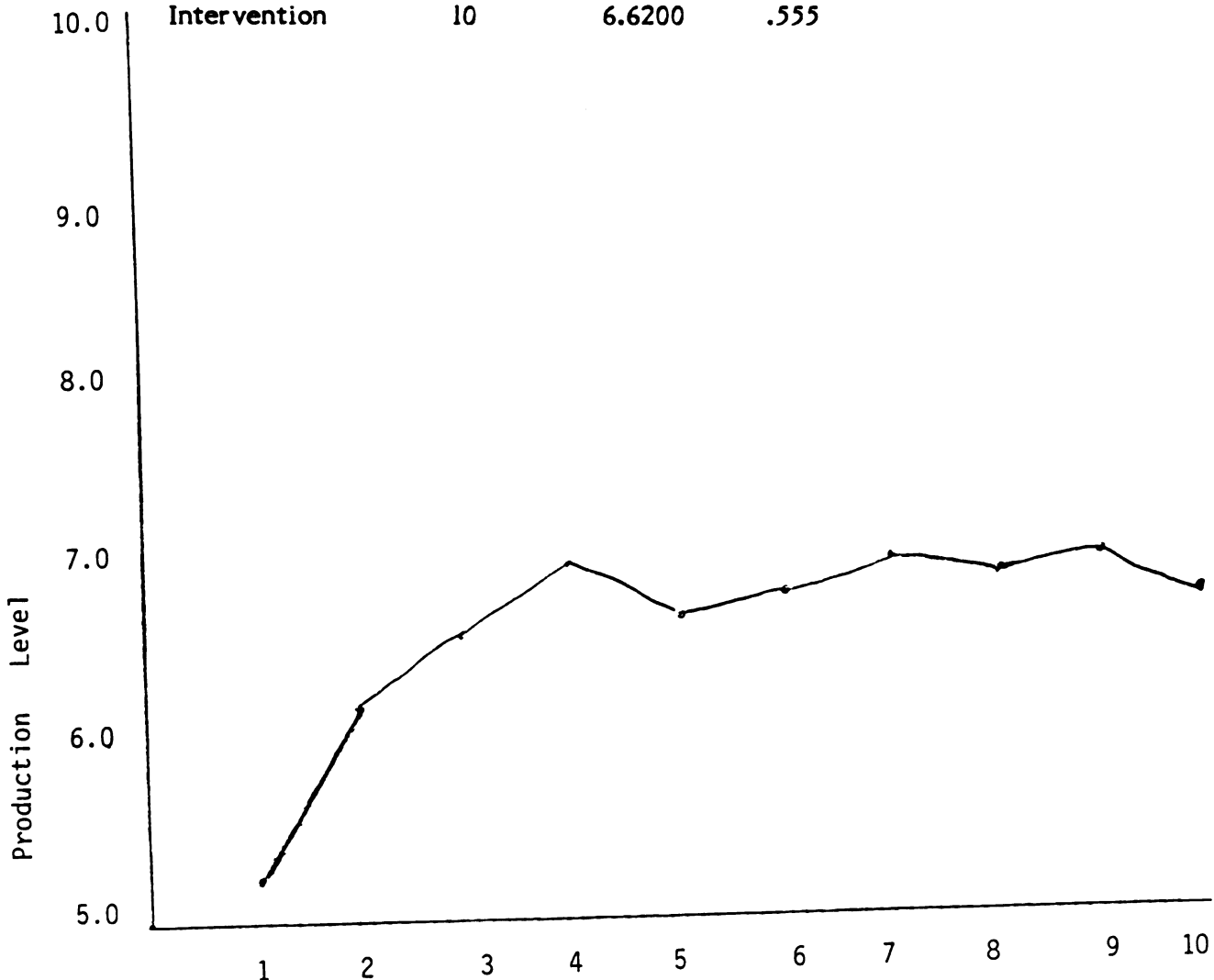
Project 16

This involved an identified worker who produced lower amounts of work output when involved in tasks she did not find interesting. Erratic production output affected other workers in the unit who resented this behavior and affected unit quotas. The worker was viewed by peers as avoiding work. Data were recorded in terms of weekly production figures. The supervisor kept no baseline data, but simply began the project and looked at the first week as being a low point and the recorded with a measure of change. The plan involved positive reinforcement for appropriate behavior and feedback for off-task behavior.

Visual inspection of graphed data shows a clear increase in production output by the worker as the intervention plan progressed. This was in the desired direction. Table O displays t-test results.

Table O

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	0	0	0	.000
Intervention	10	6.6200	.555	



Project 17

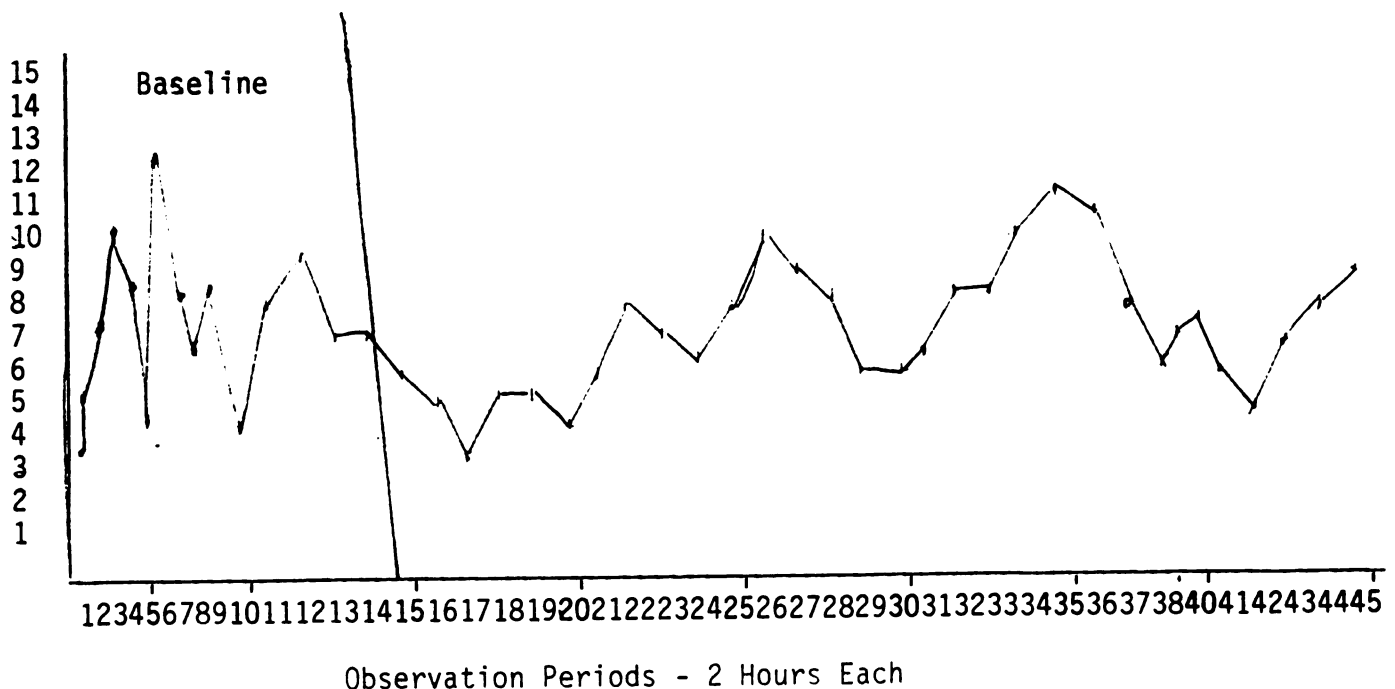
This project involved a worker who would leave his desk and interfere with other workers trying to perform their work, either by offering help to them that was unrequested or simply by socializing. Baseline data were maintained for three weeks with 15 observation periods consisting of two hours each, and a tally of the number of times away from her desk was kept. Intervention data were kept the same way. The intervention involved a conference between the worker and supervisor at which an expectation was set that this worker would stay away from peers and do her own work. Recognition of boredom with work was discussed and an attempt was made to provide more work of the sort the worker preferred. Social contacts were encouraged during break times and praise for doing work was a positive reinforcer.

The results of the t-test appear in Table P.

Table P

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	15	7.0669	2.251	.362
Intervention	30	6.4333	1.961	

The differences between the means are small and test out to be not significant at the .362 level. The results suggest the intervention was not affected in producing change in target behavior. Visual inspection of the graphed data shows little apparent difference between baseline and intervention phases, which is consistent with the results of the t-test.



Project 18

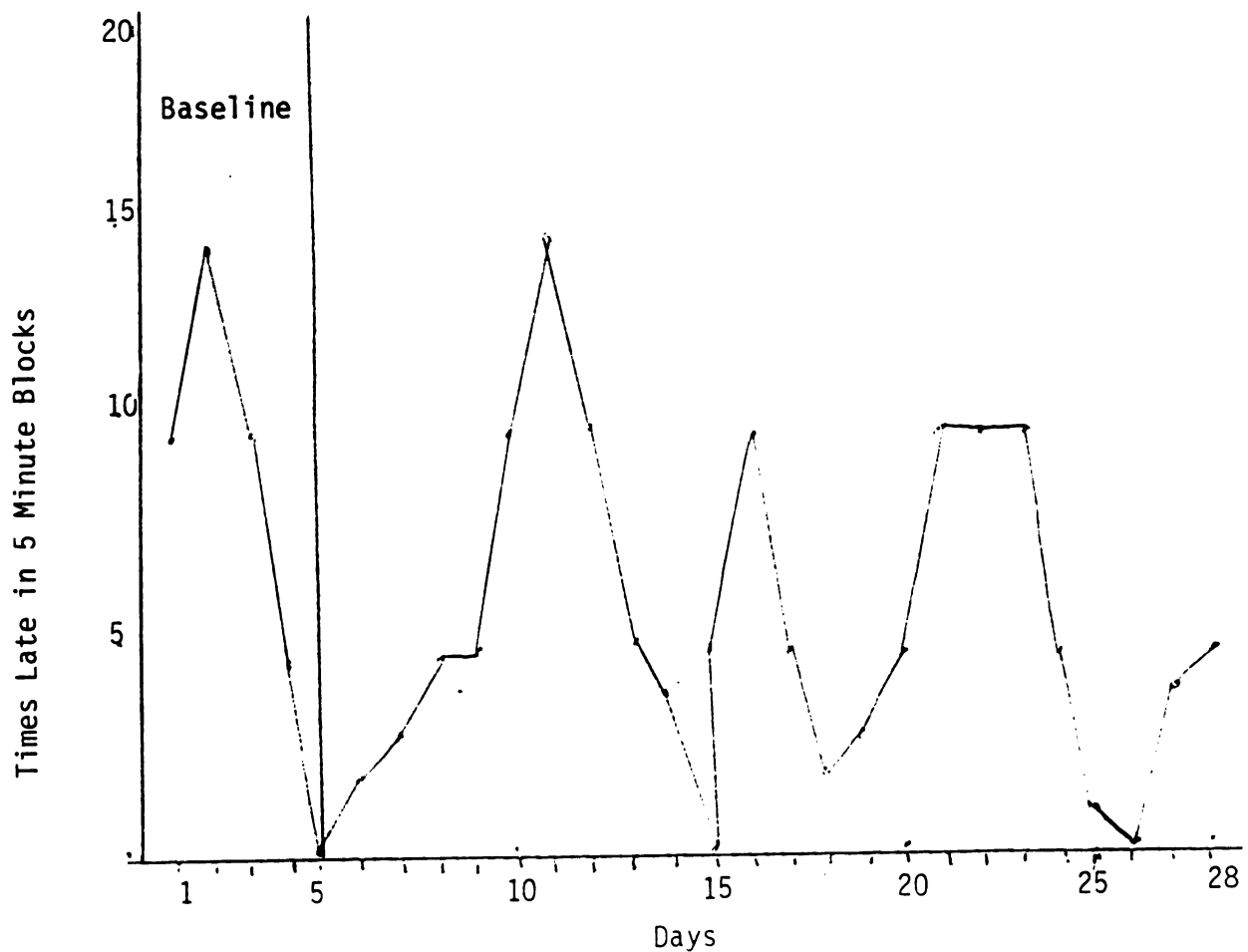
This project concerned a worker who was 5-15 minutes late for work each morning. This led to other workers having to cover the phones for this worker and take out time from their own work to do so. Baseline and intervention data were collected in the work place by observing and recording the amount of time late each morning. The intervention plan consisted of having late time charged to annual leave or lost time. Other workers were encouraged not to project this person from consequences. Positive reinforcement was given when the worker arrived on time.

A t-test yielded the results in Table Q.

Table Q

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	4	10.000	4.082	.140
Intervention	46	5.7826	3.693	

The results show that the relationship between the baseline and intervention phases were not significant. This indicates that the intervention was not successful.



Project 19

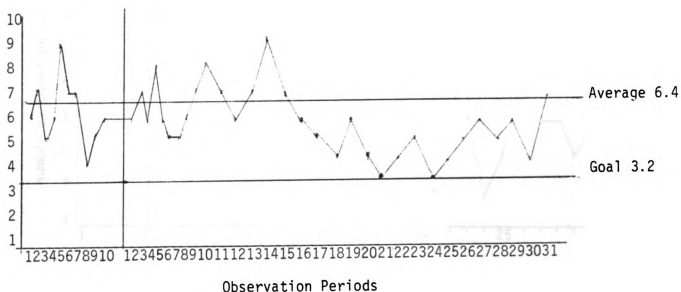
This project involved a worker who talked excessively outside of her work area, according to the supervisor. There was no problem with work output, but her talking interfered with other workers' performing their jobs. Baseline consisted of a two-week observation period in which the supervisor observed the worker three times each day while the supervisor made work distribution rounds. The number of times the worker was out of her work area talking to others was recorded. Intervention data were collected the same way for an additional six weeks. The intervention plan included assigning extra work for the worker when she was found out of her work area, positive reinforcement of appropriate work behavior, and encouragement to the worker to talk on breaks.

The results of a t-test comparing baseline and intervention means appears in Table R.

Table R

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	10	6.2000	1.398	.355
Intervention	31	5.7097	1.465	

The data show that there is not a significant difference between the means. The means are, in fact, very close in value to each other, suggesting the intervention was not significant in producing desired changes. Visual inspection of graphed data show that there is little variation between baseline and intervention phases.



Project 20

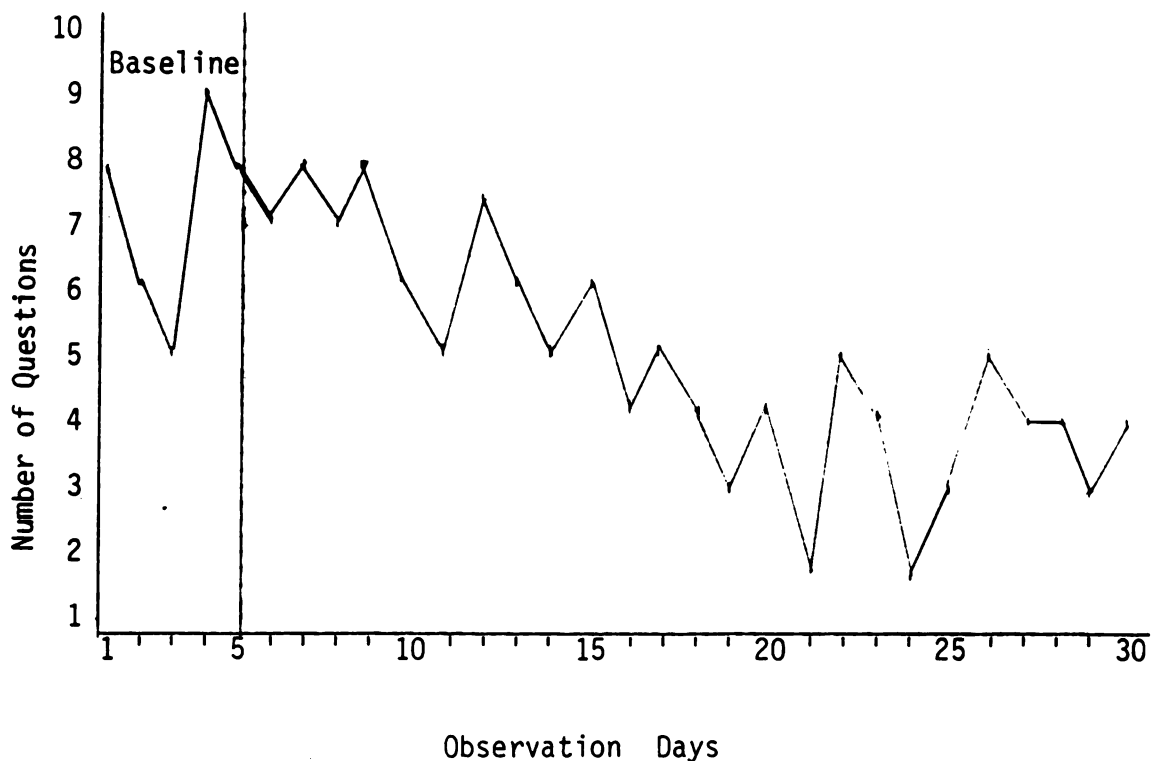
This involved a worker who consistently asked questions regarding procedures instead of looking up answers in a manual provided to her for this purpose. In doing so, she interfered with other workers doing their jobs. Baseline was conducted for five days, with a tally of number of questions asked per day recorded. Intervention lasted for five weeks. The intervention plan included retraining the worker in the use of the manual, enlisting other workers to refer the target worker to the manual when she had a question or directing the question to the supervisor and positive reinforcement of use of manual.

The results of a t-test are in Table S.

Table S

	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Two-tailed Probability</u>
Baseline	5	7.2000	1.643	.027
Intervention	25	4.8400	1.700	

The results indicate a significant difference at the .027 level. This further demonstrates a successful intervention in the desired direction.



APPENDIX B

TRAINING PROGRAM

INSTRUCTIONS TO TRAINERS,

TRAINING PROGRAM,

AND

PROGRAM STUDY GUIDE.

Behavior Management Training ProgramTraining Session I

1. A. Administer pre-test material consisting of two questionnaires.
B. Introduce trainer. Introduce participants.
2. Introduction to the program and points to be covered regarding the program:
 - A. Behavior Management Training Program is a compilation of concepts used in learning theory that have proved effective in increasing desired behavior and decreasing unwanted behaviors.
 - B. These concepts have been used largely in schools and health-related settings. Only recently has this technology been applied to industrial environments.
 - C. Successful managers have used many of the concepts to be taught in this course for years. However, it is rare that they have ever tried to take the elements of why their approaches are effective, break them down into component parts, and come up with a systematic approach that maximizes the impact on negative and positive behavior.
 - D. When a successful manager hits a brick wall with a particular problem, it is likely that his intuitive method has broken down in some way. Furthermore, unsuccessful managers frequently have not learned approaches to problem behavior that work in reducing these behaviors. This program expects to teach ways of looking at behavior, both positive and negative, that will enable the manager to clearly assess the situation and define a management plan for modifying the behaviors in question.
 - E. Behavior Management training procedures are in no way intended to supplant what successful managers are already doing effectively. Rather, these procedures are meant to augment and supplement successful managerial styles. They will be additional tools to be used to improve the work environment and work behaviors of employees.
 - F. This program will take the following form: Each week a short amount of lecture material will be presented. This material will introduce a concept that will be defined and discussed. There will be examples of the concepts provided. Short assignments will be given to participants in this program. These will involve short, programmed, material that illustrates the concepts for the class. In addition, participants will be asked to practice application of the principle learned in class and to bring a few examples to the next class. Questions are encouraged. Each week, the concept from the previous class will be reviewed using the examples brought in by participants and a new concept will be introduced.

What is Behavior Management?

In industry, Behavior Management is the systematic application of scientifically tested principles of learning and behavior change to improve performance on the job. It is based on experimental findings in laboratories and complex organizations. These organizations include factories, stores, offices, and other work settings. The information and techniques you are about to learn have proven effective in actual work environments.

ABC - Antecedents - Behavior - Consequences

Let us look at an example of how employees can change a manager's behavior. This will demonstrate what is called operant learning or learning that is effected by the consequences of behavior.

When a foreman asks workers to clean up their work area, his request may be greeted by a number of possible consequences. One consequence could be that the workers swiftly comply and spruce up the work area. Another possible consequence could be that the workers loudly complain and protest that "...it's not our job." In addition, the workers may take this opportunity to launch into a volley of other complaints about working conditions, company policy, and the foreman's methods of dealing with them.

The question is how will the foreman's future behavior of asking the workers to clean up the area be affected by each of these consequences? Faced with such situations, in real life, many foremen report that they continue to ask to have the area cleaned if the workers comply, but that they have actually stopped asking workers to clean up when the workers resist and complain.

What does this tell us about a foreman's behavior? It tells us that the behavior of foremen toward the employees under their supervision is learned. That is, a foreman's behavior changes as a function of the consequences of reactions to his behavior. Because different workers provide different consequences to their foremen, foremen behave differently toward them. These same principles hold for all levels of supervisory personnel, including managers, supervisors, executives, and company presidents.

In the case where the workers comply with the foreman's request, we would say that he was "reinforced" for requesting them to clean up. In the second case, if a foreman eventually stopped requesting certain workers to clean up, we would say he was "punished" for making the request because the employees' complaining decreased the foreman's requests for them to clean up. Reinforcement and punishment, used in Behavior Management, will be defined and examined at length at a later class. Another example is in one large printing firm, typesetters reported that the hardest workers kept getting the toughest, "high pressure" jobs, while the lazy, complaining workers got the easy, less demanding ones. It might very well be that the managers and foremen had learned by experience to assign tough jobs to the more dependable workers who reinforced or rewarded this behavior by getting the job done. On the other hand, supervisors just stopped going to the lazy, complaining, workers, again due to the consequences they received.

Let us look at these examples in light of the concepts of antecedents and consequences.

Behavioral scientists refer to the events which preceed behavior as antecedents.

Antecedents can be anything that is designed to get a behavior going. Instructions, requests, commands, orders, check lists, signs, labels on machinery, or someone else completing their phase of an operation, are only a few examples of antecedents which set the scene for a behavior to occur.

The manager who realizes that many work behaviors are a function of antecedents and consequences is well on the way to making good use of behavioral management procedures. Being able to analyze any given behavior in terms of the antecedents which preceed the behavior and the consequences which follow the behavior simply amount to knowing the ABC's of Behavior Management.

Below is an ABC form which is an extremely useful device for analyzing behavior.

Let us see how we can analyze the examples discussed so far using the ABC form.

Antecedent	Behavior	Consequence	Probable or known effect of consequence

Consider now the foreman who asked his workers in Group A to clean up their area.

What was the antecedent to his behavior? It was seeing litter and a mess on and around the work area. Thus, the ABC form would look like this.

<u>Antecedent</u>	<u>Behavior</u>	<u>Consequence</u>	<u>Probable or known effect of consequence</u>
Litter on floor and messy work area	Foreman tells workers in Group B to clean up area	Workers complain and protest it's not their job; complain about other issues.	Foreman stops asking this group to clean up when he sees a messy floor

Now, focus on the behavior of workers in Group B to see if we can understand why they keep complaining and refusing to clean up. Note that now the foreman's own behavior becomes the antecedent for the behavior of the workers in Group B.

ABC FORM

<u>Antecedent</u>	<u>Behavior</u>	<u>Consequence</u>	<u>Probable or known effect of consequence</u>
Foreman tells workers in Group B to clean up area	Workers complain and protest it's not their job; complain about other issues	Foreman stops asking them to clean up	They will complain again when asked to clean up by the foreman

So, the foreman seems to be inadvertently reinforcing or encouraging the complaining behavior of the workers in Group B when he stops asking them to clean up each time they begin complaining.

To summarize, all behavior is preceeded by antecedents and followed by consequences. By understanding this, it makes it possible for us to diagram all behavior in terms of what comes before the behavior being looked at, and what comes after it. These factors enable us to assess what may be causing and maintaining the behavior.

Next, we will explore reinforcement or what effects the strength of a behavior.

ASSIGNMENT: Please bring to next class, three examples of antecedents and consequences observed in your work unit. Please be specific and try to pick behaviors that are problematic. You may use the ABC form provided in class.

Also, do pages . in the programmed material handed out in class. (Trainer) Explain how to use programmed text. If extra time is available, do text in class. Take questions.

Definitions

Antecedent - Any event or happening that preceeds a behavior of study.

Consequence - The result of a behavior that can effect the strength of the behavior.

Behavior - Any event being examined.

Training Session II

Review of Previous Session:

1. Go over briefly material from last session. Specifically diagram A-B-C, using example from previous session.
2. Answer any questions.
3. Go over examples assigned in class I - i.e. A-B-C's from their work environment - select a few and put them on board in A-B-C form.
4. Go over programmed test if not done in class.

New Material - Reinforcement

Definition of Reinforcement: Any consequence which strengthens or increases a behavior which it follows. Frequently, reinforcement is synonymous w/reward.

Two Types of Reinforcement

1. Positive Reinforcement - Any consequences that increases response rate of a behavior ex. - if paid by piece rate - \$ is a positive reinforcer. ex.: money
2. Negative Reinforcement - Any consequence whose cessation increases the response rate ex. - if a worker can leave for the day when he reaches production level - then the cessation of the work is reinforcing and increases the probability of response rate behavior.
ex.: don't speed to avoid a ticket

Every manager uses reinforcement in some form or another several times a day. However, in this case, we are trying to learn how to scientifically apply these principles to maximize desired behaviors and minimize undesired behaviors.

On occasion, a manager may inadvertently be reinforcing negative behavior.

Example of Reinforcement

Let us focus in on behavior of the worker to see how a manager can not only understand his own behavior but also the behavior of others.

Passenger service agents working for a large airline were permitted by union contract, to carry out any one of three separate jobs. These were:

(1) operating the mechanical jetway, which passengers used to pass from the terminal to the aircraft; (2) collecting tickets at the gate; and (3) ticketing passengers. The most difficult and least popular job was ticketing passengers since this involved computations, time pressures, handling money and credit cards. The job of collecting tickets was less difficult and more popular. The most favored job was operating the jetway. All three tasks carried the same pay and employees could be assigned to any job at the discretion of airline management.

In an attempt to reduce ticketing errors, delays, and poor customer service at the ticketing counter, those employees who performed inadequately in this job, were moved to the job of ticket collecting. If they did poorly at collecting tickets, they were assigned to the jetway.

Consider for a moment how the consequences of being removed from the less favored ticketing job to the more favored jobs of ticket collecting or operating the jetway might affect the behavior of the passenger service agents involved. One might imagine the following scene. Harry, an employee for Transcontinental Air, is walking away from the ticket counter and toward the boarding gates in the middle of his work shift. Ann, who works for Air America, is standing at the ticket collection area, surprised to see Harry at the gates:

Ann: "What are you doing out here in the boondocks?"

Harry: "I got sent down to operate the jetway."

Ann: "In the middle of a shift?...What happened?"

Harry: "Well, I fouled up on two or three ticket prices and was short on my cash tally at lunch break, (pauses) and, uh, I guess I got pretty nasty to some character who thought he should go before a little old lady I was helping."

Ann: "A pretty rough day, huh?"

Harry: "Naw! I always pull that kind of stuff when I want to get a rest and operate the jetway."

If Harry's supervisor heard this conversation, certainly he would reconsider the procedure of reassigning agents to the jetway when performance fell below standard. In fact, in this case, since working on the jetway seemed to be a desirable consequence, the supervisor might consider assigning agents there when they had worked a certain number of hours or shifts ticketing passengers with very few errors.

The table below shows how to analyze whether a consequence such as this, is affecting an employee as reinforcement.

Behavior	Consequence	What effect did it have?	What consequence was
1. Harry makes errors in ticketing	Supervisor transfers Harry to jetway	Harry makes more errors (increases behavior)	Reinforcement

Now, consider once again the foreman's behavior we discussed earlier and look at the following table.

Behavior	Consequence	What effect did it have?	What consequence was
1. Supervisor asks workers in Group A to "clean up area"	Workers quickly clean up their area	Increased likelihood that foreman will ask workers to clean up	Supervisor uses reinforcement

We can see from the above examples that managers and workers are constantly responding to their environment and affecting one another's behaviors. The environment is constantly "teaching" us how to behave in any organization. The more we know about these environmental influences, the better equipped we will be to enhance the work environment by providing reinforcing consequences for appropriate performance and by avoiding procedures which inadvertently make things worse.

How can a manager change things to improve performance? Let's return to our passenger service agents and use the ABC Form to consider the behavior of Harry, who decided he wanted to work the jetway.

Antecedent	Behavior	Consequence	Probable or known effect of consequence
Harry decides he wants a rest and to be assigned to jetway	Harry makes some ticketing errors; is rude to a passenger	Supervisor assigns Harry to jetway	Harry will make more ticketing errors and be rude next time he wants jetway assignment

Now, how can we change something in order to possibly improve the situation? Keep in mind that most manager-employee behavior is caused by various combinations of antecedents and consequences. What we must do to improve things, is change antecedents, consequences, or both, and then see if the behavior of concern changes.

In the above example, it does not appear that we can immediately change the antecedent, since Harry's desires are not directly observable. However, we can change the consequence. Suppose the supervisor now decides that when Harry makes an error or is rude, he will be helped to correct the error and analyze how he might have communicated with the passenger in a more positive manner. But he will not be removed from the ticketing counter for making errors or for being rude. On the other hand, since operating the jetway does seem to be a desirable consequence, why not follow a period of two or three hours of good performance on the ticketing desk with some time operating the jetway? In this way, the manager would be actively reinforcing the appropriate behavior and not inadvertently reinforcing Harry's undesirable behavior. We might even overhear this conversation a few months later:

(In the middle of a shift, Harry meets Ann on the way to the jetway).

Ann: "Hi, Harry, what are you doing out here in the boondocks? - decided to ticket a few Los Angeles passengers to O'Hare?"

Harry: "Naw, I cut that out. You know, Mr. Stanion had a good idea. All I have to do is keep my error rate below 5% and we get to switch off and choose another job assignment if we want."

Ann: "No kidding! You mean they know you want to be on the jetway?"

Harry: "Sure; and they say we might need a rest and that operating the jetway works like a reward. Hey, look, I get the same thing I have wanted, but now I get good performance reviews

instead of some of the stuff they used to write about "bad attitude" and...well, you know."

Ann: "I think I'm gonna mention this to our supervisors. See ya,"

Harry: "See ya."

This type of experience is not unusual when managers understand the basic principles of human behavior and apply them systematically to enhance work performance.

Trainer

- a. Next, let's diagram out some of the examples of antecedents - behaviors - and consequences you brought to class and look for reinforcements.
- b. Go over chapter on Reinforcement in programmed text if there is time. If not, assign it as homework.

Assignment

Please diagram and bring to class at least 3 examples where reinforcement is operating-two of these should show how reinforcement increases response rate of either desired or undesired behavior. One should specifically show how reinforcement increases the rate of an undesirable behavior. Use the chapter in the programmed text on Reinforcement as a reference and do this chapter if it has not been done in class. Look at environment and look at what reinforcers they do have control over; list them.

Definitions

Positive Reinforcement - Any consequence that increases the likelihood of a behavior.

Negative Reinforcement - Any consequence that increases the likelihood of a behavior by its cessation.

Training Session III: Punishment and ExtinctionReview of Previous Sessions

Review briefly ABC - material and positive and negative reinforcement. Use examples provided by class participants - Diagram at least two, using ABC format and adding a fourth box for reinforcement:

<u>Antecedent</u>	<u>Behavior</u>	<u>Consequence</u>	<u>Reinforcement</u>

Using their examples - feel free to correct errors and to discuss type of reinforcement and what, if anything, would be more effective. Using their example of mis-used reinforcement - diagram it and use it to stimulate discussion on what would be a way of connecting the error.

Also, go over programmed text if not done in class.

New Material = Punishment and Extinction

Positive and negative reinforcement are two methods for increasing the likelihood that a behavior will be repeated. Two methods for decreasing the likelihood of a behavior are punishment and extinction.

Definition of punishment: Any event which follows a behavior and weakens it.

Definition of extinction: Removing reinforcement for a behavior. Ignoring a behavior.

When one is seeking to decrease certain undesirable behaviors, it is often useful to analyze the consequences and identify possible reinforcers which may be maintaining that behavior. Once identified, these reinforcing consequences can be removed with the probable effect that the behavior will decrease or stop. For example, an employee who is constantly telling jokes or "wisecracking" at meetings may be accidentally reinforced by the smiles and laughter of his manager. By no longer smiling or laughing, the manager will remove the reinforcement and the unproductive,

disruptive behavior will usually diminish. When a manager merely removes the reinforcing consequence for a behavior, the technical term for the procedure is extinction.

One way in which behavior is affected by consequence is through punishment. Punishment is defined as any event which follows a behavior and weakens it or reduces the probability that it will occur. Unfortunately, punishment is a widely used method of control in some businesses. Threats, ridicule, sarcasm, loss of pay, ostracism and other aversive events are made to follow a behavior in the hopes that undesirable behavior will decrease. While punishment can work to reduce behavior, it is often accompanied by many serious side effects which, in the long run, can be very costly in terms of individual productivity

In addition, attempts to decrease certain behaviors by the use of punishment often backfire and inadvertently make things worse. Since merely decreasing one behavior does not provide for the teaching of new and more productive behavior, it is generally unwise for a manager to rely on punishment alone as a means of control.

Most managers who have been trained in behavior modification procedures are aware of the undesirable side effects of punishment, and choose to apply reinforcement-oriented approaches. Extinction procedures can usually be successfully applied to reduce inappropriate behavior. When, as a last resort, some unpleasant consequence must be used to reduce a dangerous or disruptive behavior, it is usually most likely to succeed if applied along with a program for teaching and reinforcing more desirable behavior.

In summary, we have seen that three principles of behavior change which focus on the consequences of a behavior are reinforcement, extinction, and punishment. Now let us look at some examples of these principles.

Jack, a worker who usually exceeds production quotas and is easy to get along with, is known for telling jokes. His reputation for this has grown to such an extent that every few minutes someone in his department interrupts their work to ask Jack to tell a story. Jack's supervisor is aware of this situation. For a while, his supervisor encouraged Jack's stories as a way of increasing morale. Now, however, these stories are interfering with production output.

Using the above scenario as a basis, let us look at how punishment and extinction could be used.

a) Punishment alone: Jack's supervisor takes Jack aside and tells him if he doesn't stop interfering with people doing their work, he will write him up for it - "Stop those stories!"

Probable Result: Jack is offended. The stories were a great source of reinforcement for him. Without his stories, Jack feels he is just another worker. Jack becomes angry and decides to make the supervisor pay. Jack cuts back on production. Several of the other workers are also angry at the supervisor's attitude. They also cut back on production.

b) Extinction alone: Jack's supervisor decides that he is a main source of encouragement for Jack's stories. He does this by setting an example and going over and listening to the stories. He also does not stop workers from doing the same thing. He decides to use an extinction procedure to eliminate Jack's stories. He begins by not reacting or not providing any reinforcement when Jack tells a story to him. Further, he purposely goes over whenever any of the men are listening, to one of Jack's stories and he again doesn't react.

Probable Result: By modeling extinction other workers pick up on the behavior and soon do not find Jack's stories so funny. By not reacting, the supervisor has caused Jack to feel his stories are not that funny. He soon begins to reduce the frequency of story telling behavior.

As we can see, extinction can prove to be the more effective technique because it has few retaliatory properties. However, there are times when punishment is necessary and when extinction is too lengthy a procedure to institute or when one does not feel extinction would be effective. Let us examine another approach.

c) Punishment, extinction, and reinforcement used together. Rather than punish Jack for story telling, the supervisor decides to put Jack in a position where the other workers have to clearly leave their jobs to hear a story. The supervisor watches carefully for a worker to approach Jack. When he does, the supervisor lets Jack begin a story. He then intervenes, before the punchline, or reinforcement. He then points out to the worker his leaving his job, and tells him not to do it again. After the worker leaves, he asks Jack to tell him the story that was so good a worker left his job to hear it. When Jack tells him he does not laugh. On breaks, the supervisor makes a point of sitting with Jack and some of the other workers and laughs loudly at Jack's stories.

Probable Result: By punishing the worker who leaves work to hear a story, the supervisor has made it difficult for workers to get access to Jack except during appropriate times such as breaks. It is likely there will be little retaliation because he does not actually punish the worker but rather sends him back to work. Jack, on the other hand, feels responsible for getting the other worker in trouble. He soon prefaces every story with the phrase - "Hey, why don't you go back to work, I don't want to get you in trouble." The supervisor's extinguishing of Jack's reinforcement for telling stories further encourages Jack to send workers back - why have them get in trouble for what might be a bad story? The extinction procedure also creates a reinforcement vacuum for Jack which makes him more susceptible to reinforcement when he does tell his story. By reinforcing Jack and the other workers for hearing and enjoying the stories at appropriate times, like breaks, the supervisor increases the probability that Jack's stories will be told at appropriate times and places and will not interfere with work output.

Point: Punishment and extinction are rarely used alone. Of the two procedures, extinction is most effective when used alone. Both procedures are most effective when used in conjunction with reinforcement in a unified plan.

Generation of examples - Use some of the examples brought to class if appropriate, to demonstrate punishment and extinction procedures. If these examples are not appropriate, see if the class can generate examples. If not, or if there is extra time, have them review the chapters on these topics in the programmed text.

Assignment: Bring in three examples of punishment conditions from the job. Be prepared to show how, if punishment had been coupled with reinforcement, a more effective outcome would have been achieved. Bring in one example of the use of extinction.

Also, do the programmed chapters on punishment, extinction, and punishment, extinction, and reinforcement.

Training Session IV

Review of Previous Session

1. Go over punishment and extinction.
2. Using examples brought to class, illustrate in diagramatic form, the antecedent, behavior, consequence, of example. Also, use it to illustrate reinforcement used in conjunction with punishment and/or extinction.
3. Run through the programmed text briefly.

New Material: A. Changing antecedents to change behavior. B. Basic steps in using Behavior Management techniques.

A. Changing Antecedents to Change Behavior

Many times an analysis of a particular behavior in terms of antecedents and consequences will reveal that some changes in antecedents might result in a change in behavior. When this is the case, a manager will often find that the procedure of prompting, shaping, and modeling a behavior will result in behavior improvement.

Prompting work behavior involves the use of any antecedent event which is designed to initiate some response on the part of an employee. A prompt could be a memo, instructions, sign on a door, phone call, buzzer, safety placard, or verbal request. It is interesting to note that many times workers do not exhibit certain behaviors either because they don't know it is their job, or they don't know when or how to do it.

A work order form for business machine customer service employees was changed to include the prompt "Have you asked customer if additional supplies are needed?" This prompt increased the number of times customers were asked this question, and ultimately increased the sale of additional supplies.

Shaping work performance involves systematically reinforcing successive approximations to the desired goal behavior rather than asking for a lengthy job to be done all at once. Prompting and setting small incremental sub-goals are often involved together in improving work performance. For example, shaping is often required to increase the probability that previously hard-core unemployed persons will hold their jobs. Individuals may arrive late to work but less late one day than on the previous day. This is an improvement and should be reinforced and acknowledged, while also prompting verbally

the desired goal.

Modeling behavior for employees is another important responsibility of a manager. A supervisor who is critical of company policy will often inadvertently set the tone in a department so that his workers imitate his behavior and criticize as well. Employees often imitate the behavior and dress of their supervisor and co-workers. The manager who understands the great influence his behavior can have as a model for his employees' behavior can use this knowledge to his advantage in enhancing their work performance.

It is often the case that a combination of changing both antecedents and consequences will be the best approach for influences on behavior change in a desirable direction.

B. Basic Steps in Using Behavior Management

First of all, be assured that you have already learned the most significant fact relating to the actual use of behavioral principles as management tools. The fact is that manager-employee behaviors are a function of antecedents and consequences. In this chapter, you will learn the four basic steps which will help you to analyze and change performance-related work behaviors.

The four basic steps for changing behavior are:

1. Pinpoint the behavior.
2. Count the behavior and chart the behavior.
3. Change the behavior by changing antecedents, consequences, or both.
4. Evaluate your behavior improvement project and if you are not as successful as you would like, try, try again. If your change procedure has been effective, that's fine. If not, then recycle through the necessary steps and use a more potent change procedure.

Pinpointing Manager-Employee Behaviors

One simple problem which we are all aware of in work settings is that we often fail to communicate adequately with one another. We may assign a task to a worker, discuss it at some length, agree on a deadline for completion, and find that the task is either done inadequately, or not at all by the deadline date. When we pin-

point a behavior, we define it in such a way that anyone listening to your description could:

1. see the behavior
2. count the behavior
3. Describe the situation in which the behavior occurs.

When manager-employee behavior is pinpointed, we reduce confusion and assist workers to know exactly what we are talking about.

For example, consider the way in which a manager might describe one of his workers, first without pinpointing:

Well, Phil's just generally a disagreeable worker; he's so negative all the time and I'm really not sure what to do about him. He's aggressive and extremely disruptive. He sulks a lot, and sometimes just sits and daydreams. He's insubordinate and he doesn't follow rules. From what I've seen of him on the job, he seems to have a poor perceptual ability. As far as I'm concerned, he just doesn't think rationally. Almost everybody who has to work with him says he's immature. Now, don't get me wrong; his intelligence is probably OK, but he just doesn't seem to have any reasoning power. He generally lacks motivation and is usually pretty stubborn. He used to work with Sal over in Receiving, and Sal knows the family. He said Phil gets his stubbornness from his mother and his running off at the mouth from his father. But on top of all that, he lacks drive and is generally hostile. Personally, I think there's a home problem too, and that's probably the root of it all.

Notice the number of labels applied to Phil; "disagreeable," "aggressive," "Hostile." The manager also makes several statements about inner drives and forces, and states which may or may not be true, such as "lacks motivation," "immature," "poor perceptual ability."

Aside from being possibly unfair to Phil, the statements above are not that

useful because they do not lead to specific steps which the manager might take to help Phil. Additionally, if Phil heard these remarks, he would still not know specifically what he must do to improve his performance.

Now consider how the same manager would describe Phil, but this time putting to work the skill of pinpointing:

Well, whenever Phil is given an instruction, he immediately responds by telling you why it can't be done that way. He verbally threatens other workers, and there have been one or two actual fights. He leaves his own job and walks over to another area to tell jokes and generally distract other workers. Sometimes he just sits in a corner, or can be found looking out the window for several minutes at a time, while ignoring his own responsibilities.

On at least six separate instances last week he broke company rules, such as smoking in a non-smoking area, operating his machine without safety goggles, and parking in a fire zone.

He can't seem to tell the left handed flanges from the right handed ones, no matter how often we tell him. Sometimes he will begin a task and then seem to forget what he's doing, and start doing something entirely different.

His co-workers report that he tells rather crude and childish jokes and even plays practical jokes that are sometimes dangerous.

Even though his job entails five separate operations, he will sometimes get the sequence mixed up, and he doesn't seem to realize that he's doing it the wrong way.

He has arrived at work late 8 times in the last month,
and has returned late by over 5 minutes from 6 lunch breaks
and 6 coffee breaks. I've spoken to him about this, but
he refuses to acknowledge that he's late, and says he needs
more time anyway.

He refuses to take part in the company career training
program.

Phil's youngest daughter had a serious accident 3 months ago,
and I understand the medical costs have put a lot of pressure
on him financially. I think his wife is looking for a part-
time job.

When I think about it though, I seem to have spent plenty of
time telling Phil when he was wrong but, despite it all, he
was up to 92% of our production quota in the last two weeks.
That's up from his average of 70%. Maybe I've been criticizing
him too much, and not paying enough attention to some of his im-
provement.

So, you can see that pinpointing involves being specific about behavior. While
it is difficult to know where to begin with the list of terms shown below on
the left, literally all of the behaviors shown on the right have been successfully
improved by managers using behaviorally oriented procedures.

PINPOINTING

HOW A FIRST-LINE MANAGER TALKED ABOUT ONE WORKER BEFORE AND AFTER TAKING A COURSE IN BEHAVIOR TRAINING

BEFORE - "PHIL IS..."

1. disagreeable, negative
2. aggressive
3. disruptive
4. sulks
5. daydreams
6. insubordinate

AFTER - "PHIL IS..."

1. tells you why it can't be done
that way
2. verbally threatens, fights
3. leaves job, distracts others
4. sits in a corner
5. stares out of window several min-
utes at a time
6. broke company rules; smoking,
safety and parking

BEFORE - "PHIL IS..."AFTER - "PHIL IS..."

- 7. poor perceptual ability
- 8. doesn't think rationally
- 9. immature
- 10. poor reasoning power
- 11. lacks motivation
- 12. stubborn
- 13. lacks drive

- 7. confuses left and right handed flanges
- 8. starts task, then stops and switches to another task
- 9. tells crude, childish jokes; plays practical jokes
- 10. confuses work sequence
- 11. late 8 times and overextends coffee and lunch breaks
- 12. refuses to acknowledge lateness
- 13. doesn't participate in training program

Many times pinpointing alone can serve as a solution to a problem. As an example, an executive constantly complained to others that her secretary's reports were "sloppy," "inadequate," and "incomplete." But, she never seemed to have the time to straighten it out, except to gently ask to have them "neater" next time. After pinpointing for her the fact that the type was uneven, the figures should be broken down by individual salesmen rather than by sales manager, and that Year to Date total volume figures should appear on the sheet as well as monthly figures, the secretary immediately knew how to remedy the situation.

If pinpointing alone does not solve a problem, then we move to the next step which is counting and charting the behavior we want to improve.

Counting and Charting Manager-Employee Behavior

The recording of employee and/or manager behavior is not entirely new to the world of work. Unfortunately, much of the objective observation which has gone on has been primarily designed only to set productivity rates and payment scales, and in the past the results of such observations were used to impose rules and regulations on employees. In the behavioral approach, the most important use of objective counts of behavior is by the employee himself. As you will see, providing feedback to employees on their own performance is an often neglected but extremely important factor in the effective management of human resources. Further, and most importantly, the employee should be involved in recording their own behavior whenever possible. The only reason for possibly taking counts of employee behavior without their knowledge would be to set a baseline or "before" state, so that one could objectively evaluate the effectiveness of any behaviorally oriented intervention plan. For example, a manager who decided to reduce the number of reports turned in late might spend one or two weeks gathering baseline data on how many reports were actually late, and how many

were on time, before implementation of a behavior modification procedure to improve performance.

There are three basic ways of counting the pinpointed behavior of individuals or groups. These are: (1) event counting; (2) time sampling; and (3) permanent product counting.

Event counting is simply a direct count of each time a particular pinpointed behavior occurs. Event counting may be carried out for an entire day or for a certain period each day. A manager can directly count such things as the number of times an employee arrives late to work; complains about having too much work; assists other workers; argues with other employees; suggests new and helpful work procedures; or interrupts the manager when being given instructions. An employee can count the number of times he is praised or criticized by his own manager; the number of times he puts on his safety goggles, or delivers a part to another section of a plant. The number of times an individual or a group of workers are found at work stations and carrying out their responsibilities; loitering around the water cooler, or extending breaks beyond the allotted time can also be counted. While event counting can be used for group behavior, the time sampling method is often more practical.

Time sampling is a useful procedure for counting both groups and individual behavior. It involves making a series of checks throughout the day on certain pinpointed behaviors. Rather than count the total number of times workers properly use safety guards on manufacturing equipment, or fail to do so, a foreman could take a count at 9:30 a.m., 11:30 a.m., 1:30 p.m. and 3:00 p.m. each day for a week to get the average number of safety guards being used. A similar procedure could be used to assess such behavior as improper use of restricted areas, or failing to turn off unnecessary lights or electrical equipment. For individual behaviors, time sampling is often useful when it is not practical to observe someone constantly for a period of time. One office worker had a reputation for always smoking an offensive cigar in No Smoking areas and in other people's offices. Rather than constantly monitor the amount of smoking, the manager checked once each hour during the day and merely noted on a small card whether the individual was smoking in a prohibited area or not. For each day the percentage of times that smoking took place in prohibited zones was calculated.

When it is not convenient or possible to observe the actual pinpointed behavior of an individual or group, but when the behavior results in some physical product or output,

then one can use the permanent product method of counting.

Permanent product counting involves counting the result of a pinpointed behavior rather than the behavior itself. This is, of course, a well-established technique in the business world. The permanent product method is used in counting things such as number of secretarial errors, rejects on a production line, orders processed, customer requests answered, sales calls made and orders received.

Whatever method of counting proves most useful in a particular setting, it is important to count behavior during some specified time period so that comparisons can be made for equal time periods. Usually 30 minutes per day for a 5 day period is sufficient to establish a baseline for many behaviors. Remember, if you have adequately pinpointed a behavior, you will have no trouble counting it.

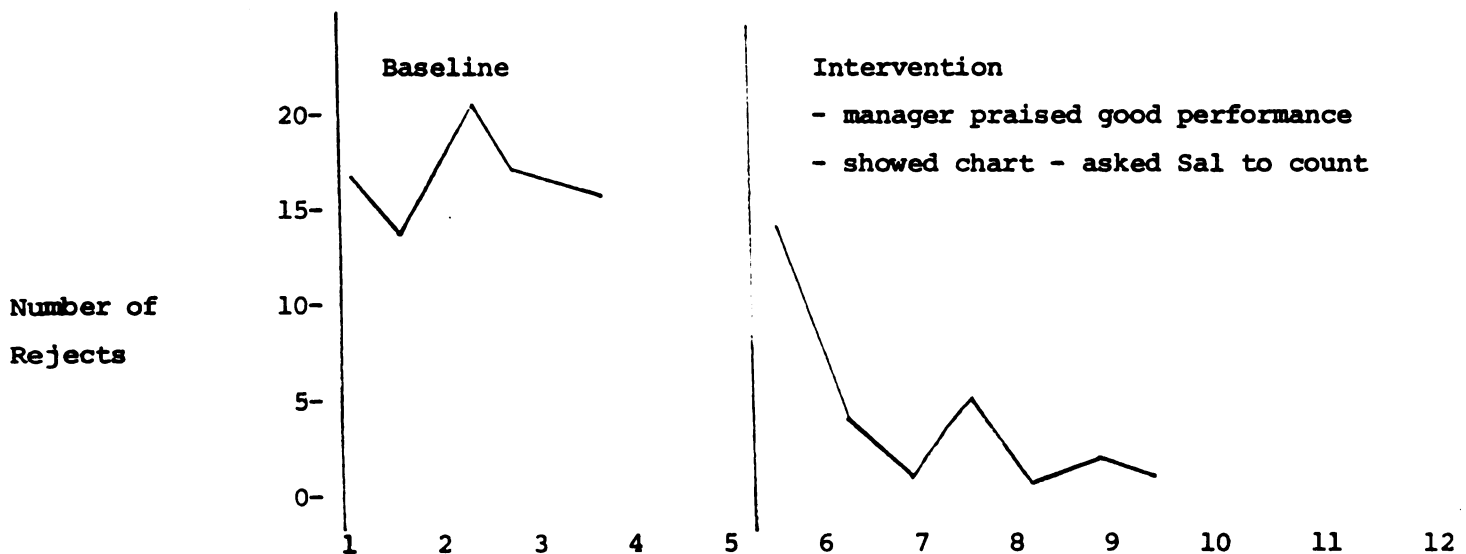
Charting of the information gathered through counting is important.

Pinpointed Behavior: (Permanent product) Rejects

Situation: Production

Name: Sal

Time counted: All day (8 hrs)



The saying "a picture is worth a thousand words" cannot be overemphasized. Often the preparation of a simple chart such as the one shown on the previous page can mean the difference between the success or failure of an improvement project.

The chart above shows at a glance, all the critical information related to an intervention plan in which a manager sought to improve the performance of a worker on a production line. After taking a baseline count of the number of rejects each day for a week, he showed the worker, Sal, the chart, and asked Sal to keep

up the count himself. (The manager also praised any improvement in performance).

The dramatic results can be seen by Sal, his manager and any upper level manager to whom the chart might be shown. In this case, the chart itself was important in providing visual feedback to Sal. It is also a useful form of documentation when one is building up a file of organizational behavior modification projects.

In some instances, counting and charting a behavior may serve as we have just seen, as a solution just as pinpointing alone can help. If not, we then turn to the next step in using behavior modification, which is actually intervening to change behavior. This we will pursue in detail next lecture.

ASSIGNMENT:

Using the forms handed out in class, pinpoint a behavior, count it, and graph it. Also chart on the ABC Form, the antecedent behavior and consequences. Do this for at least two behaviors and bring it to class.

Also, do chapters in the programmed text on graphing and shaping.

Training Session V

Review of Previous Session

Using examples brought to class go over ABC format and translate it into pin-pointing, counting, and behavior graphing.

Go over programmed chapters quickly.

NEW MATERIAL:

Putting it All Together

Planning an intervention would use these sequential steps:

1. Pinpoint a target behavior.
2. Count or record the frequency of the behavior to provide a baseline.
3. Identify antecedent and consequences.
4. Look at the reinforcing properties of antecedents and consequences.
5. Decide on what needs to change to allow the target behavior to vary in the designed direction.

Steps 1-4 are fairly mechanical. One simply uses the forms provided and follows the procedures outlined

Step 5 is more complicated and involves some further explanation. It is at this point, after obtaining baseline measures and looking at the antecedent and consequences and their reinforcing properties that an intervention plan is designed and implemented. One must decide what antecedents to vary or whether to look at consequences and use positive or negative reinforcement or punishment or extinction or a combination of these factors. To assist in doing this, a form has been designed which enables the manager to compile data in a summary form. Using this form as a guide, lets chart the examples brought to class and discuss Step 3 - "Change in Behavior."

Trainer: Do examples brought to class using form. Emphasize the decision point in Step 3.

Trainer: Begin to review several examples from examples provided in training packet.

ASSIGNMENT:

Using the ABC form and the graph form and the work action plan form, select at least one target behavior, fill out forms, and design an intervention plan. You may begin to implement the intervention plan by beginning to collect baseline data now.

Training Session VI

Review of Previous Session. Go over material taught in last session. Use examples from programmed material to illustrate.

New Material. A rule of thumb is that you want to reinforce appropriate behavior and extinguish or punish negative behavior. Let us look at an example of a man who is late. Stan is late every other day by a few minutes. You chew him out, but the behavior continues. Looking at reinforcers available, you become aware that praise is important to this man. Your plan becomes one of giving him a lot of positive reinforcement when he is on time and you couple this giving him a job he likes. When he is late, you make him aware of his error, you state you wish he would be on time, and you assign him to the job he hates most. When he is late by a lower amount of time, you praise him for doing better and assign him a job that is less distasteful than the one he gets when he is later.

Probable result:

This man quickly learns he must be on time to get a job he likes and approval from an authority figure. This provides motivation for change.

Let us compile a list of reinforcers and punishments and extinguishers that are in your control for dealing with problematic behavior in your work unit.

Trainer: Be sure the following gets put on list.

Reinforcers

Job assignment
Praise
Attention
Feedback on level of production
Amount of break time
Down time (time off when quota is reached)

Extinguishers and Punishment

Job assignment
Time off
Verbal reprimand
Withdrawal of attention
Withdrawal of praise
strict breaks

Generate a longer list from class participant's knowledge of job. Encourage group participation.

How can these reinforcers and extinguishers and punishments be used to manage negative behavior while reinforcing appropriate work behavior

Trainer: Discuss this issue. Ask class to think of examples of workers that the class can use to look at plans that are not from among individual projects but that are either hypothesized or from their work units.

If there is time left, do more general examples from programmed examples.

ASSIGNMENT

This plan should be implemented if it has not already been done. Further, any additional problematic behaviors that are not involved in an ongoing project can be brought in to be examined using the methods discussed in training. The supervisors can set up a plan for dealing with these behaviors that can be discussed in class or simply bring in a problem for discussion.

Training Session VII

Review of Previous Session. Review material from Session V and VI

New Material

1. Discuss problems brought to class that are not primary projects. Continue to encourage group participation and give the trainees a chance of "consult" with each other. Facilitate this process.
- . Go over examples of projects that utilize all of the steps from lecture V That are in programmed material.
3. Take any quesitons.
4. Go over any programmed text that has not been completed.

Assignment

Continue to work on individual projects. Bring any final questions to class next week.

Training Session VIII

- A. Go over any remaining programmed examples from training packet.
- B. Review assignments and expectations about projects and data to be collected for six weeks after training.
- C. Go over any examples that are not from individual projects that trainees have brought in.
- D. Answer any final questions.
- E. Administer reaction posttest.
- F. Administer problem posttest.
- G. Get feedback regarding the project and any comments the trainees may have about the training.
- H. Review the various components of this research project and the contribution these supervisors are making to the advancement of science and give general thanks.

APPENDIX C

PROGRAMMED TEXT

HOW TO DESCRIBE BEHAVIOR

The word "behavior" refers to your actions or what you do. Try to be specific when you describe a person's behavior. Saying that a person is "angry" is not specific enough. "Angry" could mean many things. For example, it would be more specific to say that the person shouts and yells at you, or that he refuses to speak to you, or that he shakes his fist in the air, or other things he does that make you think of him as "angry".

1. A person's "behavior" is actually many behaviors. A behavior is an action of some kind, such as these examples; smoking a cigarette, borrowing a cigarette, reading the newspaper, writing a note, listening to somebody talk, ignoring somebody while they are talking to you, coming to work on time, smiling at somebody, helping a new employee learn the job, explaining a problem, repairing a machine, eating lunch, talking to somebody, yelling at somebody, swearing at somebody, cutting the grass, watching T.V., and playing cards. In every example above notice that the behavior describes something that a person DOES/FEELS.

2. When talking about children, if we say that "Jim is a good child" we usually mean that he is well behaved. But saying that Jim is "a good child" or that he is "well behaved" is too general. We mean special details such as:

- Puts his toys away
- Does not hit his little sister
- Takes his bath without arguing
- Does not draw on the walls
- Says "Please" and "Thank you" most of the time
- Does not throw things in the house
- Eats new foods, eats his vegetables
- Avoids getting his new clothes dirty

Saying that George is a "rotten little brat" IS/IS NOT detailed enough to describe how George actually behaves

IS NOT

3. If we can get a child to do the behaviors named for Jim above most people would agree with the general comment that this is a GOOD/BAD child.

GOOD

4. Here are some general comments about how people act.

- Joe is "cool headed" under pressure
- Larry acts like a child sometimes
- Mary is a conscientious worker
- Bill is a problem employee
- Hutch is a hard-nosed supervisor
- Chuck is just not the "friendly" sort
- Sally isn't very "motivated" to do her job

4. (Continued...)

My boss does not "really" want quality
Sandy gets along well with people.

These remarks are not specific enough to tell us how a person is acting. For example, being "cool-headed" refers to a lot of specific things a person is doing or not doing. Which of the following specific examples would make you think of a person as "cool-headed"?

(Check any correct answers)

- A. Gets very excited when anything goes wrong.
- B. Keeps his temper, even when somebody yells at him.
- C. Gets confused and doesn't know what to do next.
- D. Takes time to be sure he understands a problem before he does anything else.
- E. In an emergency, like somebody's being hurt, he stays calm and gives aid or sees that it is provided.
- F. In an emergency, like somebody's being hurt, he gets very nervous and starts yelling.
- G. If his equipment gets jammed, he thinks to turn off the machine first and then go for help.
- H. Causes people to begin running in all directions at once when there is a breakdown, before he knows what has happened.

5. Suppose your wife is talking about a neighbor, and she says the neighbor acts childishly about some things. When you hear the words "act childishly" --

- A. You know that this is a specific description of behavior.
- B. You should ask what behaviors are being referred to specifically.

6. You are talking about Sandy, and you say that Sandy gets along well with people. The comment, "gets along well" --

- A. Refers to a number of things Sandy does and says, which you could name as examples. A
- B. Is an actual behavior itself, which cannot be broken down into more detailed examples.

7. When employees say that they have a "good" boss they usually mean that he does a good job. The words "does a good job" ARE/ARE NOT specific enough to tell us what the supervisor is doing or not doing.

ARE NOT

8. Which of these examples of behavior would describe a boss who is doing a good job?

(Check any correct answers)

- | | |
|--|---|
| A. He lets me know as soon as possible when overtime will be required. | A |
| B. He shows favoritism among employees. | |
| C. He applies shop rules equally to all of us. | C |
| D. He listens when I have a gripe or suggestion. | D |
| E. When I have a gripe, he says he will come back later, but he usually forgets. | |
| F. He grants me a day off when I am entitled to it, even if it means extra work for him. | F |
| G. He seldom speaks to me unless he has a complaint. | |
| H. He asks questions about what caused a problem rather than who is to blame. | H |
| I. If there is a shortage in my paycheck, he gets it corrected right away. | I |
| J. He compliments me on good work. | J |
| K. He always finds some excuse when he makes an error. | |

9. When you describe a person's behavior, you should be specific in giving examples of things that the person

_____.

does

BEHAVIOR IS LEARNED

Although we are born able to do some things, such as swallowing or breathing, most of our behavior is learned as we interact with other persons. We learn how we must behave to get along. We learn which behaviors work and which behaviors don't work as we see what effect our behavior has on other persons.

1. Our contacts and dealings with other people teach us how to act. This is called social learning. We learn that other people react to our behavior. For example, if I smile at somebody, he is likely to smile back at me. Most of us have learned that if we get angry and kick somebody, they are likely to --

- A. Ignore us.
- B. Kick or hit back.
- C. Laugh at us.
- D. Sing.

2. Whenever you are dealing with another person, you act and react in various ways toward him and he acts and reacts in various ways toward you. This behavior "back and forth" between persons is called interacting. Which of these examples shows interacting by people?

(Check any correct answers)

- | | |
|---|---|
| A. I reach out to shake hands and so do you. | A |
| B. You reach out to shake hands and I refuse to do so | B |
| C. You are talking and I interrupt you. | C |
| D. My car won't start and I slam the door. | |
| E. I smile and you smile back. | E |
| F. A big fish "gets away" and I swear out loud. | |
| G. I criticize you and you walk away. | G |
| H. I compliment you and you look pleased. | H |
| I. You ask me to help you and I help you. | I |

3. We interact with other people all our lives, but we still learn about our own behavior every time we meet. We learn what behaviors "work" and what behaviors "don't work", and we tend to repeat those that work. Suppose that when I have asked you politely for a ride to work, you have given me a ride. The next time I need a ride, how will I probably behave?

- A. I will walk rather than ask you.
- B. I will demand that you pick me up.
- C. I will ask politely that you pick me up.
- D. I will wait and hope you ask me if I need a ride.

4. Suppose that I need some help. I have learned that the behavior which will usually work best for me is to ask for help rather than to demand help. When I have asked, I usually get help more often and sooner; most people seem to resent demands but accept requests for help. I learn these things while I am ALONE/INTERACTING.

INTERACTING

5. Suppose you and I are talking and I interrupt you so many times that you don't like it and say, "Let me finish!" You may have to stop me several times from interrupting, but I will learn as we interact that -

- B A. I can "butt in" while you are talking any time I want.
 B. I had better not "butt in" while you are talking.

6. Each of us learns, for himself, what behavior to use in various situations. Most of our behavior is learned in a "back-and-forth" way while we are _____ with others.

interacting

7. We get into the habit of repeating or continuing behaviors that work, but we will usually change our behavior in a situation where what we are doing "doesn't work". At a movie, for example, if you start talking to the person next to you, people around you will "let you know" by the way they act that they want you to STOP/KEEP talking.

STOP

8. Which of these behaviors will people generally use (as they interact with you) to "let you know" they want you to be quiet?

(Check any correct answers)

- A. Giving you a nasty stare.
- B. Paying no attention to what you are doing
- C. Holding a finger up to their lips
- D. Making a sound like "Shhhh"
- E. Nodding their head up and down.
- F. Nodding their head sideways

3-9. How do we learn most of our behaviors?

Interacting
with others

CONSEQUENCES

A consequence happens after a behavior and is a result of the behavior. If you step up to a ticket window, say "two tickets", and give the cashier enough money, the consequence of your behavior will be that you get two tickets. Every behavior leads to a consequence. The consequence might be that nothing happens, as when you ask your son to wash the car and it doesn't get done.

1. We may not always think of it this way, but every behavior leads to some consequences. Suppose you put 15¢ in the coffee machine and the machine gives you a cup of coffee. Your behavior, "putting 15¢ in the machine, "DID/DID NOT lead to "getting a cup of coffee."

2. We can draw a diagram to show that a behavior leads to a consequence.

B the arrow means C
 "leads to"

Some behavior Some consequence

Which B C below shows that "putting 15¢ in machine" leads to the consequence of "getting cup of coffee"?

- | | | |
|---------------------------|-------|------------------|
| A. Kick and shake machine | _____ | Get coffee. |
| B. Put 10¢ in machine | _____ | Get coffee. |
| C. Put 15¢ in machine | _____ | Get nothing. |
| D. Put 15¢ in machine | _____ | Get milk. |
| E. Put 15¢ in machine | _____ | Get coffee. E |

3. Suppose you put 15¢ in the coffee machine and nothing happens. Next you shake the machine a little and nothing happens. Then you shake the machine harder and it gives you a cup of coffee. You used 3 behaviors. For 2 of them the consequence was "nothing happened." Which behavior led to the consequence of getting coffee?

- | | | |
|-----------------------------|-------|------------------|
| A. Putting 15¢ in machine | _____ | Get nothing. |
| B. Shaking machine a little | _____ | Get nothing. |
| C. Shaking machine harder | _____ | Get coffee. C |

4. The above example shows that, generally speaking, the consequence you get DOES/DOES NOT depend on which behavior you use.

DOES

5. Suppose several people are lined up at the supermarket checkout waiting to be checked out. If you cut in the line, the consequence is that people will strongly object. If you go to the end of the line, the consequence is that nobody will object. Assume that you do not like public arguments, Circle the behavior that will lead to the consequence you prefer.

BEHAVIOR	CONSEQUENCE
Cut in front of line	Strong objections.
Cut in middle of line	Strong objections.
Go to end of line _____	No objections.

Go to end
of line

6. When we say that B _____ C we realize that more than one behavior may lead to the same consequence, and that one behavior may lead to several consequences. This is sometimes true, although we only talk about one "B" and one "C" at a time. Suppose your son hits a neighborhood bully in the nose and, after that, the bully doesn't pick on your son anymore. What behavior did your son use, and to what consequence did it lead?

_____	leads to	_____	Hits bully
(Name the Behavior)		(Name the Consequence)	(leads to)
			left alone

7. The answer is ...

Hits bully _____ is left alone after that.

Other answers would be OK if they mean the same thing, such as...

Fights bully _____ Bully stops picking on him.

You have probably noticed that the consequence of a behavior can be a behavior itself, as shown above. But it is called a consequence because it happens as a result of some earlier behavior. If the bully's nose had bled after he was hit, or he had cried, or his parents had phoned to complain, these would have been additional BEHAVIORS/CONSEQUENCES resulting from hitting the bully's nose.

Conse-
quence

8. In most situations, a person has a choice in how he will behave. For example, he can be pleasant or grumpy; he can demand attention right now or wait a moment if somebody is busy. A person learns from experience, interacting with others, what consequences to expect when he behaves a certain way in a situation. Generally, the consequences he gets will depend mostly on the _____ he uses

behavior

9. A utility man "covers" a production man's job a few extra minutes because he is late getting back from his break. When he gets back, he tells the utility man. "Thanks for watching my job, I'll buy you coffee at lunch." What was the utility man's behavior, and what consequences did it lead to?

Covers job
(leads to)
Gets free
coffee

10. The production man's behavior was getting back late. One consequence of this behavior is that the utility man had to cover his job. A second consequence is that the production man has offered to _____

Buy
coffee

11. Your son is supposed to cut the grass. He doesn't get it done. You remind him. No results. You remind him again, more strongly. Finally, you yell about it and he cuts the grass. The behavior, cutting the grass, is a consequence of which of your behaviors?

- A. Reminding your son.
- B. Reminding your son strongly
- C. Yelling at your son.

C

12. A person does not "just happen" to behave any certain way. He learns what consequences to expect for various behaviors. Most of this learning goes on while he -

- A. Is alone
- B. Is interacting with others.

B

13. Suppose that I have the habit of interrupting you when you are talking. Suppose that recently you have pointed this out to me, in a pleasant way, and that I don't interrupt you any more. My behavior of interrupting led to the consequence of your mentioning it to me. As a result of this consequence, I have KEPT/CHANGED my behavior.

Changed

4-15. There are many behaviors and many consequences. When we say that every behavior leads to a consequence, what does the particular consequence you get mostly depend on?

The behavior
you use.

4-16. A person can be taught to keep on behaving the same way, or to change his behavior, for reasons that we will now begin to study. At this point, you should have learned these things about behavior:

(Circle any correct answers)

- A. A person learns certain behaviors and then never changes.
- B. A person may learn to change his behavior at any time.
- C. A person keeps a behavior or changes a behavior depending on the consequences he gets.
- D. A person's behavior is not much influenced by other people.
- E. A person's behavior is greatly influenced by other people.

B
C

E

4-17. Remember, when you feel like stopping for a break, that the best time to stop is -

- A. Wherever you are in the book.
- B. At the end of a chapter.
- C. In the middle of a chapter.

B

A NEW WORD:
REINFORCE

A person tends to repeat behaviors that lead to his getting a consequence he likes or avoiding a consequence he dislikes. A person wears safety glasses to avoid injury; he wears a coat to avoid the cold. A person comes to work every day to make money. He puts effort into doing his job well because he gets complimented for the quality of his work. Making money and avoiding injury reinforce (which means increase) the likelihood that a person will repeat the behaviors which lead to these consequences. Avoiding the cold and getting a compliment are consequences that reinforce your tendency to continue wearing a coat when it's cold, and continue putting effort into quality workmanship.

1. If the person likes whatever consequence that follows a certain behavior, he will tend to repeat the behavior that leads to it. The consequence reinforces the likelihood that he will continue or repeat a behavior. Suppose you want a Coke. Which of the following consequences will reinforce the behavior of putting 60¢ in the machine?

- A. Being thirsty.
- B. Walking over to the Coke machine.
- C. Putting 60¢ in the slot.
- D. Waiting while the machine works.
- E. Getting the Coke.

E

2. Your goal should be to reinforce desirable behavior, since a person tends to STOP/REPEAT any behavior that is reinforced.

REPEAT

3. A reinforcer could be anything you say or do that will cause another person to repeat (or continue) a certain behavior. Suppose your wife bakes your favorite pie, and you please her with a big kiss. What was the reinforcer you used to get your wife to repeat the behavior you liked?

Big Kiss

4. In general, what happens when a behavior gets reinforced?

It will be repeated.

POSITIVE/NEGATIVE REINFORCEMENT

A behavior that is receiving positive reinforcement or negative reinforcement will tend to be repeated. Positive reinforcement and negative reinforcement both will increase the likelihood that the reinforced behavior will be continued, but for different reasons.

1. First, let's talk about positive reinforcement in this case, a person tends to repeat a behavior because the consequence is getting something he likes. For coming to work each day and repeating the behaviors that are part of your job, your paycheck IS/IS NOT an example of positive reinforcement.

IS

2. Giving a compliment, a smile, a pat on the back, a hug, a handshake, a special privilege of some kind, a gift or money are ways you can positively reinforce a behavior, because these are consequences that most people like to AVOID/GET.

GET

3. Negative reinforcement occurs when a person tends to repeat a behavior because the consequences of doing so is that he avoids something he dislikes. For example, one of the reasons you drive within the speed limit is to avoid getting a ticket. The behavior, driving within speed limits, leads to the consequence of avoiding tickets. The behavior, driving faster than speed limits, leads to the consequences of getting tickets. Which behavior is being negatively reinforced.

A. Driving faster than speed limits.

B. Driving within speed limits.

B

4. Notice why positive reinforcement works:

If a behavior is receiving some kind of positive reinforcement, the person tends to repeat the behavior because it leads to the consequences of
 GETTING..
 LIKES
 AVOIDING/GETTING something the person LIKES/DISLIKES

Repeated 5. A behavior that is receiving positive reinforcement will tend to be STOPPED/REPEATED

Avoid 6. An important behavior in the shop is wearing safety glasses to protect the eyes. In other words, the reason a person wears the glasses is to GET/AVOID chips or splinters in his eyes.

AVOID
DISLIKES 7. If a behavior is receiving some kind of negative reinforcement, the person tends to repeat the behavior because doing so results in his being able to AVOID/GET something that he LIKES/DISLIKES.

NEGATIVE 8. If the reason a person repeats or continues a behavior is because he avoids something he dislikes as a result, this is an example of POSITIVE/NEGATIVE reinforcement.

REPEATED 9. A behavior that is receiving negative reinforcement tends to be STOPPED/REPEATED

AVOIDS 10. Suppose that a material handling clerk dislikes being "chewed out" for being late or making mistakes in his reports. He learns to use different behaviors, such as making his records correct and being on time. He learns that by being on time, for example, that he GETS/AVOIDS a chewing out.

PUNISHMENT

We have been talking about two methods for increasing the likelihood a behavior will be repeated: positive and negative reinforcement. There are two methods for decreasing the likelihood a behavior will be repeated: punishing it and extinguishing it. A punished behavior will usually not be repeated often and may stop completely. The reason punishment or extinction works is explained by learning the consequences that result from a behavior which is being punished or extinguished. Chapter 8 deals with extinction.

1. If a person's behavior leads to a consequence he dislikes, the consequence of getting something he dislikes is punishment. People generally do not like to be severely criticized. If doing a messy job leads to getting a strong "chewing out", then the behavior of doing a messy job is being -

- A. Positively reinforced.
- B. Negatively reinforced.
- C. Punished.
- D. Ignored.

C

2. The difference between punishment and negative reinforcement is that when my behavior leads to the consequence of being punished. I am AVOIDING/GETTING something I dislike.

GETTING

3. When someone "gets a result he dislikes" the person will usually tend to REPEAT/STOP that behavior. STOP

4. Let's review. When a behavior is being positively reinforced, the "reinforcement" is because the behavior leads to a consequence that the person LIKES/DISLIKES

LIKES

5. If, as a consequence of behaving a certain way, I am able to avoid something I dislike, we say that the behavior is being PUNISHED/NEGATIVELY REINFORCED.

NEGATIVELY
REINFORCED

6. My boss compliments me for not stripping the threads on screws used in assembling dashboards. My behavior, being careful with dashboard screws, is receiving -

- B
- A. Punishment.
 - B. Positive reinforcement.
 - C. Negative reinforcement.

AVOID

7. Yesterday I made several errors in drawing the blueprints I worked on. My supervisor was angry because of my being careless and he bawled me out. Today I am more careful to draw the blueprints correctly. The reason I am being careful today is to GET/AVOID more criticism.

8. My careless behavior of making errors while drawing blueprints resulted in my -

- B
- A. Getting something I liked.
 - B. Getting something I disliked.
 - C. Avoiding something I disliked.

9. The reason I am now being careful as I draw blueprints is because my behavior, doing the work correctly, is receiving -

- C
- A. Positive reinforcement
 - B. Punishment
 - C. Negative reinforcement

10. When your behavior is being negatively reinforced, it means that you are behaving "as you are" to avoid an unpleasant or disliked consequence. At some earlier time, you learned while interacting with others that certain behaviors led to a consequence of being punished. If you get into an argument with somebody and they hit you on the nose, your behavior of arguing (in general) and of not ducking (in particular) is being -

- B
- A. Positively reinforced.
 - B. Punished
 - C. Negatively reinforced.

11. After you have learned from your interactions with other people, your behavior is likely to be that you will duck faster, or maybe argue less, or at least not argue with certain persons. The reason you will now behave in ways such as these is because:

- A. You are likely to be hit on the nose when you do not argue.
- B. You remember what happened before when you did argue.

B

12. A behavior that is punished is usually stopped, at least for awhile, and tends to be not repeated. Suppose that when I make 10 errors per hour that have to be corrected, my boss raises hell about it. When I make 5 errors per hour, my boss does not raise hell with me. Assuming that I do not like to be bawled out, which behavior will I tend to repeat.

- A. Making 5 errors per hour.
- B. Making 10 errors per hour.

A

13. If we put down the B _____ C, we can see which behavior leads to which consequence. We can also see why one of the behaviors tends to be repeated, while the other behavior tends to be stopped. For each behavior, mark the answer that tells what is being done to that behavior.

Making 5 errors per hour _____ Avoid getting "chewed out"

This behavior is being ...(which answer?)

- A. Positively reinforced.
- B. Negatively reinforced.
- C. Punished.

B

Making 10 errors per hour _____ Getting "chewed out"

This behavior is being...(which answer?)

- A. Positively reinforced.
- B. Negatively reinforced.
- C. Punished

C

14. Suppose that your son gets a traffic ticket for speeding, which he will have to pay from his own money. His behavior, driving faster than the speed limit; is being -

- A. Negatively reinforced.
- B. Punished.
- C. Positively reinforced.

B

15. After paying his speeding ticket, suppose that your son now drives within the speed limits. We can say that -

His own behavior, driving faster than the speed limit, was punished and is being STOPPED/REPEATED.

STOPPED

His other behavior, driving within the speed limit, lets him avoid further tickets. The behavior is receiving POSITIVE/NEGATIVE reinforcement and will tend to be STOPPED/REPEATED.

Negative
Repeated

16. Most people do not enjoy being criticized, we dislike it. Criticism is a kind of punishment. One of the reasons I obey the Shop Rules is to avoid reprimands or time off without pay. The reason I continue to obey the rules is because this behavior is being -

- A. Positively reinforced.
- B. Negatively reinforced.
- C. Punished

B

17. A behavior that is receiving negative reinforcement tends to be STOPPED/REPEATED

REPEATED

A behavior that is receiving positive reinforcement tends to be STOPPED/REPEATED.

REPEATED

18. A behavior that is receiving punishment tends to be STOPPED/REPEATED.

STOPPED

19. Punishment can happen in many ways, such as being yelled at in an unfriendly manner, being looked at angrily (a "dirty look") being interrupted a lot, being criticized or "chewed out", being reprimanded or given time off without pay, being ridiculed or made fun of in an embarrassing way, being hit or pushed around. When our behavior leads to any of these consequences, we are -

B

- A. Getting something we like.
- B. Getting something we dislike.
- C. Avoiding something we dislike.

GETTING...
LIKE

20. You tend to repeat a behavior that is receiving positive reinforcement because the consequence of that behavior is GETTING/AVOIDING something you LIKE/DISLIKE.

AVOID
DISLIKE

21. If your behavior is being negatively, reinforced, it means you are behaving in a way that enables you to GET/AVOID some consequences you LIKE/DISLIKE.

POSITIVELY

22. A compliment or praise should be given only when deserved, but when a person receives these the behavior they are connected with will be POSITIVELY/NEGATIVELY reinforced.

23. When you behave in a way that results in getting something you dislike, we say the behavior is being -

C

- A. Positively reinforced.
- B. Negatively reinforced.
- C. Punished.

24. You should be interested in two side effects of using punishment.
 . The punisher is likely to be avoided afterwards
 . The punisher is likely to be punished

AVOIDING

Suppose you "vigorously" scold one of your youngsters for not getting home on time, and then the youngster goes to his room and slams the door hard. The behavior of going to his room is a simple example of PUNISHING/AVOIDING the punisher.

25. Punishing the punisher. A person who has been punished will usually try to "get back at" his punisher. Sometimes he doesn't dare because he thinks the chances of being caught at it, and receiving even more severe punishment, are too high. In these cases, the punished person may take it out on innocent people such as other employees, his family, the grocery clerk, or even the dog. If your boss has chewed you out for mistakes in your work, taking longer than necessary to correct the errors is an example of -

B

- A. Punishing innocent persons.
- B. Punishing the punisher.

26. Most of the time we are not aware that we are "punishing the punisher" when we behave in a certain way. All of these are examples of possible ways the punisher can be punished.

- . Giving an elaborate explanation of how an important record got misplaced.
- . Being "unable" to work 15 minutes overtime to finish an important letter.
- . Not telling all you know that would be helpful to the inquirer.
- . Taking extra long breaks.
- . Slowing down your work pace.
- . Letting errors in paper work get by you.
- . Assembling something incorrectly or incompletely.
- . Being absent from work.
- . Being late getting to work or leaving early.
- . Being away from your desk when you are needed the most.
- . Being away from your work station or machine.
- . Writing incidental or "nuisance" grievances.
- . Sabotaging your equipment or the product or your services.
- . Persuading other employees of the punisher's evilness.
- . Being "testy" and hard to get along with.
- . Asking for much more detailed instructions than you really need.
- . Making mistakes that can be blamed on "confusing" directions.

These examples are related to working situations. You can think of others that are related to situations away from work, at home and elsewhere. Such examples simply illustrate that a punished person will find some way, if possible, to FORGIVE/PUNISH the punisher.

PUNISH

27. And that's not all. The punisher can also expect to be avoided for at least awhile if not permanently. We have just seen examples of a person's avoiding the punisher for the purpose of punishing him. The punished person will also avoid the punisher simply because we do not like to be around punishers. The supervisor who complains that, "My people never come to me with problems or things I ought to know about, I have to stumble across these things," may be experiencing this problem. It may be interesting, but it is not necessary to know why the punisher can expect these side effects. Regardless of the reasons, we know that a punished person will -

(Mark any correct answers)

- A. Increase the frequency of the behavior for which he was punished.
- B. Decrease the frequency of the behavior for which he was punished. B
- C. Increase his interactions with the punisher.
- D. Decrease his interactions with the punisher. D
- E. Add forgiveness to his behaviors.
- F. Do some punishing on his own. F

28. A person's behavior is negatively reinforced when he avoids something he dislikes. A person's behavior is punished when he gets something he dislikes.

Telling an employe that he is getting a disciplinary layoff because of absenteeism is an example of PUNISHING/NEGATIVELY REINFORCING that behavior.

PUNISHING

29. Telling an employe while he is at work that the next time he is absent he will get a disciplinary layoff is an example of -

- A. Punishing "being absent."
- B. Negatively reinforcing "being absent".
- C. Negatively reinforcing "coming to work" C
- D. Positively reinforcing "coming to work"

30. Giving an employe a compliment for having improved his attendance, is an example of POSITIVELY/NEGATIVELY reinforcing the behavior, coming to work.

POSITIVELY

31. Any behavior that is punished tends to be
REPEATED/STOPPED

STOPPED

32. What are two "side effects" you usually can
expect if you use punishment?

You will
be
punished
You will
be avoided.

EXTINCTION

The other method for decreasing the likelihood a behavior will be repeated is extinguishing it. This means to ignore the behavior. It is not the same thing as punishment. A behavior that is ignored means that it gets no kind of reinforcement at all. If the consequence of some behavior is that you get nothing and avoid nothing, you will eventually stop repeating that behavior because there is no reason to continue it.

1. A behavior starts to become extinguished when it leads to a consequence of -

- A. Getting something you like.
- B. Getting something you dislike.
- C. Avoiding something you dislike.
- D. Getting nothing you like, avoiding nothing you dislike.

2. When you are talking, another person reinforces your behavior (of talking) by being a good listener. This is what you like him to do. You are being POSITIVELY/NEGATIVELY reinforced when he listens to you.

3. Suppose one of your fellow employees is always talking about her illnesses and operations. This bores you and gets on your nerves after awhile. When she starts the same old stories you don't talk with her, but just nod your head and grunt once in awhile when she stops for breath. But she never seems to get discouraged, and the reason is that by grunting or nodding, you "acknowledge" her and are EXTINGUISHING/REINFORCING her behavior.

4. Obviously, you are not the only source of reinforcement. Other persons can also provide it. In some cases, a behavior is accidentally extinguished, which means that it receives no reinforcement and eventually will be REPEATED/STOPPED.

POSITIVELY

REINFORCING

STOPPED

5. Suppose a supervisor is always saying to his people, in a general way, that they need to be quality-conscious in their work. Suppose that the supervisor seldom or never compliments an employe personally for successful efforts in preventing or finding defects. As far as individuals are concerned, the behavior of preventing or finding defects is being PUNISHED/EXTINGUISHED. EXTINGUISHED

6. When a behavior is being extinguished, a person will eventually be MORE/LESS inclined to repeat or continue the behavior. LESS

7. Suppose that several times a production employe has brought some parts of questionable quality to his foreman for an OK, and each time the foreman says, "Just set them here, I'll look at them in a minute and let you know." The foreman does not do so, and now the employe seldom comes to him with questionable parts. The behavior, bringing parts for an OK, is being -

- A. Positively reinforced.
- B. Negatively reinforced.
- C. Extinguished
- D. Punished.

8. Suppose that later the number of defective parts that get by his employe increases and the foreman criticizes him strongly with a warning. "Watch your job closer! If you let more of those bad pieces by, I'll write you up!" The behavior, letting bad parts get by, is receiving -

- A. Positive reinforcement.
- B. Negative reinforcement.
- C. Punishment.
- D. Extinction.

9. Suppose that the employe now continues (repeats) the behavior of watching the parts closer and that very few bad parts get by. If the reason is because the behavior is being negatively reinforced, this means that -

- A. He receives punishment for letting very few bad parts get by.
- B. He remembers what may happen if he lets bad parts get by.

10. A behavior being punished will eventually stop because the consequence is -

- A. Getting something the person likes.
- B. Getting something the person dislikes. B
- C. Avoiding something the person dislikes.
- D. Getting nothing, avoiding nothing.

11. A behavior being extinguished will eventually stop because:

- A. It is being reinforced.
- B. It is being punished.
- C. It is not being reinforced. C
- D. It is not being punished.

12. Suppose that a foreman goes to his general supervisor with an idea or suggestion and the general supervisor says, "I'll get back with you later on this," but he does not do so. This happens a number of times. The behavior, taking an idea to the boss, is receiving -

- A. Positive reinforcement.
- B. Negative reinforcement.
- C. No reinforcement. C

13. A supervisor notices one of his employees who is not wearing his safety glasses as he should. The supervisor knows that he cannot "extinguish" the behavior of not wearing safety glasses by ignoring it. The employee may say the reason he is without his glasses is that it is too hot with them on, the stems hurt his ears, the bridge hurts his nose, or the lenses get smeared. By taking them off, he gets something he wants: relief. He feels more comfortable. His behavior of taking off his glasses is being -

- A. Positively reinforced. A
- B. Negatively reinforced.
- C. Not reinforced.

14. On his own, Bob has been cleaning out the broken parts that fall under his machine during the day. He assumed this is what the foreman wants, but the foreman has never commented that he noticed or cares. Now Bob sort of feels like "The heck with it," and doesn't clean up very often. The behavior of cleaning out broken parts is being -

- A. Punished.
- B. Extinguished.
- C. Reinforced.

B

15. Frank is a machine repairman. He says, "Every time I used to bust my butt down here to get the jot job or crisis taken care of, nobody noticed. Nobody said a word to me about all the sweat that went into those efforts!" For putting out maximum effort, the consequence to Frank was that he gets nothing and avoids nothing. His behavior of putting out maximum effort is being REINFORCED/EXTINGUISHED.

EXTINGUISHED

16. When a behavior is being extinguished, it means that as a consequence of that behavior the person gets SOMETHING/NOTHING and avoids SOMETHING/NOTHING.

NOTHING
NOTHING

POSITIVE REINFORCEMENT
 NEGATIVE REINFORCEMENT
 PUNISHMENT
 EXTINCTION

In this chapter you should practice identifying and working with these four kinds of consequences.

POSITIVE

1. The next few questions will give you a little practice in working with positive and negative reinforcement. Suppose a neighbor's boy has the job of cutting your grass. Your agreement with him is that he will cut and trim the grass and sweep the walk for \$3. The reason he does grass cutting is to make money. The \$3 is a POSITIVE/NEGATIVE reinforcer.

AVOIDS

2. Getting money is a positive reinforcement of all the behaviors that are part of the job. Suppose the grass cutter goofs off and does a messy job of only sweeping some of the grass off the walk. So you tell him, "You'll have to do a better job of sweeping or I'll only give you half pay!" After that, he does sweep the walk clean. The consequence of the behavior, sweeping the walk clean, is that the grass cutter GETS/AVOIDS half pay for the job.

C

3. When the grass cutter behaves in a way that lets him avoid something he dislikes, his behavior is being -

- A. Punished.
- B. Extinguished.
- C. Negatively reinforced.
- D. Positively reinforced.

COMPLIMENT

4. Suppose the grass cutter puts extra effort into the job. He trims more neatly and sweeps the walks cleaner than he has to. He knows that he would get the \$3 even if he put in less effort. When he comes for his pay, you compliment him about the neat trimming and walks. You reinforce his extra effort by giving him the COMPLIMENT/PAY.

POSITIVE
GET

5. A compliment is a POSITIVE/NEGATIVE reinforcer, because a person wants to GET/AVOID it.

6. Suppose that an employe was reprimanded a few days ago for horseplay. Right now he is working at his job. His supervisor wants him to stay out of trouble and comes over to remind him: "Remember that with your poor record, you'll get a disciplinary layoff if you break a Shop Rule again!" The employe will probably want to avoid that happening, because it could mean -

(Check the best answer)

B

- A. Losing time from his job.
- B. Losing money from his paycheck.
- C. Losing arguments with his supervisor.

AVOID

7. To encourage the repeating of desirable behavior in this situation, the supervisor is letting the employe know the consequences of various behaviors. He is saying, in other words, "When you obey the Shop Rules, the consequences is that you will GET/AVOID discipline."

GET

8. The supervisor is also saying, "When you break the Shop Rules, the consequence is that you will GET/AVOID discipline."

NEGATIVELY

9. If the reason an employe obeys Shop Rules is to avoid time off without pay, then the behavior of obeying rules is being POSITIVELY/NEGATIVELY reinforced.

POSITIVELY

10. In a situation where an employe has had trouble by breaking too many Shop Rules, the supervisor might say to him, "In the last few days your behavior has been very good! Glad to see it!" A compliment or praise of a behavior POSITIVELY/NEGATIVELY reinforces that behavior.

11. Al, an inspection salvage man, said to Francis, a furnace operator, "The brase on these parts is really looking good! " Francis knows how to run her furnace and she continues to do a fine job. Her behavior, producing parts with correct brase, is being POSITIVELY/NEGATIVELY reinforced by Al.

POSITIVELY

12. Virginia, an assembly operator, says that she really enjoys being able to socialize with other people. She likes to "gab" with others in the department or in the relief area. Bill, her foreman, says that he wants her to produce more parts. He knows that she can do it; it's just that her attitude is poor. He tells her that if she can increase her production to a certain count, he will be lenient in allowing her to gab more. She thinks this is a good deal. Her behavior, increased effort in making more parts, will lead to a consequence she likes and will be receiving POSITIVE/NEGATIVE reinforcement.

POSITIVE

13. Without realizing that it is happening, we sometimes accidentally reinforce the wrong behavior (an undesired behavior). Suppose that Janet and Herb live next door. Janet always seems to nag Herb about this, that and everything. Herb avoids the nagging by staying away from home as much as he can to play golf, fish, tinker on his car, or go for a beer after work. What behavior of Herb's is Janet negatively reinforcing?

 Staying
away

14. Janet reinforces Herb to repeat his behavior of staying away by _____ about things.

nagging

15. We can't say whether Janet realizes what she is doing, but Herb's behavior of staying away is being negatively reinforced. As a consequence of behaving this way, he GETS/AVOIDS her nagging.

avoids

REPEAT

16. If behaving in a certain way lets us avoid something we dislike, we will tend to STOP/REPEAT that behavior.

REPEAT

17. If the consequence of a behavior is getting something we like, we will tend to STOP/REPEAT that behavior.

LIKES
POSITIVELY

18. There are ways in which a behavior can be accidentally reinforced. As an example, suppose an employee takes extra long breaks and his supervisor does not notice. For the employee, the consequence of "taking a long break" is that he gets away with it. The employee naturally LIKES/DISLIKES the consequence, which POSITIVELY/NEGATIVELY reinforces the behavior.

PUNISHING

19. When employees take extra long breaks, the consequences to the supervisor are different. For the foreman, the consequences usually are that he loses some production, he must make up lost production, the relief man may be angry at him, and he must explain things to his general foreman. Most people would agree that these consequences are REWARDING/PUNISHING to the foreman.

20. It has already been mentioned that other people also can reinforce, punish or ignore behaviors as they interact. You are not the only source of reinforcement. A behavior tends to become extinguished when it receives -

- A. Lots of reinforcement.
- B. Some reinforcement
- C. A little reinforcement
- D. No reinforcement

D

21. "Receiving no reinforcement" means that, as a consequence of the behavior, a person will -

(Check any correct answers)

- A. Get something he likes.
- B. Get nothing he likes.
- C. Avoid nothing he dislikes.

B

22. A behavior receiving any kind of positive reinforcement tends to be STOPPED/RELATED.

REPEATED

23. A behavior receiving any kind of negative reinforcement tends to be STOPPED/REPEATED.

REPEATED

24. A behavior receiving any kind of punishment tends to be STOPPED/REPEATED.

STOPPED

25. A behavior receiving no kind of reinforcement tends to be STOPPED/REPEATED.

STOPPED

26. A behavior receiving no kind of reinforcement is being PUNISHED/EXTINGUISHED.

EXTINGUISHED

27. A person repeats a behavior receiving positive reinforcement because the consequence is -

- A. Getting something he does not like.
- B. Avoiding something he does not like.
- C. Getting nothing, avoiding nothing.
- D. Getting something he likes.

D

28. A person repeats a behavior receiving negative reinforcement because, as a consequence, he is able to -

- A. Get something he likes.
- B. Avoid something he does not like.
- C. Get something he does not like.
- D. Get nothing, avoid nothing.

B

BEHAVIOR GRAPHS AND SCHEDULING

The first step in deciding whether to change a behavior is in observing how often it is occurring now. This lets you know how much change (more or less of the behavior) is needed.

you will learn that it also lets you see how much change you have accomplished in getting a person to repeat a behavior more or less often.

1. Some persons seldom, if ever, use praise as a way to reinforce desired behaviors in others, but they are quick to punish behavior they don't like! These people may not be sure what effect praise has in getting a behavior repeated because this takes time and patience, but they learn during interactions with others that criticizing a behavior works fast the behavior stops. Accidentally, these people learn from their interactions that the most effective way to control a behavior is to -

- B
- A. Extinguish it.
 - B. Punish it.
 - C. Positively reinforce it.
 - D. Negatively reinforce it.

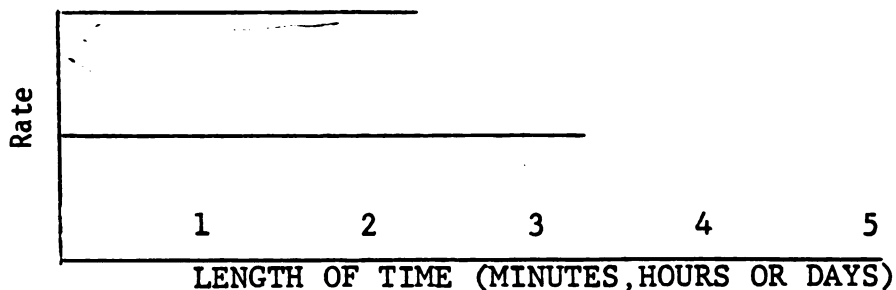
2. You may find it hard to remember to continue your behavior of complimenting an individual at various times when you see him doing a good job. The problem is that most of us take desirable behavior for granted, rather than remembering to compliment or otherwise IGNORE/REINFORCE it.

REINFORCE

3. You reinforce a behavior because you want it to be repeated in the future. A behavior that never gets reinforced will eventually stop. This graph shows the rate (the number of times) many of our common behaviors get repeated as time passes.

Many
times

Few
times



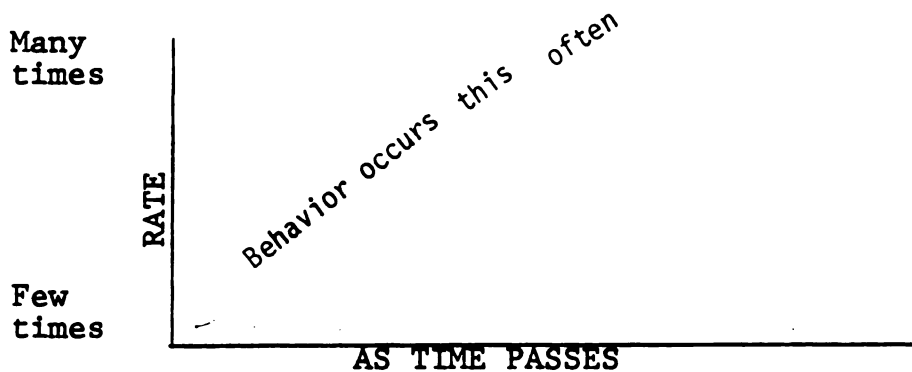
3. Continued ...

The rate goes up and down. For example, this behavior is happening MORE/FEWER times at the third hour (or minute or day).

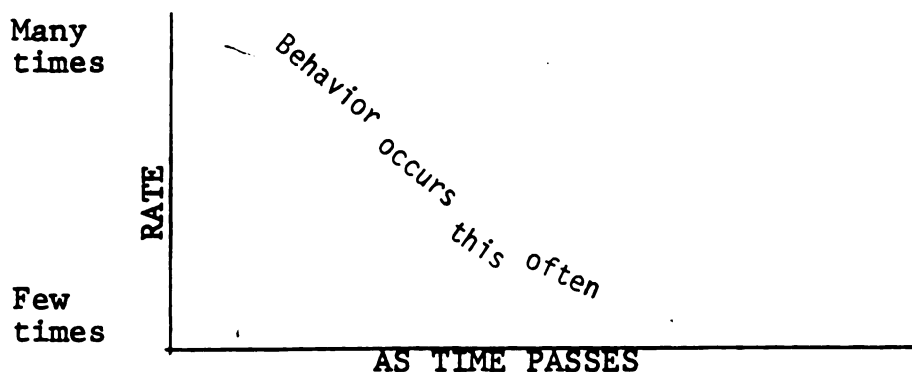
4. A behavior that never gets reinforced is being extinguished, it happens less and less times and eventually stops. Which of the three graphs below shows the rate (number of times) a behavior will occur as time passes, when there is no reinforcement?

- A. Graph one
 B. Graph two
 C. Graph three

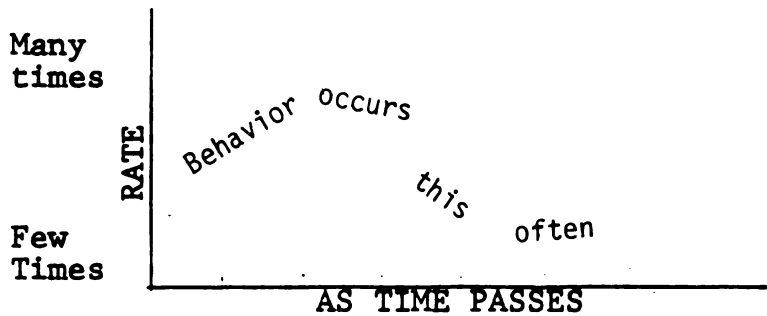
GRAPH ONE



GRAPH TWO



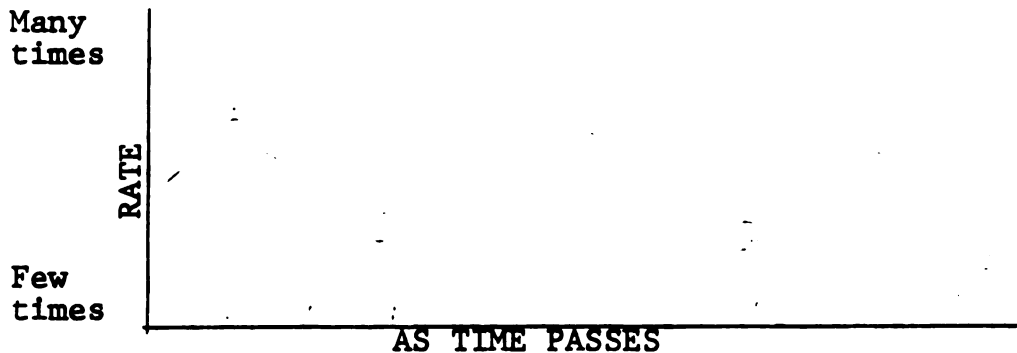
4. Continued ...



5. The actual rate of a behavior goes uphill (increases) for a while after it gets reinforced in some way, and then begins to slack off (decrease in rate) the longer it goes without reinforcement. In general, reinforcement will increase the rate (or number of times) a behavior gets repeated, but the effect of reinforcement wears off eventually. In this graph, where is reinforcement being given?

- A. At the tops of the hills.
- B. At the bottoms of the hills.

B

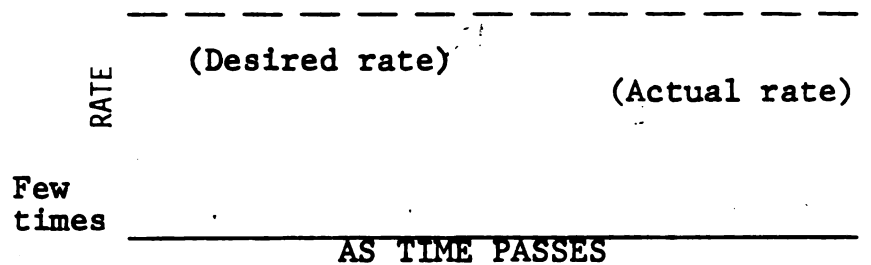


6. A behavior that is being repeated at a desired rate now needs to be reinforced just now and then, occasionally. This might mean two or three times a week, to give you a general idea. A behavior that is being repeated below the desired rate needs to be reinforced much more often. If a big increase is needed in the rate, the reinforcement must be given nearly as often as the behavior is repeated. In which graph below would reinforcement need to be given more often?

- A. Graph one.
B. Graph two.

Many
times

GRAPH
ONE

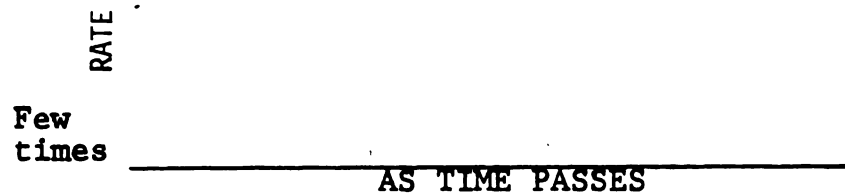


Many
times

(Actual rate)

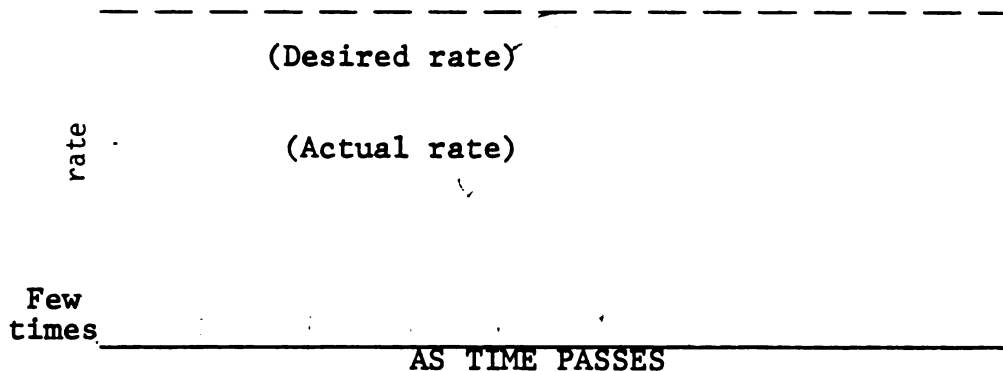
(Desired rate)

GRAPH
TWO



7. This graph shows the rate at which a certain behavior is actually occurring and the rate at which you would like it to occur. The desired rate is higher than the actual rate, so reinforcement should be given OCCASIONALLY/OFTEN.

OFTEN



8. If a behavior is occurring at a lower rate than you desire it to, it must be reinforced almost every time it occurs to raise the rate. Praising the behavior just once or twice will not make it certain the person will increase the number of times he repeats that behavior. At the start, you will have to reinforce this behavior FEW/SOME/MANY times.

MANY

9. A behavior that is occurring about as often as you want it to needs to be reinforced -

- A. Not at all.
- B. Every time.
- C. Most of the time.
- D. Occasionally.

D

SHAPING

Shaping means to change "how often" a person repeats some particular behavior or behaviors. If a very large change is desired, shaping also means to make the change a little bit at a time, in small steps, and not to try for an all-in-one-shot change. You can shape a behavior so it will be repeated more often, or less often.

INCREASE

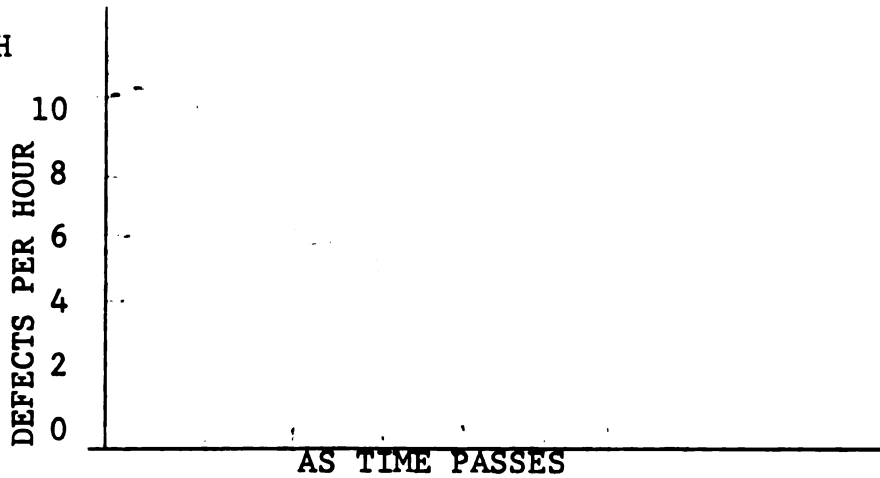
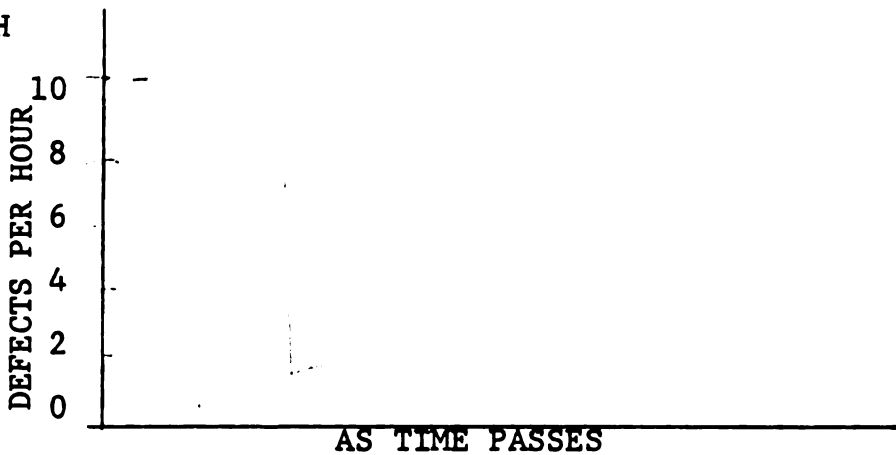
1. The procedure for encouraging somebody to change the rate of a behavior is called shaping. You can shape a person's behavior to a higher rate (so it will occur more often) or to a lower rate (so it will occur less often). Since a reinforced behavior tends to be repeated, giving a lot of reinforcement to a behavior will tend to INCREASE/DECREASE the rate at which it occurs.

2. Shaping should be done in small steps, and not as a "one-shot" all-or-nothing change. Suppose a person is now allowing 10 defective parts to get past him every hour. Suppose you want to shape his behavior so that eventually he allows only 2 (or less) defects to get past each hour. The first change you should encourage, or work toward, ought to be -

- A. From 10 to 2.
- B. From 10 to 4.
- C. From 10 to 8.

3. Suppose we want to change somebody's behavior from the current rate of allowing 10 defective parts per hour to a desired rate of allowing 2 or less defects per hour. Which graph shows the correct plan or approach for shaping the "new" desired behavior?

- A. Graph one.
- B. Graph two.

GRAPH
ONEGRAPH
TWO

CHANGE

4. In some cases, a change from 10 to 9 or from 10 to 7 may be a good "first" step in shaping a behavior. Shaping a behavior means to KEEP/CHANGE the present behavior.

REINFORCING

5. Punishment of an "undesirable" behavior is not the only way to bring about changes. You can decrease undesirable behaviors in other more constructive ways. One powerful way is simply to increase the frequency of desirable behaviors by IGNORING/REINFORCING them during the numerous opportunities you have.

6. The best way to shape a behavior is to work for SMALL/LARGE steps of change at a time.

SMALL

7. The first few days when the person has reached the level of allowing 8 (or less) defects to get past, the "new" behavior of allowing 8 (or less) defects to go by should be reinforced -

- A. Not at all.
- B. Once or twice.
- C. Often, even several times a day.

C

8. The point to remember when trying to shape a behavior is that the change should be made -

- A. All at once.
- B. In one or two big steps.
- C. In several small steps.

C

9. After several days, or some other reasonable time interval during which you have been reinforcing the desired behavior often when it occurs, you can again take another step toward the "target" of allowing 2 or less defects per hour. A reasonable step would be to work for a change -

- A. from 8 to 3 defects per hour.
- B. from 8 to 6 defects per hour.
- C. from 8 to 2 defects per hour.

B

10. The most effective shaping is to be patient and encourage by reinforcing changes in several _____ steps.

small

11. When a behavior is "new" to the person, you or somebody should reinforce it NOW AND THEN/ MANY TIMES until it becomes "regular".

MANY
TIMES

12. Eventually, after the person has reached the level of allowing 2 or less defects to get past per hour, and now repeats this behavior regularly, you can keep this behavior repeating in most cases by simply -

B

- A. Ignoring it in the future.
- B. Reinforcing it now and then
- C. Reinforcing it every time
- D. Punishing it.

REINFORCE

13. An effective way to shape a "new" behavior is to PUNISH/REINFORCE the desired behavior when it occurs.

14. Reinforcement is effective in shaping new behaviors. What does shaping mean?

Changing a
behavior in
small steps

15. You are now finished with the questions. The "payoff" is in successfully using what you learn. For success PRACTICE is required. USE your knowledge on the job, at home, in all your relationships with others.

REVIEW

1. Which of these is the best example of describing a behavior?
 - A. Bill is cool-headed when the pressure is on.
 - B. Bill asks questions to be sure he understands a problem.
 - C. Bill acts like he has a lot of experience.
 - D. Bill is a good worker.
2. What effect does reinforcement have on a behavior?

3. Will a person tend to repeat a positively reinforced behavior?
 YES/NO
 Why? _____
4. Give a general example of a behavior's being positively reinforced:

5. Will a person tend to repeat a negatively reinforced behavior?
 YES/NO
 Why? _____
6. Give a general example of a behavior's being negatively reinforced:

7. What does B _____ C mean?

8. In the B _____ C, the "B" refers to EVERY/MOST/SOME "B".
9. A behavior NEVER/SOMETIMES leads to more than one consequence.

11. What effect does punishment have on a behavior?

12. A behavior being extinguished will tend to be repeated MORE/LESS often and will eventually become CONTINUOUS/STOPPED.
 Why? _____

13. What are two side effects of using punishment?

A _____

B _____

14. When is the most effective time to reinforce a behavior?

15. What is the "rule of thumb" for when to give reinforcement?

16. How often is reinforcement needed if the rate of a behavior must be raised?

17. How often is reinforcement needed to keep a behavior repeating at its present rate?

18. What does "shaping" a behavior mean?

REVIEW ANSWERS

1. Which of these is the best example of describing a behavior?
 - A. Bill is cool-headed when the pressure is on.
 - B. Bill asks questions to be sure he understands a problem.
 - C. Bill acts like he has a lot of experience.
 - D. Bill is a good worker.
2. What effect does reinforcement have on a behavior?

Tends to get repeated.

3. Will a person tend to repeat a positively reinforced behavior?
 YES/NO
 Why? YES - He gets something he likes.

4. Give a general example of a behavior's being positively reinforced:

(Your own example)

5. Will a person tend to repeat a negatively reinforced behavior?
 YES/NO
 Why? YES - He avoids something he dislikes.

6. Give a general example of a behavior's being negatively reinforced:

(Your own example)

7. What does B _____ C mean?

Every behavior leads to a consequence.

8. In the B _____ C, the "B" refers to EVERY/MOST/SOME "B". EVERY
9. A behavior NEVER/SOMETIMES leads to more than one consequence. SOMETIMES
11. What effect does punishment have on a behavior?

Tends to stop a behavior

12. A behavior being extinguished will tend to be repeated
 MORE/LESS often and will eventually become CONTINUOUS/
 STOPPED.
 Why? LESS - STOPPED

Consequences is to get nothing, avoid nothing.

13. What are two side effects of using punishments?

A Punisher will be punished.

B Punisher will be avoided.

14. When is the most effective time to reinforce a behavior?

Immediately after.

15. What is the "rule of thumb" for when to give reinforcement?

As soon as possible after.

16. How often is reinforcement needed if the rate of a behavior must be raised?

Many times (often)

17. How often is reinforcement needed to keep a behavior repeating at its present rate?

Occasionally (now and then)

18. What does "shaping" a behavior mean?

Changing it in small steps

EXAMPLE 1

Project: Decreasing number of errors on Accounts Payable vouchers with the use of a feedback and reinforcement procedure

Setting: Collins Foods International, Los Angeles, California.
Operator of over 425 retail restaurants.

Pinpointed Behavior: Errors on Accounts Payable vouchers prepared by two groups of managers and employees of an Accounting Department.

Situation and Procedure:

A one week baseline measurement showed that one group of employees in the Accounts Payable Department of Collins Foods International made 25 errors while another similar group made 15. An analysis of antecedents and consequences showed that the antecedent for the errors was preparing Accounts Payable vouchers, while the consequence for an error was difficult to identify because workers did not know if they made an error. Usually someone else corrected errors.

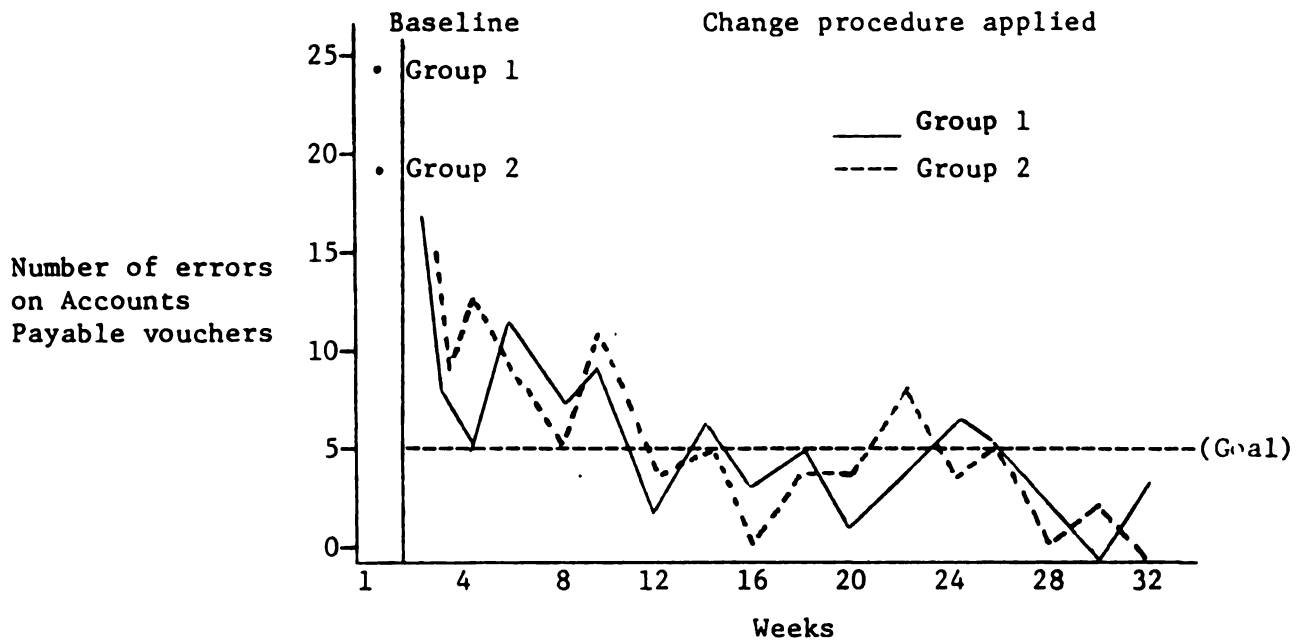
For the first two weeks the supervisor merely mentioned that he would be measuring the number of errors and providing each group with feedback on their performance. After two weeks, a standard of four errors per week was set as the goal. If the group of workers made four or less errors, the supervisor would take them to lunch.

Results and Discussion:

Results for each group are shown below. Employees quickly reduced their errors and achieved the performance standard. After receiving the consequence of being taken to lunch, a new procedure was instituted. If the Department achieved a goal of one error or less per week, per employee, for a period of four weeks, then each employee would receive some time off. Meeting the goal for eight weeks would result in additional time off plus free food coupons. After one year of operation, the program continued to be successful. One employee was able to maintain a standard of one error or less per week for 30 weeks. Each group maintained the standard of 4 or less errors for most weeks. A savings of between \$150 to \$200 a month was realized by the company since it no longer had to correct as many errors.

A related measure of number of customer service calls to deal with incorrect payment of bills showed that such calls dropped from 63 to 15 per month. The company estimated direct and indirect savings as a result of the simple change in consequences at approximately \$1,000 per month. Collins Food used similar incentive plans to reduce the errors in managers' cash reports received from some 150 different retail units. The company was able to reduce its audit fee by \$10,000 from the estimated amount and negotiate a 16% reduction in the audit fee for the next year.

EXAMPLE 1



Reference: Rettig, E.B. How to reduce costly "mis-takes" in a steak house. Work Performance, 1975, 2 (January, No. 3), 4-8.

EXAMPLE 2

Project: Reducing errors in a Parts Department.

Setting: Manufacturer of small aircraft in Los Angeles area.

Pinpointed Behavior: Making errors on inventory entry cards.

Situation and Procedure:

In the Parts Department, six hourly workers averaged 34 errors per day. Parts were reported out of stock when on hand or thought to be on hand and not reordered when in fact they were out of stock. Two other employees were paid to correct the errors. An analysis of antecedents and consequences showed that no instructions were given on how to avoid errors, and no useful information on the number or type of errors occurring was provided to the workers. The plant superintendent, armed with some knowledge of behavior modification procedures, arranged for a daily list of errors to be returned to the hourly employees for correction. No longer would one group make errors and another group correct them. The employees were re-trained where needed in reading computer codes and seeking appropriate information.

Results and Discussion:

In less than a week the number of errors was reduced from a daily average of 34 to 2 per day. Department productivity increased by approximately 50 percent.

Reference

Errors Get Whammy. Performance Improvement, 1976, 1 (February, No. 4), 8.

EXAMPLE 3

Project: Reducing absenteeism with the use of a token reinforcement lottery procedure.

Setting: A large manufacturing and distribution center.

Pinpointed Behavior: Coming to work.

Situation and Procedure:

A lottery incentive system was developed in which an employee was allowed to choose a card from a deck of playing cards on each day he or she came to work on time. At the end of a five day week, the employee from each department (average size 25 workers) with the winning poker hand would win \$20.

Results and Discussion:

Absenteeism dropped from an average of 3.01% to 2.46%, a decrease of 18.27%. When the procedure was stopped, absenteeism climbed back to 3.02% after 22 weeks. Upon reinstituting the procedure, absenteeism immediately dropped to 2.4% and stayed at that level for six weeks.

Reference

Pedalino, E. & Gamboa, V. Behavior Modification and Absenteeism: Intervention in One Industrial Setting. Journal of Applied Psychology, 1974, 59, 694-698.

EXAMPLE 4

Project: Increasing punctuality of industrial workers with a token reinforcement and incentive procedure.

Setting: Ideal Standard, Mexico City (a subsidiary of American Standard, Inc.)

Pinpointed Behavior: Reporting to work and clocking in on time.

Situation and Procedure:

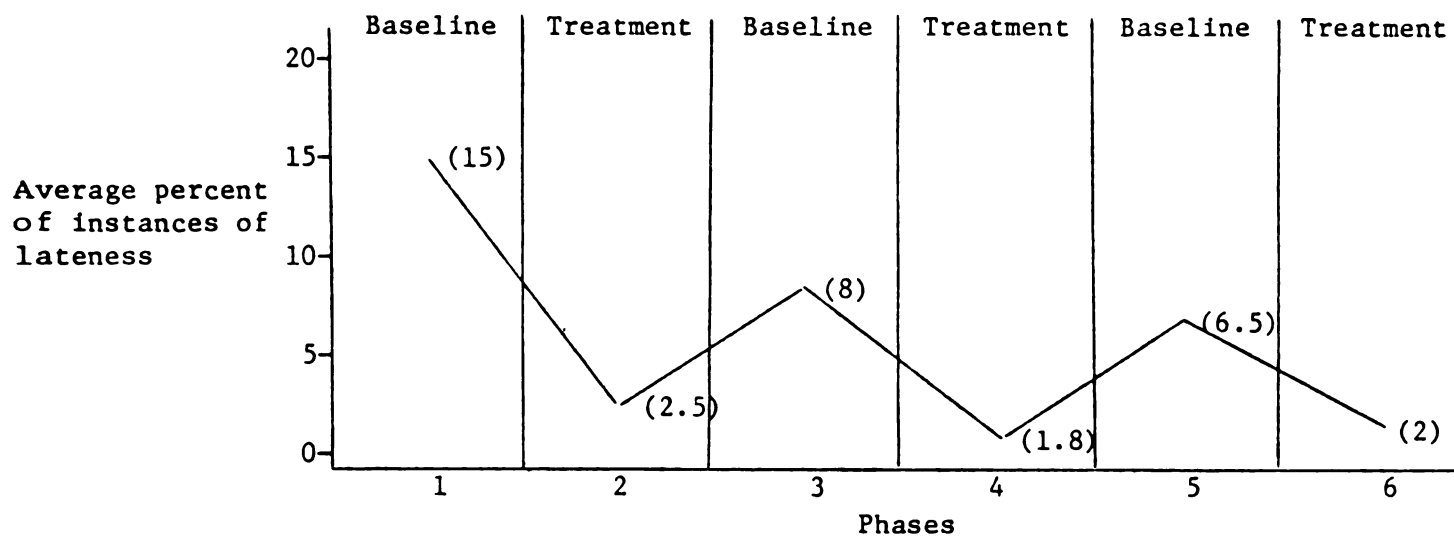
This industrial plant employing 131 workers in Mexico City experienced 750 separate instances of lateness in one year. The company had used a system of bonuses and sanctions in an attempt to improve this situation. The bonus system included a bonus of 500 pesos (\$40.00 U.S.) for the 10 workers who had the best punctuality and attendance records during a year. Yearly awards of 400 pesos (\$32.00 U.S.) (10 such prizes) and 300 pesos (\$24.00 U.S.) (20 such prizes) were given to the next lowest workers. Unfortunately this long delay between the appropriate behavior (coming to work on time) and the consequence (yearly bonus) was not as effective as the company would have liked. In addition, sanctions were imposed on workers who were chronically late. A worker might be suspended for one day or sent home if late. Again there was often a long delay between suspension and lateness.

It was decided to employ an immediate reinforcement procedure for each day a worker reported on time. The workers chosen for the pilot project had a record of chronic lateness for the previous year. The procedure involved telling each worker that he would receive a slip of paper worth 2.00 pesos (\$0.16 U.S.) for each day he clocked in on time or before. At the end of each week he could exchange the slips for cash. If a worker was late, he would not receive a punctuality bonus for that day. The union had been informed of the project and union officials raised no objections.

Results and Discussion:

The results for various phases of the project during which the procedure was put into effect, then stopped, reinstated, stopped and then reinstated again are shown below. The workers were also compared to another group of workers who did not experience the new procedure. This control group of workers demonstrated a great deal more lateness.

EXAMPLE 4



Reference: Hermann, J. A., de Montes, A. I., Dominguez, B., Montes, F., & Hopkins, B. L. Effects of Bonuses for Punctuality on the Tardiness of Industrial Workers. Journal of Applied Behavior Analysis, 1973, 6, 563-570.

EXAMPLE 5

Project: Increasing productivity of central delivery service and head office credit department

Setting: Norman Ross Discounts, Sydney, Australia, retailing chain stores.

Pinpointed Behaviors:

Attempting deliveries; returning undelivered merchandise to warehouse; damaging freight; reporting for work; and processing documents in a clerical department.

Situation and Procedure:

Prior to the start of the project, there was a serious deterioration in the pinpointed behaviors listed above. This was partly due to rapid expansion of the company and centralization of warehousing and shipping. With centralization, the drivers' performance went largely unrecorded and unrecognized. The company was plagued with work stoppages, damaged freight, low number of deliveries and many complaints from drivers. The procedure used involved pinpointing the behaviors listed above, counting them and then providing detailed feedback and recognition of performance improvement to each individual driver. Any improvement was followed by a note of congratulations and appreciation from the warehouse management, along with verbal praise where possible. No other incentives or monetary rewards were used.

Results and Discussion:

There was significant improvement in all areas, and after 20 months of operation this improvement has been maintained. Attendance at work increased, as did number of deliveries attempted, and damaged freight is down. The company recorded an overall 30 percent increase in productivity in this area. In addition, work stoppages were eliminated and the ratio of wages to output was reduced from 5.6% to 3.9% in one year. Norman Discounts extended the program to the entire warehouse with similar results.

When applied to the company's head office Credit Department, the permanent product measure used was total number of documents held divided by the average weekly number of invoices processed. By using pinpointing, counting, and feedback with social reinforcement, the ratio of unprocessed documents to processed ones fell from 112 to .28 per week.

Note: For further details, see Mitchell, B. The Australian Story. Performance Improvement, 1976, 1, (April, No. 6), 1-4.

EXAMPLE 6

Project: Increasing profits, productivity and job satisfaction while reducing costs, errors, and absenteeism.

Setting: ACDC Electronics, Oceanside, California.

Pinpointed Behaviors:

Attendance at work, completing drawings correctly in Engineering Departments, manufacturing product in accordance with supervisors' standards, saving dollars in Purchasing Department, repairing units in Customer Service Department; receiving, locating and pulling parts in the stockroom; producing transformers.

Situation and Procedure:

The company president, after attending a workshop on the role of behavior modification procedures in business and industry, designed a program which pinpointed specific behaviors, and provided counts of these behaviors along with social reinforcement to employees in the Customer Service Department. When improvement was noted, the program was extended to the rest of the company with the assistance of an outside consulting firm. Some of the reinforcers used for improvement in work behavior were: foremen's favorable comments, notes of recognition from the president, clear evidence of rapid and sustained improvement, the daily reports of the workers' own performance. Managers and foremen were reinforced by a reduction in complaints from workers, profit gains, improved attendance, reduced turnover, interest from the parent company and other firms, not to mention the overall improvement in performance.

One interesting side effect was the use of behavior modification procedures by employees at home. For example, with their children and in reducing their own smoking behavior.

Results and Discussion:

The table below highlights some of the effects of the project (figures are approximate).

<u>Department</u>	<u>Pinpointed Behavior</u>	<u>Percent improvement over baseline measure</u>
Entire company	Attendance	3.31%
Engineering	Drawings completed correctly	49%
Manufacturing	Meeting daily objectives	35%
Purchasing	Saving dollars	11.5%
Quality Assurance	Repairing orders within time limit	35%
Receiving	Processing parts	20%
Stockroom	Receiving, stocking, locating, pulling	29%

EXAMPLE 6

Profits were 25% over forecast. The output of one assembly line increased 48%, while the number of units produced without errors was up 60% despite more stringent standards. Repair turnaround time dropped from 30 to 10 days on the average. There was an improvement in attendance and turnover, two important indicators of worker morale and job satisfaction.

Reference

ACDC reaches new levels in productivity. Performance Improvement, 1975, 1 (December, No. 1), 1-8.

EXAMPLE 7

Project: Reducing the scrap rate of a manufacturing team with the use of feedback and reinforcement procedure.

Setting: Machine shop in a manufacturing plant.

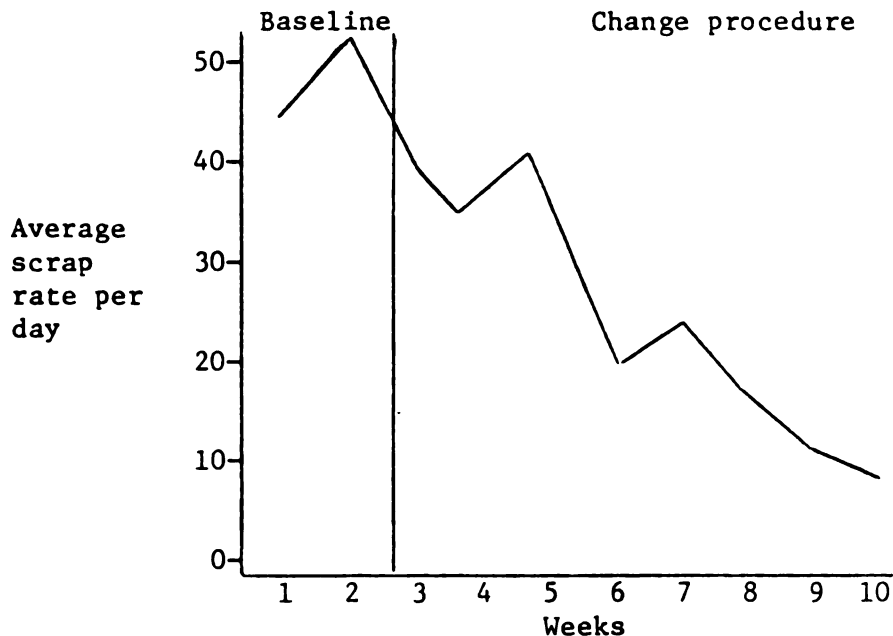
Pinpointed Behavior: Stopping the stamping mill when a defective piece was identified and sharpening and realigning the dies.

Situation and Procedure:

A supervisor had attempted to reduce the group scrap rate by posting equipment maintenance rules and reminding workers about procedures. This had little effect. He then took a baseline measure of the group's scrap rate for a two week period. Based on an analysis of antecedents and consequences, the supervisor decided to provide a new consequence for the workers' performance in the form of a chart showing the scrap rate. The chart was posted in the department work area. The supervisor also solicited suggestions from the workers on how to improve scrap rate.

Results and Discussion:

The consequences of providing feedback and implementing suggestions worked to improve productivity, as shown below. A pleasant side effect of this procedure was an increased level of interaction between the supervisor and the workers.



Reference: Luthans, F. & Kreitner, R. Organizational Behavior Modification. Glenview, Ill.: Scott Foresman. pp. 154-155.

EXAMPLE 8

Project: Reduction of complaining with the use of an extinction and social reinforcement procedure.

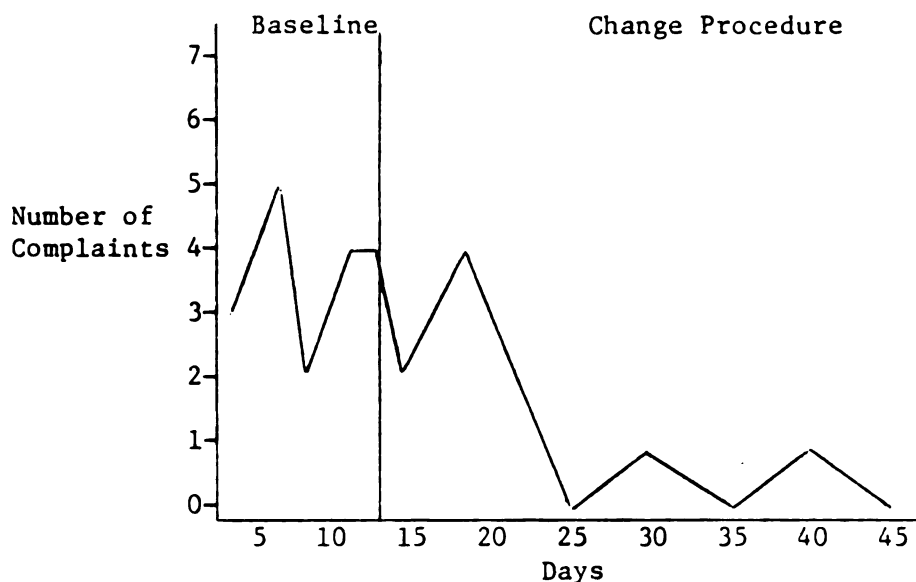
Setting: Machine shop of industrial manufacturing firm.

Pinpointed Behavior: Complaining.

Situation and Procedure:

A machine operator often bitterly complained to the supervisor about production standards. This complaining may have also been affecting the productivity of workers in the areas, since the operator spent time talking to them about their rates and production. The Antecedent-Behavior-Consequence analysis showed that the supervisor's own behavior of paying attention to the complaints may have been an important reinforcing consequence. The supervisor decided to use a procedure of extinction and social reinforcement to hopefully improve the situation. He withheld his attention when the operator complained, but praised satisfactory production and constructive suggestions.

Results and Discussion: The procedure resulted in a decrease in the complaining behavior. The supervisor was surprised at the swift results since the problem had existed for such a long time.



Reference: Luthans, F. & Kreitner, R. Organizational Behavior Modification. Glenville, Ill.: Scott Foresman, pp. 153-154.

EXAMPLE 9

Project: Increasing the frequency of staff following management's instructions: A comparison of three procedures.

Setting: Nevada Mental Health Institute.

Pinpointed Behavior: Following instructions from management to lead daily recreational activities.

Situation and Procedure:

Three procedures were compared as to their effectiveness in bringing about the implementation of desired institutional programs. The three procedures carried out by the administrator of an institution for the retarded were:

1. sending a memo instructing all staff to lead daily recreational activities;
2. sponsoring a workshop for teaching staff to lead daily recreational activities;
- 3. assigning staff activity leaders and providing feedback on performance to the staff by publicly posting the daily average number of residents engaged in recreational activity on each ward.

Results and Discussion:

Procedures 1 and 2 did not result in any staff leading recreational activities. Procedure 3 resulted in the average daily number of residents engaged in recreational activities increasing from 7 to 32. The administration of the mental health institute adopted this procedure for all wards following this successful pilot project. This study has important implications for organizations attempting to change employee behavior by memos and meetings (workshops, etc.) alone, without providing adequate feedback on work performance.

Reference

Quilitch, H. R. A comparison of three staff-management procedures. Journal of Applied Behavior Analysis, 1975, 8, 59-66.

APPENDIX D

FORMS IN TRAINING PROGRAM AND RELEASE OF INFORMATION

CHARTING INFORMATION

Pinpointed Behavior #1

Situation It Occurs In

Time Counted Each Day (minutes) ()

1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
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89	89	89
90	90	90
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95	95	95
96	96	96
97	97	97
98	98	98
99	99	99
100	100	100

Pinpointed Behavior #2

Situation It Occurs In

Time Counted Each Day (minutes) ()

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

HINTS FOR USING THE CHART

DATE _____

BEHAVIOR 1

BEHAVIOR 2

1. Record the date, and the number of behaviors observed each day in order to have a permanent record.
2. Plot the data each day.

2. Plot the data each day.

BEHAVIOR IMPROVEMENT
WORK ACTION PLAN

Employee	Position
Observer/Recorder	Observation Period

1. PINPOINT THE BEHAVIOR

Behavior _____

Where exhibited _____

How performance related
(output measure?) _____

2. COUNT AND CHART THE BEHAVIOR

How counted _____

Where counted _____

When and for how long _____

3. CHANGE THE BEHAVIOR

- a) Analyze existing antecedents and consequences (use ABC form)

Antecedent(s) _____

Consequence(s) _____

- b) Plan changes in antecedents and consequences (intervention strategy)

Changes in antecedents _____

(Continued)

Changes in consequences _____

c) Implement new antecedents and consequences

Starting date _____

Duration _____

4. EVALUATE (Try, Try, Again!)

Description of amount of change which will be deemed satisfactory (standards or goals)

Cost effectiveness measures (economic payoffs) _____

ABC FORM

This form may be used in analyzing your own behavior improvement project. First write the pinpointed behavior of concern in the "Behavior" column. Then fill in the "Antecedent" and "Consequences" columns, followed by the "Probable or known effect" column.

<u>Antecedent</u>	<u>Behavior</u>	<u>Consequence</u>	<u>Probable or known effect of consequence</u>
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Consent for Participation in the Behavior Training Project

I hereby agree to participate in this training project being conducted by David Klein, A.C.S.W.. Under the auspices of the Department of Civil Service training division and Michigan State University Department of Social Work. The objectives and methods to be used in this project have been fully explained and I understand them. I further understand that:

- 1) I am free to terminate my participation at any time.
- 2) All results will be treated with strict confidence and that my identity will remain anonymous. On request results will be made available to me.
- 3) No beneficial effects are guaranteed.

Signed

Date

APPENDIX E

REACTION DATA PRE- AND POSTTEST FORMS

Training Reaction - Post-Test

1. This training was useful to me

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
A <u>great</u>	A <u>fair</u>	Somewhat	Not <u>very</u>	Not <u>at</u>
deal	amount		much	all

2. I have increased my skills by this training

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
A <u>great</u>	A <u>fair</u>	Somewhat	Not <u>very</u>	Not <u>at</u>
deal	amount		much	all

3. This course has helped me in my work

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
A <u>great</u>	A <u>fair</u>	Somewhat	Not <u>very</u>	Not <u>at</u>
deal	amount		much	all

4. Training is important to me

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
A <u>great</u>	A <u>fair</u>	Somewhat	Not <u>very</u>	Not <u>at</u>
deal	amount		much	all

5. I was pleased to have participated in this training project

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
A <u>great</u>	A <u>fair</u>	Somewhat	Not <u>very</u>	Not <u>at</u>
deal	amount		much	all

APPENDIX F

PROBLEM DATA PRE- AND POSTTEST FORMS

Pre/Post Test Problems

PROBLEM I

A worker in your unit is consistently late for work for variable amounts of time ranging from 3 to 25 minutes at least once every week. Today he/she came 10 minutes late and gave the excuse that he/she was stopped for speeding or he/she would have been on time. This is the third time this person has been late in four weeks. How would you handle this problem?

PROBLEM II

A worker in your unit is consistently talking to co-workers several times a day. You are aware of this problem and have warned this person to refrain from this behavior. This warning had a short term effect, but now the behavior in question continues. How might you approach this situation?

PROBLEM III

One of your workers consistently does sloppy work. You have pointed this out, but the individual does not seem to be changing their work habits. How would you go about intervening in this problematic condition?

PROBLEM IV

You have noticed that one employee regularly returns from break periods late. You want to change this behavior, but are aware this individual is very sensitive to criticism and you want to avoid offending them because it interferes with their work output. How might you intervene?

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