Modification of Staff Behavior in a Mental Health Center

Craig Wendell Knapp
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MODIFICATION OF STAFF BEHAVIOR
IN A MENTAL HEALTH CENTER

by

Craig Wendell Knapp

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Philosophy
Department of Psychology

Western Michigan University
Kalamazoo, Michigan
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Behavioral research which has focused on improving employee behavior in business and human service organizations has pointed to an increasing need to develop simple, effective management tools which will maintain appropriate behavior changes. The purpose of the present study was to explore the controlling relationship between behavior and variables previously cited in the literature, and to develop a procedure to increase and maintain the amount of time which employees in a mental health center spent on priority activities defined by management.

Eleven male and female employees in four programs of a mental health center were exposed to conditions in which priorities, descriptive and evaluative performance information, and contingent access to activities were varied to assess their effects on the amount of time which subjects spent in direct client services and on agency priorities. Component analysis was conducted within a multiple baseline across subjects design in order to determine experimental control and to parcel out effects of elements of the contingencies. Measurement reliability, inter-observer reliability, and social validity measures were obtained and found to be adequate.

The introduction of priorities alone produced significant improvements in the level of performance, but behavior was variable and effects were generally transient. Descriptive performance
information, in combination with priorities, generally maintained or reestablished previous performance levels, but did not dramatically impact on the variability of behavior. When contingent activities were introduced in combination with the previous procedures, few gains in performance were observed. The combination of priorities and evaluative performance information was effective in maintaining high levels of compliance with agency mandates and scheduled direct service time, and reduced the variability of behavior within and across weeks.

Findings were discussed in terms of principles of behavior and processes involved in the development and maintenance of rule-governed behavior. Limitations of the study were reviewed, and implications for future research were discussed. It was concluded that the field of behavior analysis must expand and integrate procedures and data from other fields of inquiry in order to ensure that all variables which impact on behavior are considered when attempts to determine functional relations are made.
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DEDICATION

To my father,
Stuart John Knapp

to the memory of my mother,
Charlotte Zollgreve Knapp

and

to my brother
Stuart Morgan Knapp
ACKNOWLEDGEMENTS

A large number of people have helped to bring this dissertation to fruition. Doctors Paul T. Mountjoy (chairperson), Dale M. Brethower, R. Wayne Fuqua, and Edward L. Trembley served as members of my doctoral committee. Dr. Richard W. Malott served on the committee for two years prior to going on sabbatical. Each provided an excellent professional model, support, assistance, and most of all, friendship.

I am also greatly indebted to Mr. George Boswell, Executive Director, Calhoun County Mental Health for his personal and professional support during the study and my tenure with the agency. I learned much from his example. Yvette Saunders rendered untiring services as research assistant, and always had a smile and a kind word. Norma Bale demonstrated objectivity, encouragement, and dedication to providing quality mental health services both as administrative assistant and as primary reliability observer. Renee Sims and Gerald Cloutier served as reliability observers and Donna Swift typed an earlier draft of the manuscript. I would like to particularly thank the staff in Residential/Inpatient Services who served as subjects in the study.

Finally, I would like to express special appreciation to Tina K. Knapp who has worked side by side with me for twelve years and deserves to share the degree, and to my children Todd and Emily, for eternal patience and understanding. I love you.

Craig Wendell Knapp
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CHAPTER I

REVIEW OF THE LITERATURE

The Development of Behavioral Strategies in Organizations

Traditionally, problems of organizational management have been addressed from a number of divergent theoretical viewpoints such as management process, empirical, social system, decision theory, and mathematical models (Luthans, 1973).

In recent years, increasing attempts have been made to extend the principles and methodologies of experimental and applied behavior analysis to numerous organizational issues such as overall performance quality (Adams, 1972; Andrasik & McNamara, 1977; Komaki, Waddell & Pearse, 1977; Petrock, 1978; Yukl & Latham 1975) absenteeism and satisfaction (Baum & Youngblood, 1975; Cherrington, Reitz & Scott, 1971; Pedalino & Gamboa, 1974; Reid, Schuh-Wear & Brannon, 1978), reducing negative comments by shift supervisors (Chandler, 1977), increasing salesperson telephone calls (Kreitner & Golab, 1978), reducing tardiness and increasing percentage of time spent working (Lamal & Benfield, 1978), reducing cash shortages (Marholin & Gray, 1976), and completion of various behavior modification, training, or recreation tasks (Welsch, Ludwig, Radiker & Krapfl, 1973; Pierce & Risley, 1974; Iwata, Bailey, Brown, Foshee & Alpern, 1976). Investigations such as these have generally been empirical attempts to manipulate particular variables in a specific manner to effect predetermined changes. Additional attempts have been made to design broad management strategies by a) using solely traditional behavior principles, b) incorporating some behavioral principles within existing management systems, c) com-

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bining behavioral principles and traditional concepts in an attempt to develop a new management theory or d) extending the parameters of behavior analysis to include new concepts or concepts from other, non-behavioral models.

Rummler (1972) attempted to provide an empirically based framework for analyzing performance problems that would serve as a "trouble shooting guide" for managers. The thrust of the approach is to distinguish performance problems as deficiencies of knowledge (which result from not knowing what, how, or when to do something), deficiencies of execution (which result due to factors in the environment) or a combination of the two. An attempt is made to specify the problem, determine whether adequate performance was ever exhibited and then analyze consequences for desired and undesired performance. Feedback is viewed as an important concept to utilize in improving performance and "critical characteristics" of effective feedback are reviewed. The sequence of troubleshooting then becomes one of first identifying if a problem exists, specifying the problem, determining whether or not it is important enough to address, identifying where the performance system has broken down and finally taking prescribed actions to remedy the problem. The approach is essentially consistent with a behavioral analysis which might first attempt to determine if the desired performance skill were in the repertoire and then seek to increase the probability of the response by manipulating antecedent and consequent stimulus conditions.

Jablonsky & DeVries (1972) presented a view which attempts to expand an earlier model proposed by Nord (1969). Nord originally based his analysis on generalizations from the operant literature;
however Jablonsky & DeVries argued that behavior is an interactive function of both situational and intra-individual determinants and that "perceptions of the instrumentality of the operant behavior in achieving the desired positive reinforcers as well as the valence of the reinforcer vary across individuals and predict subsequent performance (p.342)." Jablonsky & DeVries attribute such differences to the history of establishing operant responses but suggest that the "blinders of S-R behaviorism have prevented operant conditioners from dealing more specifically at both the theoretical and empirical levels with cognitive variables (342-343)". They fault Nord's reliance on a continuous operant conditioning process as a basis for behavior, suggesting that imitation is a process that may result in, for example, manual assembly line skills for a new employee without necessarily receiving any direct reinforcement for the behavior. They apparently fail to recognize imitation as a behavioral process (Bandura, 1967; Ullman & Krasner, 1969) which may involve among other things a) the potentially reinforcing properties of the supervisor (model), b) approval for correct imitation of the task, c) other potentially reinforcing consequences for correct performance, such as having the assembled part fit correctly or function properly, etc. In addition, Jablonsky & DeVries correctly note that an employee's behavior may be consequated in a conflicting manner by multiple groups (unions, management, co-workers), but they fail to recognize that the possibility of such phenomena occurring is perfectly compatible with a behavioral analysis. Thus, the "faults" which Jablonsky and DeVries suggest limit the utility of the operant model, appears to be nothing more than an incomplete understanding on their part of the operant model. Their attempt to remedy such "limitations" is,
as they note, only an attempt to insert mediating variables into the operant conditioning framework.

Brethower (1972) has designed an empirically-based, six-component "total performance system" which emphasizes the integration of conventional applied behavior analysis principles with concepts borrowed from traditional systems analysis. The analysis stresses the importance of designing a behaviorally goal-directed system which is guided by its performance. Thus a processing system utilizes various inputs to generate a variety of outputs which are then received or consumed by a receiving system. Discriminative feedback, generated both by the receiving system and the processing system, modifies, guides, shapes and/or maintains the operation of the system by serving as additional or subsequent input. Emphasis is placed on ensuring that goals are behaviorally measurable and achievable, that reinforcing and punishing feedback is appropriately applied and that maintenance systems for appropriate individual and organizational behavior are designed. Guidelines for using and evaluating goals and avoiding organizational pitfalls are presented as well as a four step behavioral process for changing behavior. Although the concept of feedback, which is heavily stressed in the analysis, is borrowed from communication theory, Brethower is careful to tie the term to empirical reference; whether feedback is identified as reinforcing or punishing is determined solely by its effect on behavior. As such, the total performance system devised by Brethower may be construed as compatible with and a legitimate extension of behavior analysis principles to problems of organizational management.

A series of reports by Luthans and his colleagues (Luthans, 1973; Luthans & Otteman, 1973; Luthans & Kreitner, 1974; Luthans & Martinko,
1976) might best be characterized as an attempt to utilize principles of behavior analysis to develop a new theory of management called "Organizational Behavior Modification" or "O.B.Mod" (Luthans, 1973). According to Luthans, (1973) the contingency approach starts with the premise that there is no single design that is best for all situations. Based on the principles of operant conditioning, the approach assumes "that behavior depends on its consequences. To change a person's behavior, the person must perceive a contingent relationship between the behavior and the consequence of the behavior. This contingent relationship, once established, will affect the frequency of subsequent behavior". (p71). Luthans views the O.B.Mod. approach as a result of the systems approach fostering a unification of behavioral and quantitative "paths out of a theoretical jungle in management". (p73). The approach correctly emphasizes, for example, the distinctions between uses and side effects of punishment and reinforcement and issues of stimulus control. However, cognitive influences are evident such as the suggestion that organizational participants might "lose the capacity to be reinforced" (Luthans & Otteman, 1973). As the approach has been outlined in later works, a more complete, empirical analysis has been presented which seems to rely on more objective and empirical extensions of behavior analysis techniques. The approach has yielded a five step model for organizational analysis and change which is described as one that "modifies behavior through control of environmental contingencies" (Luthans & Kreitner, 1974). Rather than a new "theory of management", O.B.Mod. might best be viewed as an application of existing behavioral technology in the field of management. The authors offer valuable recommendations.
for dealing with problems such as absenteeism, (Luthans & Martinko, 1976) although their recommendations need to be considered carefully in terms of the side effects which the procedures might have on absentee behavior.

Lazer (1975), following Mager & Pipe (1970) and Brethower (1972), reviewed principles of operant technology as they apply to managing employees. Analysis of performance in organizational settings is regarded as a four-step process. First, it is necessary to specify and measure the desired behavior which permits baseline performance to be analyzed and identifies the performance standard. Second, the work environment is analyzed to identify controlling factors (time, necessary tools, materials, incentives) which are lacking. Third, a behavioral program must be designed and implemented. This may involve training, practice, or modification of resources or other environmental factors to effect change. Finally, monitoring and evaluation of the overall program is required to maintain desired performance. Like Brethower (1972), Lazer considers feedback as a behavioral consequence which follows the same rules as reinforcement. While it may be questioned whether there is empirical support to view feedback (knowledge of results) as a type of consequence separate from either reinforcement or punishment, it is clear that Lazer's attempt is to extrapolate existing behavioral technology to problems of management.

Petrock (1978) noted that appropriately using behavioral consequence is not as easy in practice as in theory. He attempts to present a systematic procedural and conceptual tool to aid managers in analyzing the balance of consequences that affect performance. One view that is central to the approach is that employees may exhibit
desirable or undesirable job-related behaviors or non-job-related behaviors and that to manage successfully, it is necessary to specify current behaviors and then consequeate appropriately. Consequences are characterized in terms of their impact (personal, organizational or other) timeliness (immediate or delayed) and risk (certain and uncertain). Various combinations of characterizations are reviewed and steps in analyzing the balance of consequences are delineated. To restore a favorable balance of consequences (and thereby improve performance), undesirable behavior should be reduced by eliminating reinforcing consequences for that behavior and consequences for desired organizational behavior should be personal, immediate, and constant. Petrock notes that besides consequences, factors such as clear objectives, feedback on results, job design, and task training and interference should be considered when analyzing performance problems but that analysis and alteration of the balance of consequences represents a potentially effective management tool.

While the approaches cited above may vary in the extent to which they utilize behavioral principles or are consistent with a thorough behavioral analysis, all represent an attempt to examine problems of organizational management from a behavioral perspective and contribute to the tools which managers use to maximize performance within their organizations.

Criticisms of the Use of Behavior Analysis Techniques in Management

This is not to suggest that the use of behavior analysis techniques in management has been universally received. Schneier (1974) reviewed the management and operant literature in order to examine
shifts in the management literature, review applications and criticisms of operant technology in management and address areas for future study. Criticisms which were cited included an assumed naivete on the part of behavior analysts working in organizational settings with respect to the complexity of work behavior, and allegations that the operant model could not be successfully applied outside of the laboratory setting, since employees might not interpret or respond to contingencies in the manner intended by managers. Other criticisms centered on "crucial elements in real life behavior", which were assumed to be omitted from the Skinnerian model. These included: 1) difficulties in dispensing reinforcement due to practical problems and comparisons of satisfaction with reinforcers, 2) the presence of conflicting stimuli in the work situation, 3) difficulties in managing contingencies due to temporal lags between performance and consequation, and 4) analysis of contingencies operating on those who dispense reinforcers to other employees. Finally, criticisms were raised at the meta-physical level with respect to the issue of the autonomous nature of man. The behavioral focus on an external locus of control led some authors to reject the operant model. Schmeier had these conclusions: a) that the majority of actual application of the operant model had been in mental health and educational settings and that the behavior or working adults in other settings may be far more complex than that of children or mental health clients, b) that more empirical work is needed to address the testing of operant principles as they apply to work behavior and that c) although many have advocated the development of behavioral strategies for controlling work behavior, there have been few actual programs in specific areas of work behavior.
He recommended concentrating on field experiments (for example, comparison studies using group designs), measuring and operationalizing crucial variables, and avoiding specific recommendations for topics to be explored such as consequences of using different reinforcement agents to dispense rewards, effects of varying levels of rewards or identifying optimal intervals at which to dispense feedback regarding performance.

Most of the criticisms cited by Schneier are, however, actually pseudo-issues. While specific individuals working in the field may be naive, the behavioral model is anything but simplistic or naive. By examining historical and current antecedent and consequent situational factors and focusing on measurable and observable phenomena, the behavioral model lends itself to close scrutiny. Determining whether the approach has internal and external validity is considerably simpler than when cognitive variables are the focus of inquiry and a review of any of the applied behavioral journals would indicate that the model is applicable outside of the laboratory. "Conflicting stimuli" and multiple reinforcing agents are merely analyzed as part of the process of determining functional relations between environmental events and behavior. Skinner (1953, 1971, 1973) has commented on the issue of the autonomous nature of mankind:

> When I question the supposed residual freedom of autonomous man, I am not debating the issue of free will. I am simply describing the slow demise of a prescientific explanatory device. Autonomous behavior is treated simply as uncaused behavior. The argument is quite similar to that against vital forces in biology. Until biochemistry could account for all the bodily processes, a prescientific agent was said to be operative. It was not a matter of disproving the reality of vital forces through metaphysical disputation which made the concept unnecessary; it was rather a matter of making steady advances in biochemistry (1973, p. 261).
It is, however, true that additional rigorous studies need to be conducted which systematically address variables that affect performance in organizational settings; and it should be noted that the recommendations by Schmeier have been predictive of many studies which have been conducted since his study was published.

Issues in Experimental Design

An overview of research design issues in organizational settings is preliminary to a discussion of empirical studies. Baer, Wolf and Risley (1968) outlined criteria for applied behavior analysis research. Studies should be applied (that is, the researcher should examine variables which can be effective in improving socially important behavior which is relevant to the subject(s) of the study), behavioral (requiring precise assessment and reliability measures of actual behavior in addition to any indirect measures of performance) and analytic (i.e., the design of the study should demonstrate that the events manipulated account for the occurrence or nonoccurrence of the behavior under study. In addition, the study should be technological (i.e., techniques should be sufficiently described so that the study could be replicated), it should relate techniques and findings to conceptual systems within the field of behavior analysis (in order to avoid the pitfall of techniques assuming the status of "tricks" and to ensure the development of a scientific discipline), and should be effective (i.e., unlike basic research, the essential criterion is the power of a variable in altering behavior enough to be socially important). Finally, the procedure producing change should have some generality (since application means practical improvement in important
behaviors, the more general that application, the better). Various authors (Baer, Wolf, & Risley, 1968; Kazdin, 1973 (b); Komaki, 1977; Bailey, 1977; Johnston & Pennypacker, 1980; Skinner, 1969) have advocated the use of within-subject procedures such as reversals or multiple baseline designs as an alternative to between-subject group designs which depend on statistical analysis for interpretation of results. Use of within-subject designs makes possible the effective control of such sources of extraneous variability as between-subject variability, maturation, history, statistical regression, mortality, or repeated assessment which affect internal validity. The main limitation of the reversal design lies in its inability to be used in cases where the behavior is either not reversible or where reversal of the behavior would be unethical. Similarly, the multiple baseline design must not be used where the possibility exists that subjects, behaviors or settings being compared are correlated (Kazdin, 1973(a); 1973(b)) since it is possible that the treatment of one operant may have an effect on the strength of another (Skinner 1953; Schick, 1971). In addition, Kazdin (1973(b)) has noted that generality may be limited by the particular sequence of treatments in a multiple baseline design (Campbell & Stanley, 1963). He has suggested conditions under which comparison groups would offer an appropriate alternative or addition to single-subject analysis in order to enhance the external validity (generality) or results (e.g., comparing reinforcement and traditional procedures, effects of praise compared to praise-plus-tokens when both are introduced initially to a group not previously exposed to any experimental phase), although the functional analysis of the relationship between behavior and environmental events is regarded as the major aspect of the design.
It is noteworthy that in a recent methodological and content behavioral review of behavioral research studies conducted in business settings, criteria such as those outlined by Baer, et al (1968) were often not met (Andrasik, 1979). Twenty studies from seven major journals, were subjected to methodological and content analysis. Design criteria assessed included reliability of measurement, (data collection by two or more independent observers and quantification of measures of agreement as correspondence) baseline, (data collection prior to intervention), systematic intervention (introduction of the intervention in a manner that would permit cause-effect statements), and follow up (data collection after a time lapse during which no data were collected). Records were made of the subject population, basic design, specific treatments or interventions, and dependent measures. Only 30% met the reliability criterion and only 60% of the studies reviewed met the systematic intervention criteria. Of the total studies, 25% enabled the effects of single intervention to be parcelled out while 35% would only permit analysis of the effectiveness of multiple interventions. Only twenty percent reported any follow-up data. Content analysis data were described as "uniformly promising"—particularly with respect to the use of token economy procedures in the business settings. In cases where cost-benefit data were reported, all indicated that accrued benefits outweighed implementation costs. Only one study reported the presence of monitoring to ensure that the intervention was being carried out as intended. Recommendations were that applied researchers attempt to a) assess the reliability of dependent measures and treatment conditions, b) determine the relative contributions of single (independent) treatment inter-
ventions, c) document the cost effectiveness of the program, d) assess the differential effectiveness of behavioral procedures in comparison to non-behavioral approaches to management, and e) assess the long term maintenance of applications.

With respect to the results of the review, it should be noted that twenty applications hardly constitutes an exhaustive review of the studies that have been conducted and it may be that the percentage of studies actually meeting the criteria outlined by Andrasik differs significantly from those reported by him. Several of the dimensions were merely rated by the author and a research assistant on the basis of presence/absence in the study (e.g., baseline conditions, content analysis items) without regard to the adequacy of the items. Thus it is possible that a closer scrutiny would have yielded a different set of interpretations with regard to the overall quality of the studies. Third, it is not clear that the low percentage of studies which reported effects of single applications (25%) as opposed to multiple treatments, should be necessarily viewed as a negative factor, at least not at the present time. Baer, Wolf & Risley (1968) have noted that in applied research it is not often possible, necessary or even desirable to do so; rather the focus should be on determining programs that will be able to alter socially important, problematic behavior to a significant degree in an ethical manner. Once this is accomplished, authors may then begin to focus on parcelling out the individual contributions of single components of the treatment approach.
Techniques of Managing Employee Behavior

As noted, multiple approaches to managing employee behavior have been tried, and it has not always been possible to parcel out effects of individual strategies. A review of the literature suggests that in many cases, effects of multiple variables may not even have been considered. Krumhus (1978a) reviewed many issues revolving around the discriminative and consequating properties of feedback; however, some researchers have examined effects of feedback on behavior without regard for response-feedback latency, method of presentation, analysis of the observing response associated with feedback, or pairing of feedback with other reinforcing or punishing consequences. These and other factors have probably been directly related to the inconsistent findings associated with the feedback variable. Although the necessity of taking into account all of the variables in a behavioral (or interbehavioral) event has been recognized for over fifty years (Kantor, 1926), ignoring historical factors or setting factors (such as the total system structure which is operative at the time behavioral procedures have been attempted) has probably in some instances resulted in less than a complete behavioral analysis and may have ultimately accounted for program failures or variable results. Various forms of antecedents or instructions have been utilized to manage employee performance (Baum & Youngblood, 1975; Pierce & Risley, 1974; Pommer & Streedbeck, 1974; Kim & Hamner, 1976; Quilitch, 1975; Iwata et al, 1976; Marholin & Gray, 1976; Lamal & Benfield, 1978; Shook et al, 1978) as have a variety of consequences (Pommerleau et al, 1973; Pedalino &

Mayhew, Enyart & Cone (1979) surveyed the management policies and preferences of 138 members of the National Association of Superintendents of Public Residential Facilities for the Mentally Retarded. The study was designed to determine the prevalence of and preference for different types of positive and negative consequences in the management of employees by both administrators and managers. The survey contained a list of nine possible rule infractions as well as twelve possible consequences for managing the incidence of infractions (six were positive consequences which would be applied for appropriate behaviors while six were negative consequences which would be applied for inappropriate behavior). Respondents were asked to indicate 1) consequences which were typically utilized, 2) consequences which would be preferred in the absence of external restrictions (e.g. unions) and 3) the effectiveness of usual consequences. There was also space for additional infractions to be specified. Techniques used most often were verbal reprimand (60%) and written reprimand (15%) while all other forms of management were each utilized less that 3% of the time.
Overall, negative consequences were reported used in 97% of the cases. The authors reported a preference on the part of managers for the use of negative rather than positive consequences in the absence of externally imposed restrictions in over 50% of the cases. Those who responded also reported that "negative consequences" are frequently not effective. The continued use of negative consequences under these conditions was attributed to factors such as short term benefits of negative control, lack of information concerning effective, positively based management and personnel practices, cost factors or lack of compatibility within existing personnel systems, or philosophical opposition to the use of "additional incentives" for meeting what may be considered minimum job requirements. The authors recommended the use of positive management practices and suggested that those who would use positive procedures must become familiar with what is important to managers and administrators. Savings in cost for a management program resulting in lowered absentee rate or lower turnover might be benefits to such an approach. They indicated that it would be appropriate to advocate a balanced approach as one method of reducing reliance on predominantly aversive control. Positive and negative consequences would both be used, contingent on employee behavior.

It may be, of course, that the replies of managers are not an accurate reflection of the overall management strategies within their organizations. The report of such an overwhelming use of negative consequences seems suspect, particularly in light of the fact that the graphs presented suggest a much more even preference for the use of positive and negative consequences for rule infractions.
The discrepancy could be a function of the fact that the survey items asked managers to respond to hypothetical instances of negative, or inappropriate employee behavior. It is possible that a restatement of the questions in a positive or more neutral manner would have yielded different results. Asking a manager how she or he would "consequate excessive absences" might be expected to yield a different response than asking the same manager how she or he would "consequate perfect attendance" or just "obtain an attendance rate of 95% for scheduled days over a year period". Additional research is probably warranted to make such a determination.

What is evident is that a variety of employee management procedures have been applied in organizational management research studies with varying degrees of experimental rigor and consistent results.

Antecedent Control of Employee Performance

The majority of studies which have examined effects of various forms of antecedent stimuli have investigated such variables in comparison to, or in combination with feedback, punishment or reinforcement. Most studies have reported that antecedent stimuli used alone, are relatively ineffectual (Quilitch, 1975; Knapp, 1976; Komaki et al, 1977; Shook et al, 1978).

Andrasik, McNamara & Abbot (1978) reported that revision of a staff accountability policy dramatically improved staff evaluation and consequation of resident's work behaviors in a psychiatric institute. However, no actual experimental control was demonstrated and follow-up data were not reported. The authors suggested that sending reports of the employee actions to the administration may have been in part
responsible for the results. If so, then the procedure could be viewed as an avoidance paradigm in which improved performance on the part of staff would avoid the potential consequences of having a negative report sent to the administrator. As such, antecedent effects would be combined with negative reinforcement effects (avoiding reprisals from supervisors). Similarly, a study by Baum & Youngblood (1975) reported that a mandatory attendance policy based on legal compliance in a college undergraduate course yielded improved attendance and performance on exams without a significant reduction in measures of student satisfaction. Students first exposed to a non-compulsory attendance policy and then switched to a compulsory attendance policy performed better with fewer absences than students for whom conditions were reversed. However, like Andrasik et al (1978), negative reinforcement effects were probably ignored. Specifications that attendance is mandatory could be presumed, on the basis of experience with other college courses, to be aversive if low attendance would automatically result in a grade of failure. As such, attendance might improve since attending classes previously under similar contingencies resulted in a higher grade and fewer day by day "anxious" reactions. That performance would be better in the group that shifted from a noncompulsory to a compulsory attendance policy is not surprising since material presented later in the course is often more complex than material presented earlier in the course and mandatory attendance would facilitate mastery of the material.

A number of studies have suggested that antecedent control may be an effective means to initiate or facilitate behavior change but not sufficient to sustain performance (Kazdin, 1973, Ayllon & Azrin, 1964; Hopkins, 1968; Packard, 1970; Komaki, Waddell & Pearce, 1977;
Pommer & Streedbeck (1974) compared the effects of job responsibility postings and token "job slips", alone and in combination. Staff duties were publicly posted each week on a bulletin board where all staff could identify which responsibilities were assigned to whom. In a second condition, notices were combined with job slips signed by the supervisor when a job was completed. Slips could be turned in at the end of each month for $1.00 each. Subsequent conditions entailed the use of job slips alone, another baseline condition, and a final condition using both postings and slips. The dependent variable was the number of jobs completed each week. Pommer & Streedbeck found that notices alone resulted in immediate increases which then decreased, although performance remained above baseline. The use of job slips alone resulted in similar data. The combination of treatments, however, resulted in increases in completed assignments greater than either treatment alone. The study was hampered by short experimental periods, trends in the data and the fact that data were averaged, however, it suggests the utility of using both antecedent and reinforcement procedures in combination.

In two experiments utilizing reversal and multiple baseline designs, Komaki, Waddell & Pearce (1977) compared the use of antecedent instructions, feedback and reinforcement (time off and contingent pay) on the performance of clerks in small businesses. While single treatment effects were not analyzed in the first experiment (since treatments were used in combination across three behaviors), the authors did conclude on the basis of the second study that increases in the clerk's appropriate behaviors were largely due to reinforcement effects.
Although instructions and reinforcement were jointly introduced after baseline, during the reversal condition only reinforcement was withdrawn. Since performance returned to baseline even though goals had not lost clarity, effects were attributed to reinforcement. The authors contended that if clarification of goals was responsible for improvements, performance should have remained more or less the same during intervention and baseline. They suggested that goal clarification might facilitate but not maintain behavior in the absence of appropriate contingencies. While the data support the conclusions, no direct comparison of antecedent and reinforcement effects was made.

A more definitive study which did examine instructional effects in comparison to feedback and social reinforcement was conducted by Shook, Johnson, Merle and Wilman (1978). They used a modified reversal design in which instructions on how to complete graphs along with criteria for graphs were first posted on a bulletin board where space was available to post the graphs. Instructions were then combined with blank graphs placed on the board by the experimenters (to examine effects of response reduction). Finally, feedback to staff was added in a third condition, followed by a return to baseline. Instructions alone has little effect. Adding the graphs resulted in increases of graph completion from 10% to 60% but performance dropped to approximately 20% completion. The addition of group feedback resulted in no change. In a second experiment, individual feedback and social reinforcement effects were examined in addition, using a similar design. Results were consistent; instruction alone and in combination with group feedback yielded little improvement. The
addition of individual feedback resulted in more improvement although data were variable. The addition of social reinforcement yielded the highest rate of graph completion (70-90%) with least variability. Reversal on two occasions to instructions alone resulted in performance to near baseline levels. The authors suggested the use of reduced response effort coupled with reinforcement, but acknowledged the need for long term maintenance data. The study does not, of course, rule out the possibility of multiple treatment interference or the reactive effect of experimental conditions (Campbell and Stanley, 1963). It is possible that results occurring in later conditions were in part a result of earlier conditions. Reinstating the target behavior may become easier after repeated exposure to experimental conditions, in which case results attributed to the addition of social reinforcement may have been partly due to the repetitive exposure to the reconditioning phases. Since the repeated exposure to a series of alternating conditioning extinction trials results in a gradual decline in responding over extinction trials, a similar phenomenon may exist with the reconditioning phases themselves (Kazdin, 1973). If so, then the generality of the effects might be limited to settings in which a similar sequence of treatments was applied although the internal validity of the procedures would not be affected.

Additional support for the notion that instructions may facilitate effects of other procedures is strong (Herman & Tranontana, 1971; 1974. Iwata, Bailey, Brown, Foshee and Alpern 1976; Kim & Hammer, 1976). Although memos and training alone were ineffective, scheduling plus feedback were effective in altering staff performance in a recreational program for retardates (Quilitch, 1975). Marholin and Gray (1976)
found that instructions and a response cost procedure reduced cash shortages in a small business. Following the distribution of a memorandum, the frequency of sales persons making phone calls to the office at a designated time increased when cash bonuses were contingently provided (Kreitner and Golab, 1978). Iwata et al (1976) found that although staff assignments alone were insufficient to significantly affect performance, the addition of a lottery in which staff meeting criteria determined by the assignments had an opportunity to schedule their own off duty time resulted in significant improvements in six categories of staff behavior.

Similarly, Pierce and Risley (1974) conducted a study with adolescents in a neighborhood youth program. The use of job descriptions alone resulted in approximately 50-75% of assigned tasks being completed. In combination with the threat of being fired, performances improved but then decreased. In combination with contingent pay, performance improved to a greater extent and maintained. It is important to note that in a partial reversal condition, staff were informed that they would once again receive "full pay" (i.e., delivered non-contingently) and that their performance would no longer be monitored since the observer changed jobs. Under this condition, performance dropped significantly below baseline (job description) levels even though the job descriptions were still in effect. When observation and contingent pay was reintroduced, high, consistent levels of performance re-occurred. Thus, the specificity of instructions, and the extent to which they identify the nature of aversive or reinforcing contingencies in effect may have a significant effect on performance levels. Herman and
Tranontana (1971) found that reinforcement alone was not as effective as when instructions were presented.

In summary, there is consistent, strong support to suggest that instructions alone will have little systematic effect on behavior unless they specify contingencies of punishment or reinforcement. When such contingencies are specified, performance may be affected, however, changes will not be maintained unless contingencies are applied as specified. There is strong support to suggest that in such conditions where such contingencies are applied, instructions will facilitate the effects of other procedures and result in more dramatic behavior change.

The Use of Feedback as a Management Tool

Feedback has been frequently advocated and widely used as a means of changing staff behavior. Brethower (1972) defined feedback as information about performance that is used to guide behavior. He suggested that positive feedback accelerates performance and/or holds it on course while negative feedback decelerates performance or results in a change of course of behavior. Convenient methods of presenting feedback include: a) showing the results of performance sampling and inspection, b) personal conferences and performance reviews, c) day-to-day comments, d) self evaluation, e) posting and performance data, f) attaching automatic recording devices to equipment and g) graphic displays of performance measures. Feedback is a central concept in the total performance system: it is used as a type of reinforcement in that information about performance may strengthen behavior, but only if the information is functional or relevant to progress being made.
toward established goals. Mager and Pipe (1970), for example, analyzed performance discrepancies and provided a step-by-step process for determining solutions. They advocated the use of feedback under conditions where a skill deficiency exists, the person used to perform the skill well and the skill is still in constant use. Under these conditions, practice alone would not be sufficient to improve pronunciation of a foreign language unless feedback about the quality of the pronunciation was provided.

Thus, feedback may serve important discriminative functions similar to instructions or rules. (Geis and Chapman, 1971; Sturges, 1972; Brookshire, 1973; Malott & Whaley, 1976). The dual roles of feedback have been well summarized by Krumhus (1978a). She notes that following Skinner (1953, 1969), most researchers have focused on conditioned reinforcement functions of feedback. Skinner (1953) notes that the reinforcing function of feedback may have "arisen in the evolutionary process and may have a parallel in the reinforcement we receive from making the world behave. Any organism which is reinforced by its success in manipulating nature, regardless of the momentary consequences, will be in a favored position when important consequences follow" (p. 78). More recently, Skinner (1974) has focused on discriminative functions of feedback; feedback is regarded as additional cues which serve as indicators that a response is occurring. Under such conditions, a response might be strengthened if feedback results in exposure to consequences which otherwise would not occur.

The discriminative properties of feedback have been further emphasized by Malott and Whaley (1976). They described feedback
stimulus control as "the control of the form or path of a response by stimuli resulting from the preceding response" (p. 76). In this analysis, the feedback stimulus would serve to maintain a collateral observing response while the main target response would be mainly sustained by other reinforcers. Thus, in learning to shave, looking in a mirror (observing response) might be reinforced by feedback about which direction the razor is moving but the primary source of reinforcement for shaving would come from other sources such as compliments, or feeling comfortable (Krumhus, 1978(a). In organizational settings, the discriminative aspect of feedback may very well have been overlooked. In human services settings, for example, reported concern for accountability often dictates that staff report the percentage of time that they engage in various activities. Goals or job prescriptions might be made at the beginning of the year and staff might be expected to report the use of their time on a weekly or monthly basis. Presumably, performance would be tied to pay increases, promotions, and/or yearly evaluations. Praise from supervisors and various other reinforcers might serve to maintain appropriate staff behavior (target response). If specific feedback in the form of a monthly analysis of staff time were available and used as one means of making staff evaluations, and this information was routinely made available to staff, it might serve to reinforce staff attending to such data (observing response) and could serve the discriminative function of informing them of changes which they need to make in the use of their time in order to meet organizational and personal goals. If the staff activity feedback were unreliable, inaccurate or not presented, staff would probably not attend to it and therefore, it would not help shape their performance.
Performance evaluation would then depend on other, perhaps more subjective data. Factors such as the immediacy with which feedback is presented, (Hall, 1975; Pennypacker, 1976; Panyon and Patterson, 1974; Bricker et al, 1972) the evaluative or descriptive extent of the feedback (Andrasik and McNamara, 1977) the specificity of the information, the method of presentation (Shook et al, 1978; Emmert, 1978) whether feedback is self-generated or externally presented (Kim & Hamner, 1976; Stone, 1979) and whether it is presented in combination with other reinforcers (Komaki et al, 1977; Shook et al, 1978) undoubtedly have been responsible for the variability of research findings concerning feedback.

Andrasik and McNamara (1977) found basically no effects of informational feedback in combination with a policy change on the number of errors on the part of staff in a forensic psychiatry institute and Krumhus 1978(b) found only weak effects when feedback was used to train tutors in a remedial education program.

Stoerzinger, Johnston, Pisor and Monroe (1978) used feedback in an attempt to increase the number of items/worker/hour produced in one division of a salvage operation. Following baseline, previous-week and current goals were broadcast on a "production display board." Increases were initially seen but performance dropped off to baseline levels after four months. Regression was attributed to vacations over holidays, aversive temperative conditions in the plant during the summer, and the decay of the "positive social feedback" system. Since the authors used an AB design in the study, no functional relations can be assumed; however, several points should be noted. The authors do not report large absences over other holidays and it
is unclear why any one particular holiday would necessarily be so significant as to result in an abnormally high absence rate. While working conditions within the plant (e.g., temperature) could easily affect performance, it might be expected that absences would increase as the temperature increased; however, this did not occur. An additional factor that might be expected to account for some of the regression could be that the feedback provided was basically descriptive (i.e., although it provided information concerning staff performance in relation to a goal, individual performance was not tied to any form of positive or aversive consequence). Coupled with the decline in social praise for appropriate behavior, staff may have stopped attending to the board since there were no consequences dependent on their doing so.

Panyon and Patterson (1974) obtained limited effects when feedback on therapy skills was presented immediately after the experimental session. Bricker et al (1972) obtained more dramatic effects by delaying feedback until just before the session was scheduled to begin. These results suggest that feedback as an instructional procedure may be most effective when presented in close temporal proximity to the occasion on which the desired behavior is to occur rather than immediately after the performance which is addressed by the feedback. However, doing so might be expected to reduce the effectiveness of feedback as a reinforcer. In cases where there is a large interresponse interval, feedback might best be provided both immediately after the performance and again prior to the next performance.

There is some data to suggest that self-monitoring (intrinsic feedback) may be as or more effective than extrinsic feedback (Kim &
Hamner, 1976; Stone, 1979). In the study by Kim and Hamner, the combination of extrinsic feedback with goal setting and praise was superior to either alone. Lamal and Benfield (1975) found self-monitoring to be an effective means of reducing tardiness and increasing the percentage of time spent working by draftsmen. Merely specifying the demand characteristics of the situation was insufficient.

Similarly, Emmert (1978) reported that providing individual feedback was more effective than group feedback at increasing the number of splices made and maintained in a fiberglass manufacturing facility. The study is limited by the fact that group data were reported and that a weak design (AB) was utilized with no measure of experimental control. In the study by Shook et al (1978) instructions plus group feedback were less effective than when individual feedback was added. Some studies have reported that feedback alone can be effective (Zimmerman, 1969). In the study by Quilitch (1975), public feedback (posting the average number of active residents on the ward) in combination with scheduling resulted in significant gains across four wards, and Welsh et al (1973) obtained similar results across two wards using both group feedback (ward A) and individual feedback (ward B). Both wards showed high gains. The authors suggested that positioning of the feedback chart (which might facilitate the observing response) utilizing incentives (e.g., time off, pay increases) and competitiveness across shifts might be variables which could affect the outcome of such procedures. Kreitner et al (1977) used a similar procedure without previously announcing the onset of the intervention. Improvements in performance were not reinforced socially by the experimenters; questions were answered with answers
such as "I thought you might like to know how you're doing." Across three direct service behaviors, use of the public feedback was effective. It should be noted that the feedback was a copy of an inter-office memo which listed the technicians' name and frequency of target behaviors for the previous week. It is possible that memos were effective as a result of the expectation that positive or negative consequence would occur by supervisors reading the original memo.

The use of feedback with various forms of reinforcement has been consistently found to enhance performance change (Zimmerman et al, 1969; Kim and Hamner, 1976; Stoerzinger, 1975; Eldridge et al, 1978; Krumhus, 1978(a); Shook et al, 1978; Komaki et al, 1977; Chandler, 1977). Similarly the use of reinforcement alone has been found to be less effective than when accompanied by instructions (Herman and Tranontana, 1971).

In effect, behavior under the control of reinforcement without instructions constitutes what has been referred to as "contingency shaped behavior". However, rules can be extracted from an analysis of contingencies in the environment. These rules may then serve as discriminative stimuli for future behavior. Behavior under the control of such discriminative stimuli has been referred to as "rule governed" (Skinner, 1969). While acquisition in contingency shaped behavior may take longer, performance is generally recognized as being more "smooth" than rule governed behavior.

Malott (1980) has been developing an analysis of rule-governed behavior which discriminates between "strong" and "weak" rules and outcomes. "Strong" outcomes may act as effective behavioral incentives (rewards or aversive stimuli) while "weak" outcomes do not
act directly as incentives for the responses that produced them, either because they are too delayed, too intermittent, or too small (and of only cumulative importance). Strong rules are those which specify generally immediate, highly probable, sizable outcomes that act as effective incentives for the actions specified in the rule. According to Malott, strong rules are the ones that Skinner has mainly dealt with. In contrast, weak rules specify weak outcomes. Additional incentives help establish and maintain control of behavior. These may include: a) incentives from others, b) added self-administered incentives (such as self statements about following or failing to follow rules, or statements about the extent to which current actions are leading to accomplishment of goals) and c) built in, automatic but learned incentives associated with the rule (such as guilt for failing to comply with a rule). In order for weak rules to control behavior, five conditions must usually be met: a) specific rules must control behavior, b) generalized rule control must be effective, c) the person must self evaluate, d) the person must provide differential outcomes for rule following, and e) those differential outcomes must be effective behavioral incentives. (1980, p.23). Malott states that often general rules fail to control much behavior and that more detailed "mini" and "micro" rules are needed to support the general rule. In addition, he suggests that most rule control involving added incentives is supported by aversive consequences because the natural outcome of aversive (e.g. guilt) control is usually much more effective than natural outcomes from control through rewards. (1980, p.53). He notes that many individuals do not appear to be under weak rule control because several behavioral components are needed for effective control.
by weak rules and typical child rearing practices often fail to establish the components in the child's repertoire. These include knowledge of rules, statement of rules, evaluation of rule following, consequation of rule following, and the use of support rules. He attributes many of the most serious problems in the every-day lives of normal individuals in our culture to poor control by weak rules, and cites poor diet, lack of exercise, poor child rearing, poor interpersonal relations, poor financial management, poor academic performance, and poor work performance as examples.

Of course, behavior initially under the control of rules may be modified and or maintained as the organism is exposed to actual consequences in the environment. Krumhus (1978a) used as an example reciting a rhyme to recall the number of days in each month (rule-governed behavior) as opposed to learning the number of days in each month independently (contingency-shaped behavior). While learning the days of the month might first occur by reciting a rhyme, eventually most people are able to identify the number of days in a month without having to do so. Driving a car and learning to drive a car are examples of how skills initially under the control of rules become modified through exposure to actual contingencies. Malott (1982) cited an introspective example of learning a new drum riff according to written instructions and gradually coming under the control of the rhythm itself. Instructional control exerted by the feedback stimulus may operate in a similar manner. Adding feedback to the stimulus situation could alter the rules, making them more precise or compatible with the behavior reinforced by the contingencies. Variables which Krumhus (1978a, pp74-49) noted should be considered when using feedback
are a) the high degree of variability concerning the extent to which individuals are under the control of rules, b) the fact that feedback generally refers to the terminal link in the chain rather than to early components in the chain which may be critical in altering terminal performance, c) the possibility that the person may learn misrules with respect to the long term efficient performance of the skill. If there are differences between the training condition and the environment under which the behavior will be maintained, specification of rules which refer to characteristics of the current environment but not the natural environment may be insufficient. It would be best to ensure the acquisition of rules which offer greater long term survival value.

Thus, the data indicate that feedback tends to be most effective when a) measurable personal and organizational goals (rules) have been identified, b) the designated target behaviors have been related to personal, immediate and long term reinforcing consequences which will maintain the behavior in the current and natural environment, c) the contingencies support changes which are consistent with the feedback, d) the feedback relates current performance to the established goals and consequences, e) performance is relatively frequent or f) feedback is provided just before the person is expected to emit the desired behavior in cases where performance occurs only infrequently.

It is important to recognize that if the feedback which is being provided is negative (i.e., indicates that the person is not functioning in accordance with the rules or in a manner which will achieve organizational goals) then the net effect may be to merely decelerate some behavior (including attending to the feedback). In order for feedback to be effective, appropriate behavior should be specified
and positive consequences (including positive feedback) should then be contingently applied. As such, individual feedback is probably superior to group feedback; either self-generated or extrinsic feedback from a supervisor might be effective depending on, for example, the extent to which the supervisor has assumed conditioned reinforcing or punishing properties for the employee.

Positive Reinforcement for Appropriate Behavior

Research studies conducted in applied settings have typically been limited in the types of reinforcers that have been available for study due to legal, ethical and practical constraints. A large number of studies have focused on using money since it seems to be such a powerful and generalized secondary reinforcer. In some cases, simply performing the target behavior has resulted in consistent monetary reinforcement (Kreitner & Golab, 1978). When contingent and non-contingent pay have been compared, performance has deteriorated during noncontingent or "full pay" conditions (Cherrington et al, 1971; Pommerleau et al, 1973; Pierce & Risley, 1974). In other cases, tokens (Pommer & Streedbeck, 1974) or lottery systems (Pedalino & Gamboa, 1974), have been effective in bringing about changes desired by supervisors.

In a series of studies (Yukl & Latham, 1975; Yukl et al, 1976; Latham & Dossett, 1978) monetary gain based on the opportunity to engage in games of chance (contingent on adequate performance) has been compared to monetary reinforcement on a continuous reinforcement schedule. In these studies, the authors have likened the intermittent reinforcement to specific variable ratio schedules although in fact the "pay off" rate could not be systematically varied. In general, workers
who were less experienced performed better on CRF schedules while
more experienced employees performed better on intermittent schedules.
Findings have been generally consistent with the notion that acquisition
is facilitated by continuous reinforcement while resistance to
extinction is greater on intermittent schedules.

For a variety of reasons, however, the use of money
as a contingent reinforcer is no longer possible in many settings.
In addition, the use of money as a reward in addition to regular
paychecks may create problems if staff compete against each other or
if the use of monetary incentives is discontinued.

Adams (1972) found verbal praise as effective as monetary rewards
and others (Chandler, 1977; Shook et al., 1978) have also found social
reinforcement to be effective although few studies have examined long
term maintenance data. It is probable that praise would lose its
conditioned reinforcement effects unless it is occasionally paired with
other, more powerful back up reinforcers. Some researchers have
utilized access to preferred activities as the primary
technique of reinforcement in organizational settings. Iwata et al
(1976), Komaki et al (1977) and Reid et al (1978) utilized time off
in order to increase performance. Gupton and Lebow (1971) made the
opportunity to make "preferred sales" contingent on making less pre­
ferrred sales attempts. Pommer and Streedbeck (1979) have suggested
a number of activities (such as the opportunity to do individual
training, individual time with a supervisor, vacation time preferences,
holiday, work shift and pass day preferences, and time off from work)
as potential reinforcers, as well as achievement plaques and salary in­
creases. As noted above, however, reinforcement techniques have been

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most successful when they have been combined with clear instructions and have been made contingent on performance of the desired behavior.

Aversive Control in Organizations

Relatively less experimental attention has been paid to the role of aversive control in organizations than to instructional control, feedback or reinforcement techniques, despite the fact that aversive control probably represents the major form of control exerted by managers on employee behavior. As noted earlier, Mayhew et al. (1979) found that over 97% of managers surveyed utilized what were considered to be negative consequences in spite of the fact that the techniques were not judged to be particularly effective. The lack of effectiveness may have been due to a misunderstanding of what constitutes punishment. As noted by Luthans and Kreitner, (1973) punishment may be regarded as:

...any stimulus that reduces the frequency of the response which immediately preceded it. Thus, if a so-called punishment is administered to an individual and the undesirable behavior, in observable and measurable terms, does not subsequently diminish in frequency, then that stimulus should not be considered punishing. Conversely, any stimulus, whether the manager intends it to be punishing or not becomes punishing if it reduces the frequency of the response which immediately preceded it (p. 157).

Although Luthans and Kreitner refer to frequency as a measure of behavior, the stimulus would, or course, be viewed as a punisher if other dimensions of the behavior, such as duration were weakened. It may be that in some cases, managers have applied what they considered to be negative consequences (such as a poor service rating, letters of reprimand, or verbal reprimands) assuming that doing so
would constitute a form of punishment and decrease inappropriate behavior. However, if such stimuli have not assumed conditioned aversive properties for various employees through prior association with other aversive events, or if the aversive properties have become deconditioned, then they would not be expected to weaken the behavior and would not legitimately constitute punishment.

Similarly, the role of negative reinforcement in maintaining at least minimal levels of performance has probably been underestimated. While at first glance, receiving a paycheck every two weeks may resemble a fixed interval schedule of reinforcement, other factors are probably operative. Skinner (1953) has defined a negative reinforcer as any stimulus the withdrawal of which strengthens behavior. If a paycheck (and all of the necessary and enjoyable products which can be bought by cashing a paycheck) constitutes a positive, reinforcing stimulus, then the (explicit or implicit) threatened loss of the paycheck and subsequent inability to provide for family could constitute an aversive stimulus (unless, of course, the employee has other means of fulfilling the same objective such as through unemployment or lottery winnings or unless providing for family is not reinforcing). In the highly complex and sometimes conflicting environment of the "average" job, discriminations about what types of behavior will most likely result in involuntary termination are nevertheless, probably often clear. When the employee performs more quickly, more accurately or "seems to be working harder" in the presence of the supervisor, it is probably not because of the expectation that she will be paid next week or because similar behavior resulted in a paycheck two weeks ago. Rather, it is more likely that the presence of the supervisor
represents an increased probability that displaying poor performance
could result in termination or some other more immediate punishment
(an aversive condition). Displaying "better" performance reduces this
possibility and thus, serves to negatively reinforce better performance
in the presence of the supervisor. Similarly, poorer or more
"relaxed" performance once the supervisor leaves probably does not
represent any less of an "appreciation" for the paycheck; rather,
it probably represents a decrease in avoidance behavior due to termina-
tion of the aversive condition.

Another factor which influences the success or failure of aversive
control in organizations is that punishment may have undesirable side
effects. Skinner (1953) notes that "punishment does not actually
eliminate behavior from a repertoire, and its temporary achievement
is obtained at tremendous cost in reducing the overall efficiency
and happiness of the group" (p. 190). When punishment is only inter-
mittently administered (as is apt to be the case in organizations)
conflict may develop if the individual does not know what behavior will
be punished and what behavior will not be punished. In addition, fear
and anxiety behaviors may result. Luthans and Kreitner (1973) have
suggested that when using punishment in organizations, the relation-
ship between the aversive consequence and its behavior should be clearly
specified and the punishment should be implemented immediately.
Similarly, reinforcement should be provided quickly for appropriate
behavior and the response-reinforcement contingency should also be
clearly identified. Under such conditions, aversive side effects of
punishment may at least be attenuated. It seems likely that the re-
lative ineffectiveness of so-called punishing consequences reported
by Mayhew et al may have been related to the fact that termination was reported as almost never utilized. The conditioned aversive effects of written reprimands and verbal counseling would be attenuated if they are rarely or never paired with the loss of the primary reinforcement (occasioned by being fired). It may also be the case that differential effects of feedback as reported above could be a function of the extent to which the information provided signaled the probability of aversive as well as reinforcing consequences. That is, avoidance responding as described above with little specific feedback or reinforcement for appropriate behavior might be expected to maintain appropriate behavior at or above the minimum level of performance required to maintain the job, but would not result in a high rate of appropriate behavior. The addition of feedback without additional reinforcement, or which encompassed social praise as a part of the information about performance might be expected to "spur" or strengthen appropriate behavior to some extent (particularly if the performance were poor enough to be approaching the minimum level of competence supported by the rules in the environment) but effects might attenuate over time if occasional below-minimum performance was not quickly and effectively consequated. Feedback and/or instruction in addition to substantial short-term (and possibly long term) reinforcers might be expected to further strengthen appropriate behavior. In this instance, multiple factors might be operative. Performance of the desired behavior might yield positive reinforcers and would further serve to reduce the aversive condition of "worrying about being fired". Such an analysis seems consistent with the data. In the study by Pierce and Risley (1974), threat to fire alone initially
resulted in increased performance; however, no one was terminated and performance decreased rapidly over six days. Performance was increased and maintained only under conditions of contingent pay. Marholin and Gray (1976) combined instruction and a group contingency (loss of pay) to reduce cash shortages in a family style restaurant. The contingencies were effective; the instruction that shortages would result in employees pay loss reduced cash shortages. It should be noted that the use of such a procedure is not without its limitations. The authors pointed out that employees may have not only been more careful about counting change, but that if there were a dishonest employee, shortages may merely have been shifted from the employer to the customer. An alternate possibility would be that employees could have then deliberately started underringing sales. Observation of cashier-customer interactions was recommended to reduce the possibility of this occurring. Komaki et al (1977) reported that aversive control procedures were primarily used during the baseline conditioning in a study conducted in a neighborhood grocery store. Introduction to a contingent pay system improved performance across three behaviors. The use of feedback and group contingency (less desired days off from work) reduced absenteeism on the part of the aides in a state institution. It may be that loss of preferred days off was sufficiently aversive to produce powerful changes in the absentee rate. It is also possible that additional factors were operative; some staff may have had additional jobs which they would be unable to perform if their normal days off were disrupted. Additional, immediate aversive consequences imposed by the peers who were affected by each individual's performance might further strengthen attendance behavior which would
avoid the aversive consequence of not coming to work.

Determining the individual contributions of various factors associated with aversive control continues to be an important task; however, it does appear that under conditions where contingencies for appropriate and inappropriate behavior are clearly identified and enforced, aversive control techniques can function to alter behavior of individuals in a work setting. However, reliance on alternative methods of behavioral control such as extinction or conditioning alternative or incompatible forms of appropriate behavior through the use of positive reinforcement techniques (Skinner, 1953) would appear to be a more preferred and effective management tool since undesirable effects of aversive control could be minimized and performance of appropriate work related behavior appear to be strengthened by reinforcement to a greater degree than that attainable through the use of aversive control.

Summary of the Literature

The rapid growth of research in recent years which has focused on the utilization of behavioral procedures to improve employee performance in public and private business and human service organizations has pointed to the ever increasing need to develop simple, effective management tools which will not only result in the maintenance of changes which have occurred in appropriate directions.

"Aversive" techniques, while seemingly most prevalent, often are ineffective when consequences are not immediately and consistently applied, when they are not contingent on the undesired behavior, or when they do not actually result in the loss of an established
reinforcer or the presentation of an aversive stimulus. When "aversive" operations are effective, they may result in undesirable side effects such as aggression, unpleasant working conditions, resurgence of the inappropriate behavior to even higher levels when the aversive stimulus is removed, or replacement of the undesired behavior with other, equally undesired behaviors.

The use of instructions and goal setting have generally been found to be relatively ineffective or short lasting forms of control when used alone. Similarly, "feedback" effects have generally been found to be limited when used alone. When used in combination with social reinforcement, long term maintenance effects have generally not been assessed. Issues concerning the frequency with which "feedback" is necessary, as well as instructional and reinforcement effects of "feedback" have generally not been resolved.

One difficulty with the organizational behavior management literature, as well as the applied literature in general, is the inconsistent or imprecise use of "technical" terms across studies to refer to procedures which may be only roughly analogous (Michael, 1980). As principles of behavior, terms such as reinforcement and punishment are functionally defined by their effects on behavior. However, terms such as "over-correction", "feedback", or "response cost" are often used to describe procedures which may not result in consistent changes across studies or even across conditions within the same study, depending on whether other variables remain constant. When the term "feedback" is used to refer simply to information about progress or performance" (Leitenberg, 1968), or "knowledge of results" (Hersen and Barlow, 1976), it does not
specify the relationship between the determining conditions surrounding the use of feedback and its effects on behavior, and as such, may not be regarded as a functional definition (Honig, 1966). Functional definitions are important because they lead us to search for the determinants of specific effects in terms of existing or new principles of behavior. The less than rigorous use of the term "feedback" to refer to any number of procedures which have resulted in various effects has led some authors to suggest that the term should not be used, especially by radical behaviorists (Schwade, 1978).

As noted above, Brethower (1972) defined "feedback" as "information about past performance which is used to guide future performance." "Positive feedback accelerates performance and/or holds it on course" while "negative feedback decelerates performance and/or changes its course." Used in this manner, the term more closely approximates a functional definition since effects are identified. Brethower suggests that reinforcement and "feedback" are very similar concepts. While the term reinforcement might be more valuable when analyzing the performance of one person, using the term "feedback" might be more appropriate when analyzing a more complex total performance system such as a group or department (1972, pp. 7-15). Information about performance, if it guides subsequent performance, would be viewed as "feedback". If the "feedback" is positive, (i.e. if it maintains or accelerates performance) it could be essentially viewed as reinforcement.

While such a definition is much more useful and avoids many of the pitfalls of a mentalistic or looser definition, some potential
to confuse the use of the term still seems to remain. Positive and negative reinforcement both increase the probability of future behavior. Only positive "feedback" accelerates performance, according to Brethower's definition. Negative "feedback" (as used by Brethower) decelerates performance, so that the term seems to more closely resemble a punishment operation. If so, then the term "feedback" used alone should not be equated to reinforcement.

Of course, a given stimulus may serve any number of functions. The term feedback, used alone, might be viewed "neutrally" as a stimulus change occurring sometime after a behavior which provides information about that past behavior and which guides subsequent behavior. The feedback might then be viewed as either reinforcing feedback or punishing feedback (rather than positive or negative) dependent on its effects on the behavior (Baron, Kaufman, and Stauker, 1969).

Such a definition seems to have some advantages. First, it preserves the term "feedback" which does in fact seem to have utility when analyzing the operation of a complex system. Most important, it relates effects of specific procedures to established principles within the field such as stimulus control and conditioned reinforcement or punishment. As such, it focuses on the discriminative functions of "feedback" as well as particular consequating functions.

When describing a study, researchers should probably substitute more descriptive terms rather than referring to "feedback" as a procedure (Schwade, 1978). This would help alleviate many of the confusing and seemingly inconsistent interpretations in the feedback literature. Within the confines of this study, the term will be
be placed in quotation marks when discussing its use in other articles as a procedure.

Instructions and "feedback," as a class or classes of stimuli which may bear different temporal and functional relationships to behavior, appear to fall under the "rule-governed behavior" paradigm which is as yet not fully understood. Skinner (1969) provided a detailed analysis of operant behavior in general (1953) and verbal behavior in particular (1957, 1969). Attempts are now being made to extend the analysis of rule-governed behavior to instances of common, everyday behavior which are typically not subjected to experimental analysis but which constitute the bulk of the repertoires of "normal" individuals within our culture (Malott, 1981-1982).

Despite the lack of consensus about why organisms respond as they do under certain circumstances, many of the procedures described in the literature undoubtedly have good face validity and warrant thorough experimental analysis. Positive reinforcement procedures have been found to be most effective in changing employee behavior, when coupled with instructions and evaluative "feedback"; however, some of these techniques have limited utility. Budgetary and union constraints may limit the extent to which money can be used as a reinforcer, and even when money can be used, competitiveness among employees and performance problems when monetary incentives are thinned sometimes results. One of the most promising procedures which may be available to managers is to make access to preferred activities contingent on performance of appropriate, less preferred activities. In addition, contingent pay, which has been found to be effective, might be utilized in settings where performance evaluations...
are used as a basis for promotion and merit increases and where the evaluations are themselves based on performance of specified duties.

The use of positive, unobtrusive techniques which are cost effective, supported by management, and able to be maintained in the "natural" work environment once the research study has been terminated represents an important extension of the use of applied behavior analysis to an area which is basic to our culture and has important personal consequences to anyone who works for a living.

Purpose of the Present Study

The purpose of the present study was to further explore the controlling relationships between behavior and some of the variables cited above and to attempt to develop a simple, efficient procedure to increase the amount of time which employees in a community mental health center spent on high priority activities as defined by management. The issues involved are important. In business, wasted time results in higher costs and poorer service to the community at large. In human service agencies, excessive time spent on non-productive tasks or low quality staff performance results in less effective service to clients of the agency. Ethically and legally, human service organizations must provide the most effective services possible in the least intrusive manner in order to assist the recipients of service. As such, it is important that service providers work in as positive an environment as possible where job expectations are clear, and appropriate, high level performance is fostered and maintained.

The present study examined the effects of modifying various
components of contingencies related to worker performance in a mental health center. Instructions which prioritized staff activities were examined in combination with descriptive and evaluative information about performance as well as with contingencies that enabled staff to engage in high preference activities when established performance criteria were met. Component analysis of the procedures was accomplished by systematically adding in segments of the contingency.
CHAPTER II

METHOD

The Setting and Existing Management System

The community mental health center was a county funded and administered program providing service to developmentally disabled, emotionally impaired, and other persons in need of mental health assistance. Approximately 106 individuals were employed by the agency with approximately forty assigned to four twenty-four hour residential services programs. All direct service staff were required to complete "staff activity" reports which documented their various activities during each shift in terms of "time units" (1 time unit = 15 min.). For example, during an 8-hour shift, an employee normally worked a total of 32 time units. In the past, reports had been requested weekly by the quality assurance and accountability office and had been sent to the State Department of Mental Health on a monthly basis for analysis. Individual, program, and agency data were usually sent back to the agency a minimum of four to six weeks after they were submitted. Copies might then be distributed to individual program managers for review. Within the past three years, numerous changes in the reporting format, definition of terms, report deadlines, method of data analysis, and "turn around time" (time from submission to distribution back to program managers) had occurred. In addition, no contingencies had ever been placed on managers to utilize the data for purposes of performance evaluations or staff assignments. As a result, staff rarely completed reports accurately or on time, although they were required to continue to do so. During the period in which the study was conducted, the
routine procedure in the agency was that summarized information—which was returned to the agency was kept on file and not distributed to program managers unless requested.

When hired, all staff were placed on probation for the first six months. Within the past two years, short rating-scale forms were devised to serve as a method of evaluation on each employee at the end of the probationary period, and then annually, based on the anniversary date of hire. County job descriptions were generic. In addition, each program manager was required to develop program-specific job descriptions for staff; however, there was no agency-wide criterion or format for doing so. As a result, all staff had job descriptions but the specificity and thoroughness of the descriptions varied from program to program. In the residential services component, expected percentage of time to be spent on direct client activities was specified but was not regularly evaluated. Within the past year, annual salary increases had been made contingent on receiving a "satisfactory" annual evaluation. Evaluations were performed by the employee's immediate supervisor and reviewed by the Executive Director. Management decisions were relatively decentralized and the use of disciplinary procedures was rare.

Specifying and Measuring the Target Behavior

Development of the Coding System

Prior to the onset of the study, the experimenter revised the staff activity reporting format and the classification of job duties into the following response categories: 1) emergency service, 2) board/agency service, 3) program administration, 4) direct client
service, 5) indirect client service, 6) program development, 7) clerical, 8) community service, 9) staff development, and 10) program maintenance. Staff activities were coded and classified to be consistent with internal job descriptions and procedural manuals which had been previously developed and previously found to be effective for staff and management purposes. Whenever possible, codes were retained which were consistent with the existing state and agency reporting format. Prior to implementation in the study, the reporting format was piloted by administrative staff in residential services and found to have good face validity.

Orientation of staff to the reporting format

An inservice training session for all residential services staff was held in order to instruct staff on how to properly complete the staff activity report. Staff were given a written test to determine their skill at accurately completing a staff activity report with hypothetical data. Tests were scored immediately and staff were instructed as to how to correct errors if they had occurred. All staff were correctly advised that the revision was occurring because of a need for increased accountability associated with an anticipated change in funding and that their accuracy and thoroughness in completing the staff activity report would be routinely monitored. Following the inservice, the reporting format was implemented and staff were required to complete the staff activity report as usual, using revised instructions to record their activities in response categories while on duty in terms of fifteen minute intervals (time units).

1 A summary of the staff duties within each response category and the staff activity codes in Appendix A.
Determination of priorities

A shift schedule listing regular activities within each response category was established for each staff member in consultation with the staff member and program administrator. Priorities were not discussed with staff prior to Baseline; however, a schedule of activity priorities was developed in consultation with each program administrator. Individual goals concerning the number of time units to spend on priority activities were developed for each employee based on agency and program needs as well as the job classification of each employee. In general, priorities constituted from four to six hours of a scheduled eight hour shift (16-24 time units). Structured client-related ("100" series) activities were always included and normally approximated 50% of an individual's scheduled shift during client waking hours, depending on job classification. Sample shift schedules for a clinician and an aide are included in Appendix B.

Dependent variables

The main dependent variable was the percentage of time which each subject spent per shift on non-emergency service priority activities. This figure was computed as follows:

\[
\% \text{ time spent on priorities} = \frac{\# \text{ time units spent on priorities}}{\# \text{ time units expected to be spent on priorities}} \times 100
\]

Since the list of priority activities encompassed responsibilities across response categories and since the amount of time spent in scheduled direct client services is important, a second measure was computed to compare the amount of time spent in direct client...
services with the amount of time scheduled in direct client services.
For the purpose of analysis, a deviation score was computed as follows to demonstrate the extent of experimental control across conditions:

\[
\text{Deviation} = \frac{\text{TU scheduled}}{\text{service/week}} - \frac{\text{TU spent in direct client}}{\text{services/week}}
\]

While the two measures are more complicated than merely taking frequency counts of the jobs or "tasks" done per day by each subject, they were preferred since specification that a training session was completed does not address how much training each client received. In addition, using duration data represents a procedure which was more harmonious with data recording procedures in use and mandated by the agency. Thus, it was anticipated that less disruption to agency routine would result and that the procedure would be more apt to be maintained. Of course, neither quantitative measures of the number of tasks completed nor the duration of time spent on various activities addresses the quality of services delivered; additional outcome reporting procedures would be required to measure changes in client behavior.

Subjects

During the staff orientation inservice described above, staff were informed of the general issues and nature of procedures under investigation and that research would be conducted concurrent with the assessment of the revised staff accountability system. Staff were advised that participation in the study was voluntary, and that participation or non-participation would not affect job performance.
evaluations or detract from their responsibility to utilize the revised activity reporting. Other expected benefits or potentially negative consequences that could accrue as a result of participation were reviewed.

In order to ensure right to privacy, all staff were given a copy of the informed consent form and asked to indicate whether or not they would participate in the research study. The experimenter did not discuss any person’s decision with other members of the staff.

Subjects were four male and seven female staff members employed in the residential services component of the agency. Length of service with the agency ranged from one month to seven years. Ten subjects had completed their probationary period. Two were administrators, two were clinical staff assigned to the same program on different shifts, and seven were aides assigned to three different programs on the day, evening and night shifts.

Prior to the onset of the study, the research proposal was approved by two Human Subjects Research Committees at Western Michigan University and by the Executive Director and Research Committee at the agency.

Procedures

Baseline

Subjects completed a daily staff activity summary according to the instructions and format distributed during the inservice, specifying the number of time units spent on various activities during their on-duty shift. A copy of the instructions and form used during baseline to record staff activity is included in Appendix D.

2 A copy of the informed consent form is in Appendix C.
Prioritized schedule

At the onset of this condition, staff were given their own copy of a schedule such as in Appendix B which prioritized regular, recurring activities on their shift. Time allocations were set for each activity on the schedule including priorities. One administrative staff member was allowed to self generate priorities. The staff activity summary was revised to include a copy of the subject's shift schedule as well as the summary of their actual activities and staff were instructed in the use of the revised format. Staff were instructed to report their time as usual.

Prioritized schedule and descriptive information about performance

Subjects were instructed that they should continue to report their time use as usual but that they would receive a summary of their daily and weekly performance on a weekly basis. Subjects were informed that a copy of the weekly summary would be sent to their supervisor, the quality assurance office, and the executive director.

Priorities, descriptive information about performance, and access to preferred activities

Subjects were instructed to complete the staff activity summary as usual. In addition, subjects who participated in this condition

3 A copy of the revised instructions and staff activity summary data sheet is in Appendix E. The revised data sheet was used by subjects during the remaining conditions of the study.

4 A copy of the weekly summary is included in Appendix F.
were told the priority activities in accord with established goals on 4 out of 5 days within a total range of 90% or better, they would be allowed to engage in a high preference activity for a negotiated period of time (as mutually agreed upon and approved in advance).

If performance did not meet criterion, the activity would not be able to be scheduled during that week. During the staff inservice/orientation prior to the onset of the study, staff had completed a "job satisfaction survey" which, among other things, asked them to indicate high preference, job related activities. Appropriate activities were chosen from among those listed in the surveys as well as during discussions with staff at the onset of this condition.

Priorities, evaluative information about performance

During this condition, staff were instructed that they should record their activities as usual. The "Access to Activities" condition was terminated and staff continued to receive weekly summaries of their performance. In addition, a rating scale was attached to the weekly summary which indicated their overall level of performance in relation to the agency job performance evaluation scale. Specific areas of positive performance were indicated as were areas in need of improvements. As before, staff were advised that copies of the ratings would be sent to their supervisor, the accountability office, and the executive director.

5 A copy of the job satisfaction survey is in Appendix G.

6 A copy of the evaluation form is included in Appendix H.
Experimental Design

A multiple baseline across subjects was utilized to assess experimental effects. Subjects in the study were assigned to four residential programs within the agency. In general, subjects within the same program entered experimental phases at the same time in order to reduce the possibility of confounding the treatment conditions. Within program D, changes in conditions occurred at different times for different shifts. In general, conditions ran for a minimum of four weeks or until the data within the conditions appeared stable.

Reliability Measures

Measurement reliability

In order to assess the "believability" of the data, several measures were taken. To determine reliability of measurement over time for the primary observers (i.e. the subjects), a "written test" was given to each subject on four occasions during the study in order to determine their skill at completing the staff activity report form. Subjects were given a list of hypothetical activities and asked to "code" each activity on a staff activity report, according to the original response categories. A sample reliability test is included in Appendix I.

Inter-observer reliability

In order to obtain a measure of inter-observer reliability, an independent observer overtly recorded the subject's activities on a minimum of two occasions within each experimental phase. Inter-observer reliability was assessed by comparing activities within each
15 minute "time unit" interval and computing occurrence reliability as follows:

\[
\text{Percent occurrence reliability} = \frac{\text{Agreement by both observers that the same behavior occurred}}{\text{agreement} + \text{disagreement}} \times 100
\]

Inter-observer reliability measures were obtained on approximately 8-13% of the days of the study.

Social Validity

At the completion of the study, subjects were asked to complete a "research study interview" which assessed their reactions to the research, and their overall impressions regarding the value of the procedures employed. All subjects were informed that, upon request, the experimenter would answer any questions which they might have and provide a copy of the study when it was completed.

\[7\] A copy of the research study interview is included in Appendix J.
CHAPTER III

RESULTS

Design

Figure I provides a summary of the experimental conditions conducted with all subjects in four different programs. A partial reversal to baseline occurred for subjects 6, 7, and 8 when Program C was closed for fiscal reasons and the subjects were transferred to Program D.

Prior to beginning the study, it was apparent that setting priorities would be difficult on an ongoing basis for subject 1 due to the changing nature of his administrative responsibilities. Therefore, the subject was instructed at the onset of baseline to record both his full schedule at the beginning of his shift, and his record of ongoing activities during his shift. Priorities were then assigned by the experimenter (the subject's immediate supervisor) prior to tabulation of the daily performance data by the research assistant. In this manner, potential experimenter bias was reduced. At the onset of the first experimental condition, the subject was instructed to generate priorities at the beginning of the shift from among his scheduled activities for the day. Time limits and ongoing supervisor priorities were specified. The self-prioritization procedure was then employed for subject 1 throughout the remainder of the study. Several random, unobtrusive observations during the study suggested that the subject did in fact set priorities at the onset of the shift as instructed.

Subject 2 was a direct line supervisor. Initially, priorities
Figure 1. Summary of Experimental Conditions for all Subjects in Four Different Programs. Subjects 6, 7, and 8 transferred to Program D when Program C closed for fiscal reasons.
were supervisor generated and discussed with her at the onset of the "priorities" condition, as with other subjects. However, by the end of the "priorities, descriptive information" condition, it was apparent that it would also not be practical for her to be tied to ongoing priorities, in that she was required to work variable shifts and assume multiple roles on an "as needed" basis. Therefore, she was instructed to begin self-generating priorities at the onset of condition IV (access to activities) according to the conditions set forth for Subject 1. As such, the change from condition III to condition IV for Subject 2 includes the additional variable of changing from supervisor-generated to self-generated priorities.

Finally, it should be noted that the "access to activity" condition was only programmed for Subjects 1-5; Subjects 6-11 were not exposed to this set of contingencies. The basic reason for the deletion of the condition was that it was found to be an impractical contingency within the existing organizational structure. This issue will be discussed below in greater detail.

Reliability

Measurement reliability

Results of observer reliability and measurement reliability scores are presented in Table 1. The range of measurement reliability scores was 91.3 to 98.8 percent with a mean score of 96.7 percent, indicating that subjects had little difficulty utilizing the coding system or accurately completing a staff activity summary report.
Table I

Summary of Occurrence Observer Reliability (Upper) and Measurement Reliability Test (Lower) Scores by Subject.

<table>
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<tr>
<th>Subjects</th>
<th>Number of Observations</th>
<th>Range of Scores in Percentages</th>
<th>Mean Reliability Score (%)</th>
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<td>95.0</td>
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<td>0 - 100</td>
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<td>36</td>
<td>91.3 - 98.8</td>
<td>96.7</td>
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**Inter-observer reliability**

The grand mean inter-observer occurrence reliability score was 91.5 percent, with a mean range of 88-95.5 percent. The range of scores for individual subjects showed considerably greater variability, for two subjects.

**Percent of Time Spent on Priority Activities**

**Priorities**

Figure 2 shows the median percentage and range of time spent per week on priorities for all subjects across conditions. The specification of priorities of Subjects resulted almost universally in a fairly immediate increase in the percentage of time spent on supervisor-generated priorities (or self generated priorities in the case of Subject 1). Performance for Subject 8 remained fairly stable at baseline levels until week 19 at which point performance improved. The main effect of the introduction of priorities for Subject 9 seemed to be to stabilize performance beyond that achieved during baseline. In a number of cases (especially with Subjects 3,6,7, and 10) there was a decline in performance to approximately baseline levels late in the "priorities" condition such that improved performance was not maintained.

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The median was chosen for data consolidation purposes since it was felt that it would provide a representative value of the individual daily scores upon which it is based and in order to reduce the effect of atypical outlying scores which would more directly affect a mean value (Neter & Wasserman, 1974).
Figure 2(a). Median percentage and range of time spent per week performing priority activities (Subjects 1 through 3). Arrows (\(\wedge\)) during condition four indicate when performance criteria were met.
Figure 2(b). Median percentage and range of time spent per week on priority activities (Subjects 4 through 6). Subject 6 transferred to Program D when Program C closed.
Figure 2(c). Median percentage and range of time spent per week on priority activities (Subjects 7 through 9). Subjects 7 and 8 transferred to Program D when Program C closed.

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Figure 2(d). Median percentage and range of time spent per week on priority activities (Subjects 10 and 11).
Descriptive information about performance

In general, the introduction of weekly "priorities and descriptive information about performance" resulted in maintenance of performance levels achieved during "priorities" (Subjects 2, 4, 5, 6, 9, 11). In some cases (Subjects 3, 6, 10) performance levels were again raised after having dropped at the end of the priorities condition, or were stabilized (Subjects 1, 8, 11). In most cases, the range of scores was not significantly affected although more consistent performance within weeks was observed for Subjects 6 and 11. Subject 7 was ill during most of this condition and data obtained during the last week of the condition can only be viewed as suggesting a slight increase in performance level.

A reversal effect was demonstrated for Subjects 6, 7, and 8 when priorities and descriptive information were introduced in Program C following baseline and subsequently withdrawn when the Subjects were transferred to Program D, suggesting that it was the introduction of the experimental condition, not extraneous factors, that accounted for the increase in performance level in Program C. As noted above, performance levels generally rose in Program D for all three subjects when priorities were reintroduced and were maintained by the addition of "information about performance".

Priorities, descriptive information about performance, and access to preferred activities

The contingency in this condition for Subject 1 involved being allowed to schedule on-duty time to complete thesis research and being
allowed to have an assistant accompany the Subject on work-related field trips so that others in the agency could learn more about his job responsibilities. As noted above, activities were contingent on performance meeting criterion for the preceding week. Criterion was met on two occasions. During this condition, overall performance level rose slightly for Subject 1. No improvement in the range of performance within weeks occurred.

At the onset of this condition, Subject 2 switched from supervisor-generated to self-generated priorities and was allowed access to management meetings and training exercises. Significant improvement was shown and maintained throughout the condition in that both the overall performance level and range of performance were raised and by the fact that variability in the range of performance within weeks was dramatically reduced.

Subjects 3, 4, and 5 were instructed that they would be granted contingent access to training sessions which they had stated would be rewarding. Prior performance levels were generally maintained but did not improve significantly enough in overall level or range for sessions to be scheduled. A decrease of variability across weeks occurred for Subjects 2, 4, and 5 while somewhat greater variability was shown for Subjects 1 and 3 in the "activities" condition than in the previous "descriptive information" condition.

Priorities, evaluative information about performance

Little increase occurred in the absolute level of performance in comparison to the "descriptive information" or "activities" conditions. This was probably due in part to the fact that the performance level
for most subjects had already risen to high levels. However, improve­ment was shown in that variability of performance within weeks generally decreased for at least six subjects. Improvement was shown for Subject 10 by both an increase in overall performance level and by increased stability across weeks.

At the termination of the study, all eleven subjects showed more consistent and increased levels of performance than at the onset of the study. Seven subjects (two administrators, one clinician, and four aides) were consistently performing agency and program priorities 88% to 100% of the time and three additional aides were performing priorities between 77% and 95% of the time. Overall performance levels for two of these aides (Subjects 3 and 4) showed some decline at the end of the study which is generally attributable to changes in their direct service time. These findings will be discussed in greater detail below.

Subject 9 was a clinician whose overall performance over the course of the study was only moderately improved in level and consist­ency. She gave notice of resignation for personal reasons three weeks prior to termination of the study (to be effective on a date which was one week after the study ended). Correspondence from Subject 9 received two weeks prior to termination of the study re­vealed that failure to meet some ongoing direct service priorities was related to her desire not to enter into new long term therapeutic commitments which she would be unable to maintain due to her leaving the agency.

It should also be noted that as clinicians, Subjects 9 and 10 were expected to coordinate and be actively involved in crisis inter-
vention, both at the program and in the community. Thus, the nature of their jobs was more unpredictable and less "routine" than aides whose job responsibilities followed more of a predictable pattern. As such, it would be expected that clinicians would have a more difficult time complying with scheduled program priorities than aides whose duties were more fixed or administrators who were able to self-prioritize their activities.

In summary, the introduction of priorities alone resulted in initially increased performance which was not consistently maintained. The addition of descriptive performance information generally maintained or raised performance levels but behavior remained variable for most subjects. Access to activities did not significantly improve the range or level of performance for subjects completing the condition. In the one case where the addition of the "activities" contingency was coupled with a change from supervisor to self-generated priorities, it is likely that higher and more consistent performance is mainly attributable to the latter variable.

The combination of priorities and evaluative performance information generally decreased variability of performance and maintained the percentage of time which subjects spent on priorities at high levels.

**Impact on Direct Client Services**

**Deviations from scheduled direct client services activities**

The impact of the interventions on scheduled direct client services is shown in Figure 3. Data are not presented for Subjects 1 and 2 whose job responsibilities were primarily administrative or for Subject 5.
Figure 3(a). Difference between number of scheduled and actual time units spent in direct services across conditions (Subjects 3 and 4).
Figure 3(b). Difference between number of scheduled and actual time units spent in direct services across conditions (Subjects 6 and 7).
Figure 3 (c). Difference between number of scheduled and actual time units spent in direct services across conditions (Subjects 8 and 9).
Figure 3(d). Difference between number of scheduled and actual time units spent in direct services across conditions (Subjects 10 and 11).
who worked the night shift and had minimal interaction with residents.

Deviation graphs were constructed to parcel out the effects of unscheduled client-related emergency services which would confound in a cumulative manner with scheduled client-related services and show up as an increase in direct service time; particularly in Program D where emergency services were a mandated service for clinical staff and to a lesser degree aides. Experimental control is demonstrated by a minimum of fluctuation from the "0" line while data below or above the "0" line would indicate insufficient or more than scheduled amount of time being spent with clients respectively.

Subjects 3 and 4 in Program B initially spent an insufficient amount of time in scheduled client-related activities. The introduction of the "priority" condition increased direct service time for Subject 3 although performance of Subject 4 was not appreciably affected. The addition of descriptive information increased stability for both subjects at a level closer to that scheduled and performance was further enhanced when contingent activities were included. The combination of priorities and evaluative performance information maintained direct service levels within relatively close limits of those scheduled by supervisory staff.

Subjects 6, 7, 8, and 11 were aides who at the onset of the study actually spent more time in client related activities than scheduled by supervisory staff. While at first glance, this might seem desirable, in reality much of the client-related interactions were of an informal "monitoring" type in a dayroom area. A major thrust of administrative staff was to reduce the extent to which residents engaged in non goal-directed activity and increase the frequency and duration of more
structured group and individual therapeutic interactions with clinical staff, both at the program location and in community work and educational programs. Scheduled direct service activities on the part of clinical staff (Subjects 9 and 10) were occurring with less than desired frequency at the onset of the study. Another reason for wishing to bring the direct service time of aides into line with established schedules was that domestic responsibilities which were supposed to be accomplished by aide staff (e.g. cleaning the physical plant, completing records, etc) were often not completed.

Figure 3 indicates that in general, the desired effects occurred in Program D. Direct service time for aides generally decreased to more appropriate levels while direct service time for clinical staff (particularly Subject 10) increased. Direct service time for Subject 6, an aide, generally occurred during interventions within acceptable levels but declined past week 19 to less than desirable levels. Evaluative information provided to the subject indicated the need to increase direct service time in accord with her shift schedule.

Nature of direct client services

One pertinent question which can be raised involves the nature of the time which subjects spent with clients. While the direct service responsibilities of aides involved primarily monitoring and leisure time activities, clinical staff were charged with the responsibility to coordinate and conduct structured, therapeutic intervention programs to assist clients in recouping functional community survival skills. Figure 4 shows the mean number of time units per shift which clinical staff (Subjects 9 and 10) spent in unscheduled
Mean number of time units/shift spent on crisis, therapy, informal activity

Figure 4. Mean number of time units per shift spent on emergency services, scheduled therapeutic activities, and informal direct client services (Subjects 9 and 10).
emergency, scheduled therapeutic, and informal client interactions. The absolute total number of time units which subjects spent on direct client services was only moderately increased per shift for Subject 10 and were not substantially affected for Subject 9 at all. Emergency service time generally decreased for both subjects which must be viewed as a function of factors operating in the community rather than as a function of variables manipulated in the study. However, increases in therapeutic activity occurred for both subjects as a function of the introduction of priorities and information about performance. Gains were maintained for Subject 10 with a concomitant, moderate decrease in the amount of informal, non-therapeutic activity with clients. The increase in therapeutic time for Subject 9 was maintained up to the point where she submitted her resignation. At that point, new cases were not assigned (which reduced the extent of individual therapeutic contact) and group therapy sessions were not completed with the same degree of regularity as had been the case previously.

Summary of Impact on Direct Services

Overall, scheduled direct service time was favorably impacted by the interventions during the study. During the last four weeks of the study, subjects in Program C and D completed scheduled direct service activities on a generally consistent basis within acceptable limits set by administrative staff. Therapeutic activity was increased for clinical staff in Program D as a result of the interventions.

Throughout the analysis of the data, informal client contacts have been referred to as "nontherapeutic". Of course, it is recognized that such contacts may be very beneficial or "therapeutic". However, the distinction is made to differentiate between formal, goal-oriented therapeutic interventions and informal, social, or leisure interactions with generalized, beneficial effects.
and was maintained with Subject 10 who continued employment with the agency.

Trends in the Data

An interesting and relatively consistent trend in the data was that subject's behavior with respect to accomplishing program priorities appeared to fluctuate in relation to given days in the week. Figure 5 shows a sample of individual, daily performance data for four subjects across nine weeks each. Note that different weeks were selected for each subject that highlighted the trend and that appeared characteristic of other weeks within each condition. Shifts which were worked differed for each subject and are indicated as different days on Figure 5.

In general, performance with respect to accomplishing priorities was variable at the beginning of the subject's work week. Performance tended to improve early in the week and decline during the third and fourth shift worked in any given week. Recovery, often relatively significant, was generally noted on the last shift worked in a given week. This trend occurred on day and afternoon shifts across conditions, subjects, and in all four programs, regardless of whether priorities were self-generated or supervisor-generated. No particular pattern was observed for one subject whose behavior on the night shift was consistently positive. The introduction of experimental conditions did not appear to have a significant impact on the overall observed trend except with Subject 11 where the trend was significantly attenuated as performance of priority activities achieved a consistently high level in the "priorities, descriptive information" condition.
Figure 5(a). Performance fluctuations within and across weeks (Subjects 1 and 3). Weekly and daily scales differ to emphasize patterns. Solid vertical lines represent the end of the week. Broken vertical lines above indicate a change in condition, although not necessarily consistent with the week labeled. Data points not connected signify that the subject was off duty on intervening days of the week.
Figure 5(b). Performance fluctuations within and across weeks (Subjects 6 and 10). Weekly and daily scales differ to emphasize patterns. Solid vertical lines represent the end of the week. Broken vertical lines above indicate a change in condition, although not necessarily consistent with the week labeled. Data points not connected signify that the subject was off duty on intervening days of the week.
Subject 1 worked Monday through Friday and self-determined priorities. As such, priorities did not remain consistent across weeks. Nevertheless, performance on Monday was variable; some weeks were high while other weeks were low. Accomplishment of priorities increased or remained relatively good on Tuesdays but fell off significantly on Wednesdays and Thursdays. Performance was generally higher on Fridays. A very similar pattern was observed for Subject 2, who also self-determined priorities for part of the study but worked in a different program.

Subject 3 usually had Sunday and Tuesday as days off. Accomplishment of priorities on Mondays and Wednesdays (afternoons on which the Subject returned to work after a day off) was variable but not as effective as on Fridays (prior to the weekend) or Saturday (prior to her weekend-day off). A similar pattern was observed for Subject 4 who generally had Fridays and Saturdays off. Performance on Sunday was generally good while performance on Tuesday and Wednesday fell. Goals were usually achieved on Thursdays which corresponded to the last day in the week for Subject 4.

Establishing a pattern in Program D is somewhat more difficult as it was basically a more unstable environment than the other programs. This was partly so because it was larger and served more complex functions than other residential programs. Staff work schedules were more frequently altered making daily comparisons across weeks more difficult.

Nevertheless, data for Subjects 6 and 10 reveal what is essentially a similar pattern to that observed previously. Behavior tended to be variable at the onset of a subject’s week but experienced a decline
toward the middle of the week. Goal accomplishment was achieved much more reliably at the end of the week, prior to the subject having a day off, than during the middle of the week. More or less similar patterns were observed for Subjects 7, 8, and 9 who also worked in Program D. One variable which would be expected to confound such a behavioral trend is the occurrence of holidays at different times throughout the week and year. Since the nature of the job in residential services demanded that holidays be granted in most instances on a "staggered" basis (rather than on the holiday proper) the impact of this variable on accomplishment of daily priorities was not assessed.

In summary, the major effect of the interventions was not to eliminate the daily trends in accomplishment of program priorities. Rather, behavior was affected (in most cases by a combination of priorities and information about performance) in that the overall level of priority accomplishment was raised along with a concurrent decrease in the range of variability associated with the daily fluxuations.

However, other variables might interact with days of the week to systematically affect accomplishment of goals, such as the nature of the priorities over the course of the week. In most cases, supervisor-generated priorities (especially for aides) remained fairly constant from day to day.

While variability in the nature of the priorities did not appear to affect Subject 1 (or Subject 2 once she was allowed to self-prioritize activities), a differential effect was shown with Subject 9, a clinician in Program D. As shown in Figure 6, priorities tended to be met early in the study much more successfully on Sundays than later in the week.
Figure 6. Recurring patterns of performance fluctuations on various days were generally divided into monitoring of clinical records and informal client interactions. Priorities on Mondays through Thursdays involved structured therapeutic activities.
Analysis of the individual priorities revealed that considerably fewer therapeutic client services were scheduled on Sundays for Subject 9 than later in the week, as Sundays were considered to be a "day of rest" for the clients and many of them went home or into the community on "pass".

Trends similar to those observed above can be noted in weeks 16, 20, 21, and 26 for Subject 9 but the major impact of the study in this case appears to have been to increase the consistency and level of client-service associated priorities later in the week.

Effects of Evaluative Performance Information

One reason for employing evaluative performance information was to assess the effects of providing such information on the overall accomplishment of specified priorities. Results were discussed above; the major effect was to narrow the range of variability of behavior. In addition, improved levels of performance achieved in other conditions were generally maintained or enhanced.

A second intention of employing evaluative performance information was to determine whether performance in specific task areas could be modified or maintained by providing differential instructions and evaluative comments. One or two areas in which performance had fallen below desired levels were targeted for change whenever evaluative summaries were sent to subjects. In addition, performance in specific areas which was in compliance with scheduled priorities was praised and targeted for maintenance.

Results for Subject 1 are presented in Figure 7. Prior to implementing evaluative performance information, the level of indirect ("200" code) client services (e.g. family contacts, home visits, licensing...
Figure 7. Cumulative number of time units spent on indirect, client-related (200) and clinical record (900) tasks by Subject 1 prior to and during the "priorities, evaluative performance information" condition. Vertical lines indicate where evaluative summaries were provided to the subject. The broken vertical line also indicates a change of condition. Evaluative summaries provided to the subject praised the level of "200" activity but indicated a need for an increase in the level and consistency of "910" activity throughout the week. The subject was off duty for two weeks and returned one week prior to the end of the study.
activity) was generally in compliance with agency requirements. Less time was spent completing clinical records ("910" code), however than was desired by the subject and his supervisor. In addition, it was typical for the subject to show a "stop-run" pattern; periods of clinical record inactivity were followed by periods of high rate record-related behavior which often resulted in other daily priorities not being met.

With the onset of differential instructions to a) maintain indirect services and b) increase the consistency and level of clinical record activity, performance in all respects improved. However, while indirect service levels were maintained over the next four weeks, clinical record time declined in consistency, despite instructions to the contrary. The same recovery of consistency was demonstrated beyond evaluative information point "3" up to the point that the subject went off duty for two weeks. Overall, the level of clinical record activity remained superior to that achieved prior to the introduction of the condition.

It must be noted that practical limitations during the study rendered the data regarding instructional properties of evaluative performance information difficult to interpret. As such, results for other subjects are not presented, and interpretations based on the data from Subject 1 must be made with caution. This issue will be discussed further below.

Social Validity and Maintenance of the System

Usefulness of system components

As noted above, a questionnaire was sent to subjects after the
study ended to solicit their overall reactions to the research and the procedures employed. One subject had left employment and two subjects did not return the questionnaire. Results for eight subjects who completed the survey are included in Table II.

Overall, subjects expressed very favorable reactions to the study and the procedures. None reported experiencing any "psychological risk" or "pressure" to participate in the study. All indicated that their privacy had been adequately protected, and only one stated that she would not be willing to participate in another study if asked, due to it being too time consuming. Activity codes were reported as easy to use and most subjects responded favorably to accounting for their time.

Subjects expressed general understanding of the need and utility for observers and reliability "tests" although several subjects reported some uneasiness about the presence of observers and two subjects reported that tests were unnecessary.

Shift schedules, activity sheets, and priorities were generally reported as being very helpful to keep staff "on task" and to lend structure to the program. Subjects reported that weekly summaries enabled them to "see how the week went" and to determine whether priorities were met, although one subject stated that monthly summaries would be sufficient. One subject expressed concern that summaries were occasionally "slow" in being sent back to her and a second subject reported a need for deviations from ongoing priorities to be scheduled. Evaluative job performance ratings were described as beneficial or potentially beneficial for redirecting time usage, and several subjects reported that it made them "feel good" to know

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Table II

Summary of Research Study: Interview

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<td>Knowledge of conditions</td>
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<td>Usefulness of schedules</td>
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<td>Preference (research or state form)</td>
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<td>Usefulness of performance rating</td>
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Typical Comments:

- a) training and feedback very clear
- b) it helped me
- a) well explained
- b) I was not aware
- a) they helped keep me on task
- b) great
- a) helpful but subject to change
- b) great
- research form - 5
- state form - 1
- not applicable - 2
- a) lent structure
- a) I could see how the week went
- b) monthly is enough
- a) rechecks were unnecessary
- b) helps me not waste time
- a) doesn't show quality
- b) good to know what I'm doing
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<td></td>
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<td>b) like expressing my opinions</td>
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that they were doing a good job. One subject expressed concern that the ratings didn't adequately reflect the quality of her performance. Seven subjects reported that summaries were provided often enough while one reported a desire for more frequent summaries.

Seven subjects reported that they had previously utilized the traditional state activity reporting format and all but one subject expressed preference for the format used during the study.

The most enjoyable aspects of the study reported were getting performance feedback, not completing traditional, state forms, and helping the experimenter. Least favorable aspects of the study included too much paperwork, occasionally falling behind in paper­work, and having to monitor other staff (in the case of one subject who was an administrator).

Six of the eight subjects indicated that the study had helped improve the agency while five indicated that the study had a beneficial input on the program in which they worked. All but one subject reported that completing the job satisfaction survey and research inter­view was a positive experience and all subjects found the research interview easy to understand and complete.

In summary, subjects participating in the study found the research to be a positive experience and the procedures to be useful. Most subjects reported that the development of schedules and priorities assisted them in scheduling and completing assigned tasks and res­ponded favorably to descriptive and evaluative summaries which summarized their performance and redirected their activity. The majority of subjects who responded to the questionnaire indicated that the study had beneficial effects on their particular program and the agency at large.
Maintenance of the system

Following completion of the study, meetings were held with the agency director and program administrators to discuss implementation of a single data system for residential services. Administrators expressed a preference for the coding system and an adaptation of the reporting format, and approval was granted by the director to implement the system on a service-wide basis. One administrator indicated plans to conduct a follow up study to further assess and refine the job performance evaluation system.
Believability of the Data

Issues in reliability and validity

A basic question concerning the study is the extent to which self-report constitutes a valid and reliable measure of behavior change. Patterson, Weiss, and Hops (1976) reviewed the use of self-report measures as a means of evaluating outcome in relation to marital counseling and concluded that although self-report data may be included, additional criterion measures should be used. They noted that requiring individuals to tabulate the occurrence of specific behaviors has traditionally been assumed to provide both reliable and valid data, but that this assumption has been rarely tested.

Romanczyk, Kent, Diament, and O'leary (1973) compared overt and covert reliability assessment to explore measurement reactivity with observational data and found consistently higher reliability scores with an identified assessor than with an unidentified assessor. They concluded that observers modified their observational criteria to approximate those of the identified assessor and that covert assessment was the preferred method of obtaining reliability measures in order to avoid measurement reactivity. However, O'leary and Kent (1973) noted that the use of product measures does not eliminate judgmental factors which seem so problematic in observational recording of behavior. Evaluation of permanent products may also suffer from lack of consistent judgment. In fact, they noted that there is an entire realm of social behaviors which are of direct interest and for which there are no tangible products.
O'leary and O'leary (1976) noted that cheating is a potential problem with any self-recording procedure but especially when self-recording is related to immediate payoff. They suggested an intermittent external checking system to help reduce cheating and careful teaching of observational skills to help reduce problems inherent in self-observations. They noted that self evaluation may be acceptable procedures since they may be liked by subjects and may actually have a beneficial impact on performance.

Lick and Katkin (1976) similarly noted the reactivity problem as well as the potential beneficial impact of self-recording on behavior change and suggested that the actual reliability of self-monitoring data will depend on the saliency and motivation of the subject. They concluded that if focal behaviors are clearly and rigorously defined, reliability of self-monitoring data will increase.

McFall (1977) noted that self-monitoring procedures have distinct advantages. First, they are cost efficient. That is, they are less costly than employing paid observers. Second, due to practical and ethical constraints, self-monitoring is sometimes the only feasible method of obtaining naturalistic data. Third, self-monitoring may minimize the possibility of unwanted effects occurring as a result of the obtrusive presence of others. Fourth, self-monitoring may yield behavioral records characterized by thoroughness and density of coverage that few other methods can provide. Finally, McFall suggested that the predictive validity of self-report data is surpassed only by direct observation.

McFall acknowledged that the two greatest potential limitations of self-monitoring are accuracy and reactivity. He suggested that
accuracy would be a function of ten factors including a) training, b) systematic methods employed in monitoring, c) use of aids and prompts, d) timing (latency between behavior and recording), e) response competition, f) response effort, g) reinforcement contingencies, h) attention to accuracy, i) nature of the target behaviors, and j) subject characteristics. Reactivity was viewed as a function of a) motivation, b) valence of target behaviors, c) nature of target behaviors, d) goals, reinforcement, and feedback, e) timing, f) nature of recording devices, g) number of target behaviors, and h) schedule of monitoring. He suggested that by controlling the above factors, it is possible to yield maximally accurate data.

Thus, the literature shows that the use of self-monitoring should be approached with caution, but that generally reliable and valid data may be obtained if appropriate steps are taken to control the accuracy and potential reactivity of self-recording, observational data.

**Application to the study**

It was noted above that in the present study, the range of inter-observer reliability scores for individual subjects showed considerable variability although the mean scores were generally above 90%. Several factors probably account for this greater degree of variability. First, the behaviors observed were essentially continuous rather than discrete, reducing clarity as to onset or offset behavior. Reliability observations were normally conducted for two-hour intervals which would tend to increase reliability scores when behaviors were of a relatively long duration. Second, there was an acknowledged and accepted degree of
imprecision in the dependent variable proper. Staff recorded time use in 15-minute intervals. However, more than one activity might occur within any given time unit. Under such conditions staff were instructed to record the scheduled or higher priority activity. However, reliability observers might record a separate activity. Third, it is probable that time calibration was not ideal. As observations were not discreet in most instances, reliability observers were asked to calibrate their clocks whenever possible. Fourth, it is possible that in some cases the scores of reliability observers may have been more valid than those of the subjects themselves since reliability observers recorded behaviors as it occurred and in some cases, subjects did not complete their reports until later.

Overall, however, the self-report measures utilized in the present study are viewed as appropriate for many of the reasons cited above. The use of covert, paid observers was not practical in situations where there were only several subjects (or one subject) on duty at a given time.

As an applied study, one function of the research was to develop a set of procedures which would be consistent with and maintained by the organization once formal intervention ceased. As noted above, the self-report procedure was an established part of the agency reporting format which was readily adopted in its revised form once the study ended. Although the use of additional direct measures of change might have enhanced the data, such measures are actually rare in a human service setting where counting permanent products (such as clinical records completed, amount of laundry done, number of meals prepared) or other measures of change (such as improvements in client...
behavior, quality of treatment plans) is costly, also involves a degree of subjectivity or direct observation of performance on an ongoing basis. This would have been particularly true when utilization of the procedures was extended to over 40 employees in the residential services component of the agency. Informal measures of subject performance which were taken included random checks of other records completed by subjects, discussions with supervisors, and observations of the programs in which subjects were employed. These measures lended support to the accuracy of self-report measures completed by subjects.

There are additional reasons why the data are accepted as basically valid and reliable. Overall measurement and observer reliability scores were in excess of 90% for eleven subjects over the course of four to six conditions throughout the study. If subjects "cheated", it might be expected that high level, consistent performance would have been reported throughout the conditions from the point at which priorities were introduced. However, the data do not reveal such a trend. In addition, staff were well trained in reporting, and a systematic format was employed. Prompts in the form of memos were sent whenever subjects fell behind in report completion, and less response effort was required to complete reports than the alternative state forms. There were few reinforcers available for "faking the data" (since it took as long to report inaccurately as accurately and potentially punishing consequences for inaccurate reporting were undoubtedly obvious to subjects (such as reported discrepancies with observers data which might be sent to supervisors). Subjects were all "normally intelligent" employees who volunteered to participate in the study and could be expected to discriminate and accurately record the occurrence of target behaviors.
(this fact is supported by the measurement reliability scores which averaged 96%).

It is likely that reactive effects were associated with the self-report instrument which influenced subject's responding. It is argued that it is, in essence, not only probable, but inevitable and desirable that such effects occurred. Subjects were generally motivated individuals who reported mainly positive reactions to accountability and to their job responsibilities. The obtrusive nature of the instrument, the requirement to monitor daily on an ongoing basis, and the programmed provision of descriptive and evaluative summaries regarding their performance undoubtedly facilitated measurement reactivity. Depending on differences among subjects with respect to job complexity, history of reinforcement, existing repertoire, and other situational factors, the utilization of a self-monitoring procedure undoubtedly served a number of discriminative and consequating functions for subjects which helped shape their performance with respect to compliance with agency priorities. This issue will be discussed below in further detail.

Integration of Findings With Previous Research and Principles of Behavior

Effects of instruction

The initial introduction of priorities alone produced significant improvements in the level of performance for most subjects, but in a number of cases, performance declined to near baseline levels toward the end of the condition. As such, results are generally consistent
with previous research (Pommer & Stredbeck, 1974; Pierce & Risley, 1974; Quilitch, 1975; Komaki et al, 1977; Shook et al, 1978) indicating that instructions alone may produce initial changes in behavior which are not maintained over time. Following Malott and Whaley (1976; Krumhus, 1978a; Malott, 1980) it is reasonable to assume that the presentation of priorities initially acted as feedback stimuli which a) provided differential information concerning how subjects should respond under various circumstances, and b) initiated an observing response to schedules and the daily staff activity sheet. That is, subjects may have begun to utilize daily activity reports which they completed to self-evaluate whether they were complying with newly established priorities. However, analyzing daily activity sheets would be a time consuming task and developing periodic summaries would be even more complicated. Without specific reinforcement or punishment contingencies for the performance or non-performance of the target behaviors, and in the absence of ongoing information about how their performance compared to established priorities, it is not surprising that performance of the target behaviors ultimately showed a tendency to decline during the "priorities" condition. Absolute differences in level of responding might best be accounted for in terms of situational factors and the extent to which individual subjects were under general rule-control, but the introduction of priorities would have to be regarded as a very "weak rule" in that no actual consequences were specified, and any implied reinforcing or aversive consequences would probably be delayed and cumulative. If lack of ongoing feedback resulted in termination of the observing response (to the priorities and daily activity sheets), subjects
would no longer engage in the self-evaluation which was necessary to
maintain the target behaviors at higher levels. At this point,
maintenance of priority-related activities at moderate levels was
probably in large part due to natural consequences in the program
environment (which may have been somewhat modified as a function of
changes in staff routines).

As previously noted, there have apparently been relatively
few systematic investigations which have compared the effects of self-
generated goals on behavior with externally-generated goals. In
the present study, both self-generated and supervisor-generated priorities
were effective behavior change agents, particularly in combination
with other conditions that provided information about performance level
and/or provided access to activities, contingent on level of performance.
However, Subject 2 experienced a large increase in level and consistency
of performance when supervisor-generated goals and descriptive perfor-
mance information were deleted and a combination of self-generated
goals, descriptive performance information and access to activities
was introduced. While differential effects of the various elements
of this condition can not be definitively determined, it is probable
that the self-determination of priorities was a major contributing
factor to improved performance since the addition of the contingent
activity element did not result in significant gains for other
subjects exposed to the contingency. As such, results may be
viewed as consistent with previous research that has shown that the
utilization of self-determined goals or "feedback" may produce similar
(Kim & Hamer, 1976) or superior (Drabman, 1973; Creedon & Dickerson,
1981) results in comparison to externally-selected standards of
performance. However, as noted by O'leary & O'leary (1976), there are probably many circumstances when it is impractical to allow individuals (such as children, very disturbed clients, direct-line staff or especially administrators in an industrial or service organization) complete "freedom" to select their own goals. Rather, standards of performance and consequences for imposing various standards of performance must be carefully analyzed by supervisors and members of the receiving system to ensure that appropriate and adequate goals are determined and that the target behaviors occur as desired and necessary.

Descriptive performance information

As noted, the combination of priorities and descriptive performance information basically reestablished or maintained performance levels achieved during the "priorities alone" condition, although the range of performance within weeks continued to vary for most subjects in a similar manner to behavior during prior conditions.

It would appear that the weekly descriptive summaries of the extent to which subjects met established priorities served primarily discriminative as well as some conditioned reinforcing feedback functions which were sufficient to maintain levels of performance at higher levels for most subjects. While parcelling out individual discriminative and reinforcing functions of the summaries was not accomplished with any degree of rigor, tentative interpretations may be drawn. By week four or five of the condition, the data for most subjects showed a general increase in the variability of behavior within the week over that achieved during earlier weeks of the condition.
Since the format in which feedback summaries were provided to subjects did not vary during this condition (suggesting that the discriminative properties of the stimuli remained constant), results suggest that whatever conditioned reinforcing properties were associated with the weekly summaries began to diminish. Put in other terms, the weekly summaries probably served reinforcing feedback functions for the observing response to the schedules, daily activity sheets and weekly summaries as well as discriminative functions of guiding the subjects' performance with respect to priorities. It is probable that subjects, depending on their history, more or less used the summaries as a basis to self-evaluate and self-consequate their overall behavior with respect to accomplishment of agency goals and direct service activity. In fact, subjects reported better than average utility for the weekly summaries to help "keep on task" although the overall rating was somewhat lower than the ratings for the shift schedules and priorities. However, since summaries were descriptive and not overtly tied to any immediate or long term reinforcing or punishing consequences for appropriate or inappropriate target behaviors, it would be expected that eventually the observing response (attending to the data and subsequent self-evaluation) would begin to occur less frequently with a concomitant decline in the level and consistency of the target responses. It is possible that this issue could have been further clarified by an increase in the length of the "priorities, descriptive information" condition although the data appeared stable prior to the onset of the next conditions. In any event, the analysis is consistent with Skinner's (1974) notion that feedback facilitates the strengthening of behavior and Malott's (1980) suggestions that
additional self-delivered or other delivered consequences are necessary to maintain behavior classified as under "weak rule" control.

The findings of the present study are consistent with previous research showing that "feedback" may result in desired behavior changes (Zimmerman, 1969; Welsh et al, 1973; Quilitch, 1975; Emmert, 1978; Shook et al, 1978; Van Houten & Nau, 1981) but also tend to support the finding by Stoerzinger et al (1978) that "descriptive feedback" which is not tied to positive or aversive consequences may be insufficient to maintain changes in behavior.

However, as noted above, previous research findings involving "feedback" procedures have been equivocal at best and even paradoxical in that different studies (even conducted by the same researchers) have found "no effects", "transient effects", or "dramatic effects". For example, Van Houten & Nau (1981) attributed declines in driver speeding to a descriptive "posted feedback" procedure but Van Houten, Nau & Merrigan (1981) found a very similar, descriptive "posted feedback" procedure ineffectual in reducing elevator energy use. The issue is raised to reemphasize the fact that the term "feedback" should not be misconstrued as a separate and distinct behavioral principle but must instead be interpreted in the same manner as any other stimulus which may serve different functions with respect to behavior (Kantor, 1926, 1959; Skinner, 1938; Smith, 1970-1977; Heyduk, 1978-1982; Wahler & Fox, 1981). As noted above, the effects of any given feedback stimulus will depend, in part, on factors such as the temporal relationship of the stimulus to behavior, the evaluative or descriptive extent of the feedback, specificity of "information about performance", method of
presentation, whether it is self-generated or externally presented, other elements of the contingencies in effect, or response effort associated with the observing and target responses (VanHouten et al, 1981).

**Evaluative performance information**

As noted, the major impact of the combination of priorities and evaluative performance information was to improve the consistency of performance (characterized by a decrease of variability in the range of responses) with associated maintenance of gains achieved in earlier conditions. Thus, one conclusion of the research is that the evaluative performance information served feedback functions that were equally or more successful at effecting and maintaining behavior change than the descriptive feedback in earlier conditions.

As before, parcelling out discriminative and consequating functions of the evaluative summaries (which were presented in addition to the descriptive summaries) is not easy and conclusions must be regarded as speculative. Since the evaluative summaries not only described overall performance levels and duration of time spent in specific response categories (which was also characteristic of the descriptive summaries), but also provided specific information about which behaviors should be maintained and which should be modified (either increased or decreased) in order to improve performance, it is likely that the instructional properties of the feedback stimulus were enhanced; thus facilitating improved performance. Unfortunately, time and data analysis limitations associated with producing the summaries each week probably detracted from their overall utility. Evaluative comments made to
subjects were based primarily on analysis of daily performance within each week, and behaviors in need of change often showed considerable fluxuation from week to week.

Based on analysis of data from Subject 1, (see Figure 7) it would appear that positive, "socially reinforcing" (feedback) comments effected more behavior change (characterized in his case by an increase in indirect services "200" time) than "negative feedback" comments intended to increase the level and consistency of clinical record "910" activity. However, as noted, consistent patterns across weeks were difficult to establish for other subjects and the above conclusions must be regarded with extreme caution.

In addition to the probable increase in discriminative properties of the descriptive and evaluative feedback summaries, however, it is likely that the evaluative summaries served considerable greater conditioned reinforcing functions than the solely descriptive summaries which were used in prior conditions, since evaluative ratings were tied to the employee performance instrument used during formal staff evaluation sessions and the results of staff evaluation were tied to annual monetary increments. That is, comments made on the summaries probably reinforced attending to the schedules, daily reports, and evaluative and descriptive summaries which increased the probability of the subject self-evaluating and consequating his or her performance with respect to compliance with agency mandates. The act of self-consequating as well as additional relatively immediate consequences for compliance/non-compliance (such as comments by supervisors, improved program functioning) probably served to maintain the level of performance and/or improve the consistency of the target responses;
the long term, cumulative effects of which would be expected to occur during and after formal staff evaluation. As noted, the "social validity" of the evaluative summaries was rated by subjects to be higher than that of the descriptive summaries, suggesting that subjects responded to evaluative summaries more actively than they did when solely descriptive summaries were made available.

It should be noted that due to the timing and duration of the "priorities, evaluative performance information" condition, only one subject actually received formal staff evaluation based in part on the combination of descriptive and evaluative performance summaries. If weekly evaluative ratings were not ultimately utilized in some fashion as a basis for determining access to some longterm incentive (such as a bonus or merit increase), responding to the summaries and overall performance of the target behavior would be expected to decline until some immediate (probably aversive) natural consequences occurred to alter the probability of the competing behavior(s) and the target responses(s). Coming under the control of the rule would be a more effective and desirable way of maximizing performance without being exposed to the actual aversive consequences for poor work-related behavior.

Access to activities

The "access to activities" condition was originally included in the study in order to provide a well defined, specific reinforcer for appropriate staff behavior. It is unlikely that any measurable "success" was achieved in this regard. Results showed that the combination of priorities, descriptive performance information, and contingent
access to activities had little if any systematic impact on either
the level or range of performance beyond that achieved in earlier
conditions. Of course, findings should not be interpreted as suggesting
that reinforcement does not affect behavior. Rather, it must be
concluded that the scheduled contingent activities were not sufficiently
reinforcing to alter the probability of the target behaviors.

Several variables undoubtedly accounted for the limited ability to
utilize contingent tangible or activity reinforcers. First, the
mental health center was unionized. While that fact was known prior
to implementation of the study and by itself was not responsible for
the failure to arrange contingent reinforcers, it was a definite limiting
factor. Many of the procedures employed in previous studies such as
contingent pay (Pierce & Risley, 1974), lottery systems (Pedalino &
Gamboa, 1974), or games of chance (Yukl & Latham, 1975) were either
not possible or were impractical because of union constraints which
would have required substantial negotiation with union officials. The
probable result of such negotiations is that the incentives would
have been required to be made available to all employees in the agency.
Similarly, preferred time off would have been a potential reinforcer
had all employees within each program been participants in the study.
However, given the nature of staffing requirements within Residential
Services, preferred days off could not be granted to research subjects
without adversely impacting on the days off of non-research staff.

In fact, it was largely because of these limitations that staff
were given the job satisfaction survey prior to implementation of the
study and asked to indicate potentially rewarding job related activities.
For administrative and clinical staff, it was assumed that some com-
bination of professional development activities (such as attendance at colloquia, journal-reading time, thesis-related activity, or inservice/supervision activity) would serve as adequate reinforcers. Similarly, it was anticipated that some staff training or other preferred activity would be revealed during review of the surveys and discussions with aide staff. In fact, preferences for such activities were expressed by subjects completing the survey and were programmed accordingly for Subjects 1-5 (in Programs A and B) who were scheduled to enter the "activities" condition prior to subjects in Program D.

Unfortunately, the contingent availability of thesis-related activity time and an assistant to help conduct home visits had only minimal impact on the overall level of performance and essentially no impact on the range of performance for Subject 1.

An additional problem was encountered for Subjects 2-5 in Program B. Although it was specified that recurring staff training sessions concerning topics of interest to the staff would be scheduled contingent on performance, practical and ethical problems were recognized by the researcher which resulted in a dilution of the condition. Competing priorities of the researcher and equipment failure made it difficult to actually conduct the sessions on time such that only one session was actually conducted, at the onset of the condition (noncontingently) in order to generate interest in the lecture series. Although staff comments following the inservice suggested that participants enjoyed the presentation, criterion was not reached by Subjects 3-5 during subsequent weeks. In addition, it must be noted that non-research staff were allowed access to the training session and it was concluded by the researcher that preventing them from attending subsequent sessions

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would not be ethical in that they actually needed the inservices as
much as research participants. Since preventing access to sessions was
viewed as impractical and allowing them to attend was viewed as a con-
found, the decision was made to drop the condition for subjects in
Program D.

It is probable that under conditions where all staff in a program
were subject to similar contingencies, the above issue would not arise
and access to special training programs (beyond those which were
essential to performance of basic job responsibilities) would function
as a more powerful incentive. A recent federal ruling (U.S. General Ser-
vices Administration, 1981) which makes provisions for exempting research
involving public behavior from informed consent requirements may make it
practical to investigate such procedures as part of an organization
or service-wide research program.

One difficulty which would remain, however, with utilizing "journal
reading" or "thesis activity" time as a contingent reinforcer would be
adequate monitoring to ensure that the activity was engaged in (on
company time) only when other agency-mandated priorities were met.

Furthermore, it is questionable whether programming a contingent
activity reinforcer on a weekly basis would be sufficient by itself or
even in combination with priorities, to maintain high rate appropriate
behavior. It is probable that the activity would be too remote an
outcome to serve as much of an incentive without some additional con-
ditioned reinforcers to "bridge" the response-reinforcer interval.
Based on the findings of the present study and previous research
studies which have demonstrated the response-strengthening facilitative
effects of reinforcers in combination with instructions (Pierce & Risley,
1974; Iwata et al, 1976), or "feedback" (Chandler, 1977; Komaki et al, 1977; Shook et al, 1978) it is suggested that a combination of priorities, evaluative feedback, and contingent activities presented on a frequent basis would serve as a source of externally-generated instruction and consequence which would be adequate under many circumstances to maintain observing behavior (and subsequent self-consequating behavior) as well as appropriate levels of the target behavior for fairly prolonged periods of time. The scheduled delivery of remote incentives, contingent on cumulative levels of behavior, could be systematically varied to increase the power of the procedures.

Summary

As noted by Krumhus (1978a), however, the efficacy of such procedures will be enhanced if a) individuals are under generally good rule control to begin with, b) the feedback refers to ongoing behavior instead of just terminal links in the behavioral chain, c) misrules are not learned, and d) the contingencies are clearly stated and applied for ongoing job-related behavior exhibited in the natural program environment rather than behaviors demonstrated in an artificial "training" environment.

It is not yet clear when is the best time to provide "feedback". For example, Baily, Wolf & Phillips (1970) found that reports distributed twice a week were almost as effective as when they were distributed on a weekly basis. In addition it is probable that staff learn to predict what type of "feedback" to expect from their supervisor, and that the predictive behavior serves as a basis for their own self-consequating behavior; but it is not known how long it takes for individuals
under such circumstances to develop a level of predictive accuracy. At present it seems wise to support the recommendation that feedback be presented as soon as possible after the completion of the target behavior to maximize the consequating functions, and again prior to the onset of the next behavior to maximize instructional effects. In the present study, an attempt was made to accomplish this task by listing the schedule and on giving priorities on the daily data sheet where subjects logged their actual time use. This effect could be enhanced by incorporating evaluative comments into the daily schedules as "special priorities" and through the use of computer-generated or self-generated summaries at the end of the shift to compare actual and scheduled daily performance.

Limitations and Future Directions

Applied issues and limitations of the study

A number of the limitations of the study have been mentioned in the context of discussing the findings. Some of the practical problems cited earlier by Schneier (1974) "came home to roost" during the study. There were conflicting stimuli in the work environment, temporal lags between performance and consequation, and difficulties in dispensing reinforcement. Subjects did not always turn in reports on time which made it difficult to dispense feedback as scheduled. The data analysis procedure was definitely not cost effective as conducted during the study. However, the reporting format was developed to be compatible with existing computer packages used by the State Department of Mental Health and the system could be adapted for large scale application with
little difficulty. The agency is presently moving toward enhanced local computer capability which will greatly increase the potential to adopt a viable staff accountability and management information system.

Of course, management and receiving system support for developing accountability systems is a prerequisite for any program to be effective. In the present case, the Executive Director displayed full support for the research program and application within the Residential Services component. To date, however, no agency wide mandate has been made to require administrators to utilize objective performance information as a basis for staff evaluation. In addition, the Board of Directors has expressed skepticism concerning the importance of such systems to the management of agency programs. Unless and until such issues are resolved, the results of the present study can only have moderate applied utility for the center in which the study was conducted.

Organizational stability and competing priorities within the agency are important variables which impact on a manager's ability to successfully manage employee behavior. Bailey (1977) has admonished researchers not to attempt to initiate research programs within unstable settings. The same concern must apply to those who would attempt to utilize research results to establish administrative systems. In the present case, the closing of one program, frequent transfers of staff between programs and fluctuating receiving system priorities made it difficult to establish stable priorities within programs for each subject. This is probably typical of many organizations during difficult economic times and must be viewed as a challenge to researchers who conduct studies in applied, open systems.

A more effective formal mechanism was needed in the present study
to incorporate changes in individual and program priorities into the accountability system. For example, as the weather improved toward the end of the last condition, Subjects 3 and 4 expressed a desire to take clients on more frequent field trips into the community on an impromptu basis. While such client outings are desirable activities from an agency perspective, they interfered with scheduled, self-help training sessions which were identified as priorities, thus lowering individual performance levels for the subjects in the study. Shift leaders were instructed to document needed deviations in priorities for a given shift on a program shift schedule, but such changes were often not recorded, making it difficult to allow for formal shift changes in the calculation of subject performance scores. Adequate support staff and other resources are required to ensure that the accountability procedures remain flexible and responsive to needs and changes within the processing and receiving systems.

The use of self-report measures may be one valid and reliable mechanism for gathering process information about staff performance, but other methods must be explored and developed to obtain measures of system output (quantity) and outcome (quality) such as client progress and level of staff training on an organizational scale. Researchers, administrators, and program evaluators must develop creative methods to ensure the reliability and validity of any measures employed. In the present study, it would have been useful if measures had been taken on whether subjects discussed the study with other subjects in order to assess possible confounding across conditions. In addition, it would have been very interesting to formally determine whether or not subjects self-evaluated, self-consequated or actually made predictions about the
nature of supervisory feedback involving their performance. The answers to these questions might have helped determine the accuracy of many of the conclusions which were based on the results of the investigation.

**Implications for future research**

At the scientific level, empirical investigation of the self-consequation issues discussed immediately above must occur if the analysis and understanding of rule-governed and contingency-shaped behavior are to be extended. Research needs to be conducted to determine whether and how individuals routinely predict the behavior of others and what factors affect how long it will take to develop a high level of predictive accuracy. The relationship between observing responses and performance of the target behaviors must be explored and the nature of incentives which maintain each must be identified.

Discriminative and consequating effects of feedback stimuli must be explored in further detail and variables which impact on the efficacy of instructions, feedback and reinforcement procedures must continue to be the focus of experimental attention. Researchers must be careful to perform component analyses to parcel out elemental effects whenever possible and should refrain from using omnibus terms (such as "feedback") to refer to their procedures; rather, descriptive terms should be used which enable others to replicate the procedures under investigation in order to ascertain whether previous findings are robust.

The impact of variables often viewed as "extraneous" to behavior must be examined in thematic research programs. Variables such as fatigue, temperature change, response effort, the occurrence of holidays, behavioral trends such as those observed in the present study, competing reinforcers for inappropriate behavior in the work setting,
the behavioral history of subjects participating in the study, and other historical and situational characteristics of the setting conditions for the study must be examined in detail in order to counter the changes that applied behavior analysts take too simplistic and naive a view of the world, and to increase the probability that such changes are not founded in truth. Under ideal laboratory circumstances, the analysis of behavior is complex. In the "applied laboratory", the task of teasing out true behavioral effects from epiphenomena is intensified immensely.

At the technological level, creative solutions must be employed to deal with the problems cited by Schneier (1974). Assessing the quality of work in applied settings is more difficult than measuring quantity of output, and cost effective, practical measures that will be supported and maintained by those in positions of authority need to be developed. Immediate, powerful, positive incentives need to be found which can be contingently delivered and can reverse the trend to rely on aversive control procedures. The development of computer-assisted management information systems for human service organizations is proceeding at an accelerated rate, but such systems need to be coupled with an operant program to ensure expediency is not pursued at the expense of the health of workers in the organization. When that occurs, both the individual and the organization lose.

One viable follow up to the present study would be to evaluate whether a combination of instructions and evaluative performance information would maintain appropriate job-related behavior in the presence and absence of more remote outcomes such as monetary merit increases tied
to data-based employee performance evaluations. Employees could be
assigned to experimental (contingent raise) and control (non-contingent
raise) groups and differential instructional and reinforcing properties
of self-generated and supervisor-generated evaluative feedback could
be examined for both groups across time. If all staff in the program
were included in the study, it is probable that it would be easier to
also examine the effects of contingent access to activities alone, and
in combination with the other variables. Essentially the same study
should be conducted in different settings to assess the generality of
procedures under investigation. The fact that experimental effects in
the present study were consistent across four programs and eleven subjects
with a variety of educational and job-responsibility characteristics
suggests that the procedures are applicable in a variety of different
situations. Development of a data-based staff accountability system
would represent an important advancement for an organization seeking to
improve working conditions for staff while maximizing its service to
the community.

Conclusions

The field of psychology has been caught in the throes of internal
conflict for years as it has sought to establish an identity by reaching
consensus about what constitutes an appropriate domain for investigation.
Recently, the science of behavior analysis has entered the battle as
various generals, captains, and privates have voiced disagreement about
whether our science is dissolving into an applied technological "bag of
tricks". The issues are real and must be of grave concern for anyone
interested in the potential of science to contribute to solving the massive
problems confronting our society.
One approach to the issues (Michael, 1980) might best be characterized as a "retrenchment" in which the ideals of Behaviorism and the rigor of the science of behavior are preserved by casting off the seductive influences of mentalistic colleagues and by proceeding in spite of the rest of the world.

An alternative approach (Knapp, 1982) might best be characterized as advocating for a conceptual and methodological "expansion" of the field of behavior analysis. This view recognizes the need to maintain philosophical and scientific rigor, but it also recognizes that in order to make lasting contributions to the culture, it will be necessary to venture beyond traditional boundaries and incorporate the best of what the rest of the world has to offer with the philosophical and scientific underpinnings of our field.

Several exciting events are now occurring which are consistent with a thrust in the expansionist direction. As the principles of behavior analysis are applied to an ever increasing array of problems such as energy conservation, health-related behavior, self-management, and everyday behavior in work and educational settings, it is beginning to be recognized that examination and manipulation of setting factors is a necessary and vital part of determining functional relations between behavior and the environment.

Consistent with this expansion, utilization of principles and procedures derived from traditional systems analysis, in concert with principles of behavior, may help applied technologists grapple with situational problems that would be less readily addressed by either approach used alone. In particular, the appropriate utilization of
general systems analysis procedures may require the researcher to attend to variables which might otherwise be overlooked. Once acknowledged, these variables may be controlled through the application of traditional behavioral procedures.

Finally, it is exciting to observe and participate in the expansion of the analysis of rule-governed behavior. Especially in settings where delayed outcomes for appropriate behavior compete with strong incentives for inappropriate behavior, it is vital that procedures be developed, based on an accurate understanding of the dynamics involved, to offset the strength of competing contingencies and to increase the probability of adaptive responses to the situation. "Introspective behaviorism", as exemplified in the writings of Malott (1981-1982), represents a leap into the frontiers of scientific inquiry; the analysis of common, everyday human behavior from a non-mentalistic, scientific perspective. The present study was one attempt to take an empirical step in the same direction by examining some of the variables which affect behavior in an organizational setting. Future endeavors along similar lines should yield even greater fruits as the scientific base for empirical inquiry continues to grow and our understanding of basic laws of behavior is enhanced.
Appendix A

Staff Activity Codes

CALHOUN COUNTY COMMUNITY MENTAL HEALTH
RESIDENTIAL/INPATIENT SERVICES

STAFF ACTIVITY 999 CODES

EMERGENCY SERVICE - Generally non-scheduled; crisis intervention services for registered clients or non-registered persons - purpose of which is to resolve or moderate the crisis situation as presented by client.

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<tr>
<th>SAR CODE</th>
<th>ACTIVITY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Face to face registered client contact (includes services provided within the residential setting to clients experiencing significant, emergent, psychological problems which require immediate attention to resolve.</td>
<td>Includes both assessment of the crisis and therapeutic intervention, may include evaluation of client need for more intrusive service, e.g. completion of commitment forms.</td>
</tr>
<tr>
<td>002</td>
<td>Face to face non-registered person contact (includes services provided within the residential setting to persons experiencing significant, emergent, psychological problems which require immediate attention to resolve.</td>
<td>Includes both assessment of the crisis and therapeutic intervention, may include evaluation of client need for more intrusive service, e.g. completion of commitment forms.</td>
</tr>
<tr>
<td>003</td>
<td>Recipient rights claim assistance.</td>
<td>Helping client file recipient rights complaint (see Direct Services).</td>
</tr>
<tr>
<td>004</td>
<td>Unscheduled individual face to face client contact which does not meet definitions of other client contact activity codes.</td>
<td>This includes contact with clients in a residential program who involve staff at unscheduled times to talk, report problems, or resolve non-emergent problems (problems not receiving immediate attention), make requests, etc...</td>
</tr>
<tr>
<td>SAR CODE</td>
<td>ACTIVITY</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>011</td>
<td>On-site face to face crisis intervention with client.</td>
<td>e.g. off of the premises of the residential program such as at a hospital, adult foster care home, or police station.</td>
</tr>
<tr>
<td>012</td>
<td>On-site face to face crisis intervention with non-registered person.</td>
<td>e.g. off of the premises of the residential program such as at a hospital, adult foster care home, or police station.</td>
</tr>
<tr>
<td>021</td>
<td>Crisis line telephone contact with registered client.</td>
<td></td>
</tr>
<tr>
<td>022</td>
<td>Crisis line telephone contact with non-registered person or significant other of person needing assistance.</td>
<td></td>
</tr>
</tbody>
</table>
999 CODES

DIRECT SERVICE - Generally scheduled face to face contact with a registered client of the agency unless otherwise noted.

<table>
<thead>
<tr>
<th>SAR CODE</th>
<th>ACTIVITY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Initial contact (pre-intake) with non-registered person.</td>
<td>Face to face (generally scheduled) service to non-registered person for therapeutically purposes, e.g. diagnostic evaluation at KRPH prior to opening. Does not include interviews with relatives, etc... of open clients or crisis intervention.</td>
</tr>
<tr>
<td>101</td>
<td>Clinical record intake.</td>
<td>Client contact purpose of which is to obtain data to open case—such as face sheet, financial data, rights advocacy.</td>
</tr>
<tr>
<td>102</td>
<td>Initial (intake) diagnostic and evaluation interview.</td>
<td>Intake interview to open case.</td>
</tr>
<tr>
<td>103</td>
<td>Subsequent diagnostic and evaluation session with clients</td>
<td>ISF meetings, e.g. monthly, quarterly, or semi-annual sessions with clients to define goals, assess progress, etc... status report meetings.</td>
</tr>
<tr>
<td>104</td>
<td>Psychological testing by licensed psychologist under the direction of a physician.</td>
<td>Only time spent in application of test instrument to be reported. Not scoring or writing reports which are clerical.</td>
</tr>
<tr>
<td>105</td>
<td>All other formal psychological testing.</td>
<td>Time spent with client or non-registered person - mental ability scales, achievement, behavior scales, personality tests, etc... Does not include report writing or scoring.</td>
</tr>
<tr>
<td>106</td>
<td>Data collection - non-testing.</td>
<td>e.g. observation of client during baseline or treatment phase of therapy/research program.</td>
</tr>
<tr>
<td>SAR CODE</td>
<td>ACTIVITY</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>107</td>
<td>Telephone contacts with clients (therapeutic).</td>
<td>Significant telephone contacts with clients of therapeutic intent that are non-emergency services.</td>
</tr>
<tr>
<td>108</td>
<td>Telephone contacts with non-registered persons (therapeutic intent).</td>
<td>Does not include correspondence to significant others of clients. Does not include emergency service.</td>
</tr>
<tr>
<td>110</td>
<td>Scheduled face to face services to closed cases (individual).</td>
<td>Scheduled, non-emergency.</td>
</tr>
<tr>
<td>111</td>
<td>Scheduled individual client meeting (non-therapy)</td>
<td>e.g. scheduled meetings to discuss L.O.A., general problems not specifically related to service plan, non-structured activities. Other individual, non-therapeutic contacts which do not meet definition of other SAR Codes.</td>
</tr>
<tr>
<td>114</td>
<td>Individual therapy.</td>
<td>Therapeutic individual intervention to registered clients - focus on adjustment or acquisition of skills identification on service plan.</td>
</tr>
<tr>
<td>120</td>
<td>Non-registered person group sessions.</td>
<td>Group intervention activities with non-registered persons.</td>
</tr>
<tr>
<td>121</td>
<td>Family therapy sessions (client).</td>
<td>All face to face contacts with more than one family member present during any part of session.</td>
</tr>
<tr>
<td>122</td>
<td>Group therapy (client).</td>
<td>Therapeutic group interventions with registered clients which focus on adjustment or acquisition of skills identification on service plan. E.g. vocational, money management, inter-personal skills, hygiene, relaxation, WAC, assertiveness, nutrition, stress management.</td>
</tr>
<tr>
<td>SAR CODE</td>
<td>ACTIVITY</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>----------</td>
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<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>123</td>
<td>Resident government meetings.</td>
<td>Meetings held by clients with staff to plan trips, discuss problems, policies, etc...</td>
</tr>
<tr>
<td>130</td>
<td>Leisure time group activities.</td>
<td>Non-structured group activities designed to occupy leisure time and provide informal therapeutic benefit. e.g. field trips, trips to beach, concerts, Coffee House, dances, etc...</td>
</tr>
<tr>
<td>131</td>
<td>Activity therapy e.g. swim, OT, gym.</td>
<td>Structured group intervention with the objective of rehabilitation or maintenance which focuses on social, recreational, or other related skills.</td>
</tr>
<tr>
<td>132</td>
<td>Play therapy - child therapy.</td>
<td>Individual or group therapeutic interventions with children of which the objective is to improve the functioning of the child.</td>
</tr>
<tr>
<td>141</td>
<td>Medication related activities.</td>
<td>Medication review, medical monitoring, physician visits, and related activities dealing with the provision of medication to clients.</td>
</tr>
<tr>
<td>199</td>
<td>Other direct service not specified above.</td>
<td>Indicate nature of activity in &quot;Comments&quot; section of SAR.</td>
</tr>
</tbody>
</table>
INDIRECT CLIENT RELATED SERVICES — Case consultation, information exchange regarding clients of the agency; activities consisting of information exchange and/or consultation specifically regarding or on behalf of a client of the agency with a different program, service, agency.

<table>
<thead>
<tr>
<th>SAR CODE</th>
<th>ACTIVITY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>Contacts with family and/or significant others.</td>
<td>On behalf of specific client to collect fiscal or therapy related data, for planning purposes and review.</td>
</tr>
<tr>
<td>201</td>
<td>Inter-agency contacts outside of the agency to other agencies.</td>
<td>e.g. Bureau of Rehabilitation, CETA, Adult Basic Education, Schools, etc... to arrange services for specific client. Does not include court activities.</td>
</tr>
<tr>
<td>202</td>
<td>Court appearance regarding client.</td>
<td></td>
</tr>
<tr>
<td>203</td>
<td>Inter-program contacts within agency to coordinate services for specific client.</td>
<td>Does not include attendance at case review if client is present – code case review attendance as Direct Service (103).</td>
</tr>
<tr>
<td>204</td>
<td>Recipient rights activities (not assisting client in filing).</td>
<td>Education, advocacy – does include investigation of complaints already filed.</td>
</tr>
<tr>
<td>210</td>
<td>Guardian activities MI.</td>
<td>Does not include guardianship committee (code under agency/education activities).</td>
</tr>
<tr>
<td>211</td>
<td>Guardian activities DD.</td>
<td>Does not include guardianship committee (code under agency/education activities).</td>
</tr>
<tr>
<td>220</td>
<td>Child Respite Care Services DD.</td>
<td>Arrangement of Respite Care Services for families with developmentally disabled children.</td>
</tr>
<tr>
<td>SAR CODE</td>
<td>ACTIVITY</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>221</td>
<td>Adult Respite Care Services DD.</td>
<td>Includes arranging Respite Care Services for families or homeowners caring for DD adults.</td>
</tr>
<tr>
<td>222</td>
<td>Child Respite Care Services MI.</td>
<td>Includes arranging Respite Care Services for families with mentally ill children.</td>
</tr>
<tr>
<td>223</td>
<td>Adult Respite Care Services MI</td>
<td>Includes arranging Respite Care Services for families or homeowners caring for MI adults.</td>
</tr>
<tr>
<td>230</td>
<td>Foster care home licensing activities.</td>
<td>Includes home visits for licensure or monthly review.</td>
</tr>
<tr>
<td>299</td>
<td>Other indirect services.</td>
<td>Indicate nature of activity in &quot;Comments&quot; section of SAR.</td>
</tr>
<tr>
<td>SAR CODE</td>
<td>ACTIVITY</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>300</td>
<td>Attend Community Mental Health Board Meetings.</td>
<td>Scheduled or unscheduled full Board Meetings.</td>
</tr>
<tr>
<td>301</td>
<td>CMH Board Committee meetings.</td>
<td>Scheduled or unscheduled committees of CMH Board (e.g. program evaluation,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>executive committee).</td>
</tr>
<tr>
<td>302</td>
<td>Agency management meetings with the Executive Director.</td>
<td>Occasional meetings whose primary purpose is the development or maintenance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>of CMH agency and programs. e.g. program evaluation, inter-agency meetings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>regarding budgets, hearings, agreements, staff/Board meetings (agency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>consult.) etc...</td>
</tr>
<tr>
<td>303</td>
<td>Attendance at (non-management) meetings called by Board, Executive</td>
<td>e.g. Research, Q.A.C., Recipient Rights, Homeowners, Guardian, Clinical</td>
</tr>
<tr>
<td></td>
<td>Director, or Chief of Service.</td>
<td>Records, Guardianship.</td>
</tr>
<tr>
<td>304</td>
<td>Committee meetings of the agency.</td>
<td></td>
</tr>
<tr>
<td>305</td>
<td>Attendance/testimony at court, legislative hearings, etc...</td>
<td></td>
</tr>
<tr>
<td>399</td>
<td>Other agency/CMH Board activity.</td>
<td>Indicate nature of activity in &quot;Comments&quot; section of SAR.</td>
</tr>
</tbody>
</table>
COMMUNITY CONSULTATION/EDUCATION/SERVICE - Activities related to providing service to the community, consulting on Mental Health matters, or educating members of the community.

<table>
<thead>
<tr>
<th>SAR CODE</th>
<th>ACTIVITY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>Attend and/or present material related to Mental Health at community programs.</td>
<td>e.g. high school, college classes, A.R.C., C.C.A.A.S.A., etc...</td>
</tr>
<tr>
<td>401</td>
<td>Attend and/or participate in community service activities.</td>
<td>e.g. United Way, R.I.C.C., A.R.C., Red Cross, Human Relations Committee, etc...</td>
</tr>
<tr>
<td>402</td>
<td>Development of agreements, contracts, arrangements with community agencies, police, hospitals, etc...</td>
<td></td>
</tr>
<tr>
<td>499</td>
<td>Other community consultation/education services.</td>
<td>Indicate nature of activity in &quot;Comments&quot; section of SAR.</td>
</tr>
</tbody>
</table>
**PROGRAM ADMINISTRATION** — Activities which are primarily related to the ongoing administration and/or functioning of the individual program.

<table>
<thead>
<tr>
<th>SAR CODE</th>
<th>ACTIVITY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>Attend program administrative staff meetings.</td>
<td>(Does not include clinical treatment team meetings at which individual service plans are devised or inter-shift meetings.)</td>
</tr>
<tr>
<td>501</td>
<td>Attendance in service-management meetings.</td>
<td></td>
</tr>
<tr>
<td>502</td>
<td>Inter-shift meetings/assignment of staff duties.</td>
<td>e.g. assignment of clinical responsibilities such as case management and non-clinical staff responsibilities such as those involving program maintenance.</td>
</tr>
<tr>
<td>503</td>
<td>Individual meetings with employees.</td>
<td>For supervision/training of employees related to performance of their duties.</td>
</tr>
<tr>
<td>504</td>
<td>Other meetings.</td>
<td>e.g. meetings with others from outside program related to operation of program — Lic. Consult.</td>
</tr>
<tr>
<td>510</td>
<td>Budget related activities.</td>
<td>Preparation/review/monitoring of budgets, requisitioning of supplies.</td>
</tr>
<tr>
<td>520</td>
<td>Employee schedule related activities.</td>
<td>e.g. developing, posting employee time off schedules, reviewing time off requests, developing master program schedule.</td>
</tr>
<tr>
<td>530</td>
<td>Program staffing activities.</td>
<td>e.g. reviewing applications, interviewing, hiring, orienting, disciplinary, employee performance evaluation activities, development of job descriptions, maintenance of employee file.</td>
</tr>
<tr>
<td>SAR CODE</td>
<td>ACTIVITY</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>----------</td>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>540</td>
<td>Administrative monitoring and review of program records and documents primarily related to the administrative and clinical functioning of the program.</td>
<td>e.g. clinical records, facility records, emergency service logs, operations and procedure manuals, activities that monitor employee performance.</td>
</tr>
<tr>
<td>599</td>
<td>Other program administration.</td>
<td>Indicate nature of activity in &quot;Comments&quot; section of SAR.</td>
</tr>
</tbody>
</table>
PROGRAM DEVELOPMENT - Activities which are primarily intended to improve or increase the effectiveness and/or efficiency of the program. Includes the development of new procedures, technology, or ideas for use within the program.

<table>
<thead>
<tr>
<th>SAR CODE</th>
<th>ACTIVITY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>Development of program goals and objectives.</td>
<td>In accord with service criteria.</td>
</tr>
<tr>
<td>610</td>
<td>Review of relevant D.S.S., D.M.H., County, and Service Standards, policies, procedures.</td>
<td>e.g. admission/service criteria, orientation handbooks, emergency service logs - activities that substantially modify or improve existing records, program documents, and materials.</td>
</tr>
<tr>
<td>620</td>
<td>Development and updating of program materials.</td>
<td>(Documentation of program methods to be used in training clients.)</td>
</tr>
<tr>
<td>630</td>
<td>Development of treatment procedures descriptions.</td>
<td>e.g. development of token program, remodeling, program library.</td>
</tr>
<tr>
<td>640</td>
<td>Special program projects.</td>
<td>Indicate nature of activity in &quot;Comments&quot; section of SAR.</td>
</tr>
<tr>
<td>699</td>
<td>Other program development.</td>
<td></td>
</tr>
</tbody>
</table>
## STAFF DEVELOPMENT - Activities related to the professional and/or personal development of the employee.

<table>
<thead>
<tr>
<th>SAR CODE</th>
<th>ACTIVITY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>700</td>
<td>Individual meetings with supervisor.</td>
<td>For supervision, training related to performance of specific job within agency.</td>
</tr>
<tr>
<td>701</td>
<td>Attendance at approved individual or group supervision activities within the agency.</td>
<td>For supervision, training related primarily to professional development, e.g. supervision for licensure or certification.</td>
</tr>
<tr>
<td>702</td>
<td>Teaching activities.</td>
<td>Attendance at training programs at which the primary function of the employee will be to teach or impart information to others.</td>
</tr>
<tr>
<td>710</td>
<td>Attendance at workshops, classes, seminars, training programs, etc... sponsored by the agency.</td>
<td></td>
</tr>
<tr>
<td>711</td>
<td>Attendance at workshops, classes, seminars, training programs, etc... sponsored by other agencies.</td>
<td></td>
</tr>
<tr>
<td>720</td>
<td>Research/professional development activities.</td>
<td>Includes library, empirical research, reading of professional books, journals, magazines, preparation of manuscripts, etc...</td>
</tr>
<tr>
<td>799</td>
<td>Other staff development activity.</td>
<td>Indicate nature of activity in &quot;Comments&quot; section of SAR.</td>
</tr>
</tbody>
</table>
PROGRAM MAINTENANCE - Activities related to the daily operation of the non-clinical aspects of the program — physical plant maintenance, domestic activities.

<table>
<thead>
<tr>
<th>SAR CODE</th>
<th>ACTIVITY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>800</td>
<td>Menu planning/food inventory.</td>
<td></td>
</tr>
<tr>
<td>801</td>
<td>Grocery shopping.</td>
<td></td>
</tr>
<tr>
<td>802</td>
<td>Meal preparation and serving.</td>
<td></td>
</tr>
<tr>
<td>810</td>
<td>Housekeeping (interior).</td>
<td>Sweeping, washing floor, windows.</td>
</tr>
<tr>
<td>811</td>
<td>Property maintenance (exterior).</td>
<td>Mowing, raking, shoveling, etc...</td>
</tr>
<tr>
<td>812</td>
<td>Repairs (interior and exterior).</td>
<td></td>
</tr>
<tr>
<td>820</td>
<td>Transportation preparation and maintenance.</td>
<td>Does not include grocery shopping (program maintenance) or client field trips (direct service). Does include time spent in driving clients to and from therapy, appointments, etc...</td>
</tr>
<tr>
<td>821</td>
<td>Transportation.</td>
<td></td>
</tr>
<tr>
<td>899</td>
<td>Other program maintenance.</td>
<td>Indicate nature of activity in &quot;Comments&quot; section of SAR.</td>
</tr>
</tbody>
</table>
CLERICAL - Written or dictated material within the agency primarily related to documentation of agency, program staff, client, or non-registered person activity. Does not include indirect services, program development, program administration, program maintenance activities.

<table>
<thead>
<tr>
<th>SAR CODE</th>
<th>ACTIVITY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>900</td>
<td>Completing SAR sheets.</td>
<td>(Green Sheets) daily log.</td>
</tr>
<tr>
<td>901</td>
<td>Time card/job card/travel voucher/pay check.</td>
<td>Preparation by employee/review of cards and vouchers by administrator, distribution of pay checks.</td>
</tr>
<tr>
<td>910</td>
<td>Completing client data sheets.</td>
<td>Data sheets related to client programs.</td>
</tr>
<tr>
<td>911</td>
<td>Client attendance sheets.</td>
<td>(Blue Sheets).</td>
</tr>
<tr>
<td>912</td>
<td>Clinical record update filing.</td>
<td>Not involving client; clerical re-evaluation, financial data, updating face sheets, etc... including office, client, employee files.</td>
</tr>
<tr>
<td>913</td>
<td>Typing case notes, client related materials, letters or correspondence etc...</td>
<td>Psychological reports, intakes, closures, ISP's, etc...</td>
</tr>
<tr>
<td>914</td>
<td>Scoring and writing the results of psychological tests, intake interviews, or therapy sessions.</td>
<td></td>
</tr>
<tr>
<td>920</td>
<td>Preparation of program reports (non-supervisory).</td>
<td>e.g. petty cash, client cash, daily log.</td>
</tr>
<tr>
<td>921</td>
<td>Supervisory reports.</td>
<td>Annual, monthly, program evaluation, licensure.</td>
</tr>
<tr>
<td>922</td>
<td>Review and documentation of reviewing operations manual and policy memos.</td>
<td>(Memo reading checklist, operations manual, emergency service log.)</td>
</tr>
<tr>
<td>930</td>
<td>Telephone usage.</td>
<td>(Non-client, administration, planning, etc...)</td>
</tr>
<tr>
<td>999</td>
<td>Other clerical.</td>
<td>Indicate nature of activity in &quot;Comments&quot; section of SAR.</td>
</tr>
</tbody>
</table>
### Appendix B

Sample Shift Schedules for a Mental Health Clinician and Mental Health Residential Aide

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Code:</td>
<td>Code:</td>
<td>Code:</td>
<td>Code:</td>
<td>Code:</td>
<td>Code:</td>
<td>Code:</td>
</tr>
<tr>
<td>6:30</td>
<td>502</td>
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<tr>
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<tr>
<td>8:30</td>
<td>302</td>
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<tr>
<td>9:30</td>
<td>922</td>
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<td>10:30</td>
<td>900</td>
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<td>900</td>
</tr>
<tr>
<td>11:30</td>
<td>910</td>
<td>910</td>
<td>910</td>
<td>910</td>
<td>910</td>
<td>910</td>
<td>910</td>
</tr>
<tr>
<td>12:30</td>
<td>920</td>
<td>920</td>
<td>920</td>
<td>920</td>
<td>920</td>
<td>920</td>
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**Notes:**
- Code 502: Individual Therapy
- Code 912: Phone Contact
- Code 922: Client/Phone Monitor
- Code 910: Case Note Writing

**Diary:**
- 6:00-7:00 AM: Breakfast
- 7:00-8:00 AM: Morning Round
- 8:00-9:00 AM: Individual Therapy
- 9:00-10:00 AM: Case Note Writing
- 10:00-12:00 PM: Lunch
- 12:00-1:00 PM: Afternoon Round
- 1:00-2:00 PM: Individual Therapy
- 2:00-3:00 PM: Phone Contact
- 3:00-4:00 PM: Direct Care
- 4:00-5:00 PM: Client/Phone Monitor
- 5:00-6:00 PM: Case Note Writing
- 6:00-7:00 PM: Dinner
- 7:00-8:00 PM: Evening Round
- 8:00-9:00 PM: Individual Therapy
- 9:00-10:00 PM: Case Note Writing
- 10:00-11:00 PM: CBT Group
- 11:00 PM: Bedtime
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Appendix C

Informed Consent Form

For Participation in Research Involving Human Subjects

Name of Potential Subject:__________________________

Running Head/Researcher:________________________

Date Completed:______________________________

CALHOUN COUNTY COMMUNITY MENTAL HEALTH

INFORMED CONSENT FORM

FOR PARTICIPATION IN RESEARCH INVOLVING HUMAN SUBJECTS

Title of Project:____________________________________________________

Researcher:_________________________________________________________

General Instructions: (The following instructions are to be read to or by the potential subject.)

The following information is being provided to you in order to determine whether or not you wish to participate in a research study. This information is provided in all cases (a) where there is any potential of physical, psychological, or social "risk" to the subject; (b) in order to ensure that right to privacy of the subject is protected; and (c) to ensure that no pressures or undue persuasion is used to gain the subject's cooperation in the project.

Please read the following descriptions of the proposed research. If you wish assistance, the researcher will read or discuss the descriptions with you. When you are finished, please ask any questions which you may have. When you are satisfied that you understand the proposal, please describe the research in your own terms in the appropriate place on the form. When you have finished, please indicate on the form whether or not you wish to participate in the study.

Please Go To The Next Page
Should you wish to do so, your approval on this form will indicate your "INFORMED CONSENT" to participate in the research study. If you do participate in the study, you may, without prejudice, withdraw, cease participation, and/or have your data destroyed at any point of your choosing. Should you participate in the study, your data will be kept on file by the researcher for a minimum of three years. Results of the study may be published. If so, data will be presented in such a manner as to preserve your confidentiality and anonymity.
Research Description:

A. *Overview of the nature and purpose of the research.*

B. *Overview of the procedures to which the subject is to be exposed.*
Research Description (Continued...):

C. Protection of subject confidentiality and anonymity.
Subject's Description of the Study:

In the space below, please describe in your own terms (a) the nature and purpose of the study; (b) the procedures to which you might be exposed if you participate in the study; and (c) measures which will be taken to preserve your confidentiality and anonymity. You may use the back of this page if necessary.
Informed Consent: (Please read the following statement and then complete the statement below, indicating whether or not you wish to participate in the study.)

You have the right to refuse to participate in the research. No benefits or penalties will be made contingent upon participation or non-participation in the proposed research. If you do participate you may, without prejudice, withdraw, cease participation, and/or have your data destroyed at any point of your choosing. If you do not object, your data will be kept by the researcher for a minimum of three years. If the study is published, your confidentiality and anonymity will be preserved.

I, ______________________________________________ have had the research entitled ______________________________ explained to me, and I understand it as shown by my answers to the questions above. I do/do not (please cross out one and circle the other) wish to participate in the research study. If I participate in the study, I agree to the conditions listed above.

Name ___________________________________________ (Date)  Guardian's Signature ___________________________________________ (Date)

(If applicable)

Witness's Signature ___________________________________________ (Date)  Researcher's Signature ___________________________________________ (Date)

Please Stop
Appendix D

Instructions and Staff Activity Summary Form

Used During Baseline

Calhoun County Mental Health
Residential/Inpatient Services
Daily Staff Activity Summary

INSTRUCTIONS FOR COMPLETION
(Form SAR-02)

1. The Daily Staff Activity Summary should be completed during each
shift worked and turned in to the Program Administrator daily.

2. Indicate your name, program, and date worked at the top of the form.

3. In column 1 ("Actual Time"), indicate the hours worked during the
shift. Each line represents 15 minutes (1 Time Unit). Up to 10 hours
of time may be reported on each activity summary. If more than 10
hours are worked, please use an additional form and indicate the
number of pages used for the shift in the upper right-hand corner
(Page of______).

4. In column 2, indicate in 15 minute intervals, what you actually did
during the shift. Include "breaks" and meals. It is not necessary
to indicate location for breaks or meals; just that they occurred.
When an activity takes more than 15 minutes, indicate the specific
activity once on the appropriate line and then draw a vertical arrow
downward to indicate the remainder of time units spent on the activity.
Only one activity may be indicated per line.

5. In column 3, indicate the total number of time units spent on each
activity as follows:

| 1 | up to 15 minutes | 3 | 31-45 minutes | continue in |
|==|-----------------|==|--------------|-------------|
| 2 | 16-30 minutes   | 4 | 46-60 minutes| 15 minute intervals |

The number of time units should be indicated on the last line which
indicates the time in which the activity occurred.

6. In column 4, indicate the staff activity code for the activity. Use
the same list of codes which are used for the staff activity-community
services "green sheets" (DMH-1709).
7. When the shift is completed, indicate the total number of Time Units worked on the shift (a "normal" shift of eight hours worked, excluding meals, = 32 time units).

8. If you have any questions concerning the use of this form, please contact

Craig Knapp  
Residential Services  
966-1619

CWK  
8/31/81
## Daily Staff Activity Summary

Name: ___________________________  Date: ___________________

Program: _______________________

<table>
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<tr>
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<th>Log of actual use of time during shift</th>
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</table>

Total Time Units Worked on Shift: ___________________

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Appendix E

Revised Instructions

and

Staff Activity Summary Form

Used During Experimental Conditions

Calhoun County Mental Health
Residential/Inpatient Services
Daily Staff Activity Summary

INSTRUCTIONS FOR COMPLETION
(Form SAR-03)

1. The Daily Staff Activity Summary should be completed as indicated at
the top of the form and turned in to the Program Administrator
daily by the end of the shift.

2. Indicate your name, program, and date worked at the top of the form.

3. In column 1 ("Actual Time"), indicate the hours worked during the
shift. Each line represents 15 minutes (1 Time Unit). Up to 10
hours of time may be reported on each activity summary. If more than
10 hours are worked, please use an additional form and indicate the
number of pages used for the shift in the upper right-hand corner
(Page _____ of _____).

4. In column 2, indicate the 15 minute intervals, what activities are
scheduled during the shift. Include "breaks" and meals. It is not
necessary to indicate location for breaks or meals; just that they
are scheduled. When an activity is scheduled for more than 15 minutes,
indicate the specific activity once on the appropriate line and then
draw a vertical arrow down ward to indicate the remainder of time
units scheduled for the activity. Only one activity may be indicated
per line.

5. Column 3 is to be completed only if the activity in column 2 is
identified by the Program Administrator or shift leader as a
"priority" activity which is to take precedence over non-emergency,
unplanned activities in the event of a schedule deviation. Column
3 should be completed by the Program Administrator, shift leader, or
staff member after consultation and assignment of priorities by either
the administrator or shift leader. If completed, the number of time
units (15 minutes intervals) to be scheduled on each priority

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activity should be indicated on the last line which indicates the time interval for which the activity is scheduled.

6. Column 4 may be left blank.

7. In column 5, indicate in 15 minute intervals, what you actually did during the shift. Include "breaks" and meals. It is not necessary to indicate location for breaks or meals; just that they occurred. When an activity takes more than 15 minutes, indicate the specific activity once on the appropriate line and then draw a vertical arrow downward to indicate the remainder of time units spent on the activity. Only one activity may be indicated per line.

8. In column 6, indicate the total number of time units (TU) spent on each activity as follows:

   1=Up to 15 Minutes   2=16-30 Minutes   3=31-45 Minutes   4=46-60 Minutes
   Continue In
   15 Minute Intervals

The number of time units should be indicated on the last line which indicates the time in which the activity occurred. Do Not indicate number of time units for meals or breaks.

9. In column 7, indicate the staff activity code for the activity. Use the same list of codes which are used for the staff activity-community services "green sheets" (DMH-1709).
Calhoun County Mental Health
Residential/Inpatient Services
Daily Staff Activity Summary
(Form SAR-03)

Name __________________________  Date __________________________
Program __________________________  Shift __________________________

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## Appendix F

### Weekly Summary of Staff Activity

**RESIDENTIAL SERVICES WEEKLY REPORT OF STAFF ACTIVITY**

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### RESIDENTIAL SERVICES WEEKLY REPORT OF STAFF ACTIVITY

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<td>Totals</td>
<td></td>
<td>FRI</td>
<td>SAT</td>
</tr>
<tr>
<td>1.</td>
<td># TU spent on priorities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Expected # TU to be spent on priorities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>********</td>
<td>% TIME SPENT ON PRIORITIES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td># TU spent in non-emergency direct service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td># TU in emergency service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td># TU on duty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>********</td>
<td>% TIME SPENT IN DIRECT SERVICE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### General Information

1. On pages 1–2, the # Time Units (TU) spent on daily priorities appears in parentheses.
2. Lines drawn through a column indicate that the employee was not on duty.
3. Data presented in this summary are taken from the Daily Staff Activity Summary and/or the DMH Staff Activity—Community Services Report (DMH-1709).
4. The percentage of time spent on priorities is calculated according to the following formula:

   \[
   \text{% time spent on priorities} = \left( \frac{\text{#TU spent on priorities}}{\text{Expected # TU to be spent on priorities}} \right) \times 100
   \]
5. The percentage of time spent in direct services is calculated according to the following formula:

\[
\text{\% time in direct services} = \frac{(# \text{ TU in non-emergency direct service}) + (# \text{ TU in emergency direct service})}{# \text{ TU on duty}} \times 100
\]

Report prepared by:

cc: -Executive Director
-Program Administrator
-Employee
-Quality Assurance and Accountability Office
-Chief of Service
-File
Appendix G

Job Satisfaction Survey

CALHOUN COUNTY COMMUNITY MENTAL HEALTH
RESIDENTIAL SERVICES

JOB SATISFACTION INTERVIEW

Date__________________________

Job Classification_____________________

Name (Optional)______________________

We are interested in finding out how you feel about your job and if there are things that we can do to improve our programs and make Calhoun County Community Mental Health and Residential Services a better place to work. This survey is voluntary, but we would appreciate it if you would take a few minutes to answer the following questions. While it may not always be possible to change all of the things, your answers will help us to be sensitive to program and staff needs. Please feel free to leave blank any questions you wish not to answer. Thank you for your cooperation.

1. Where do you work?__________________________ What shift?________________

2. Why did you take the job you now have in the first place?

3. Is your job boring/just about right/too demanding? (Please circle one answer.)

4. Considering your overall job responsibilities, do you feel your pay rate is too small/about right/too large?

5. What is/are the most enjoyable part(s) of your job?
6. What professional and/or job related activities do you enjoy the most?

7. What are your favorite hobbies?

8. What kind of additional training would you like, if any?

9. What is/are the least enjoyable part(s) of your job?

10. Do you work under the immediate direction of a Program Administrator? ________________ Shift Leader? ________________

11. Do you meet with your supervisor or leader? Individually _________ Group ___________ How often: less than weekly/weekly/more than weekly? Individually ________________ Group ________________

12. If there were special things or activities of your own choosing that you could do while you are on duty, what would they be?

For questions 13 - 40, please use the following scale where applicable.

1 - Extremely Poor
2 - Very Poor
3 - Poor
4 - Good
5 - Very Good
6 - Extremely Good
13. How would you describe the usefulness of your meetings with your supervisor or shift leader? 

14. Do you meet often enough? 

15. How do you feel about your job in general? 

16. Ability of residents to learn new skills? 

17. To what extent does your supervisor understand your needs? 
   Shift Leader? 
   Chief of Service? 
   Executive Director? 

18. To what extent do your supervisors understand the residents' needs? 

19. How is your relationship with your co-workers? 

20. How is your relationship with the residents? 

21. To what extent is your job description clear? 

22. How well do you like your job? 

23. To what extent do you feel residents are accountable for their actions? 

24. How do you think other staff feel about the residents? 

25. To what extent do you think supervisors appreciate your work performance? 

26. To what extent do you think that your co-workers feel that you do a good job? 

27. If you were offered another similar job in a different organization for about the same rate of pay, to what extent would you consider taking it? 

28. Do you feel your program can be changed for the better? If yes, how? 

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29. To what extent are you trained for your job? 

30. Did you receive orientation when you started working? 
If yes, to what extent? 

31. How well do you know what is expected of you by supervisors? 

32. How well do supervisors provide you with information about your job performance? 

33. Are they specific enough in their information about your performance? 

34. Do you receive information about your performance often enough? 

35. How often would you like information about your performance? 

36. How fairly are you treated by your supervisor/shift leader? 

37. Which of the following do you use? How useful are they? 

<table>
<thead>
<tr>
<th>Usefulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client Progress Notes</td>
</tr>
<tr>
<td>Shift Notes</td>
</tr>
<tr>
<td>Staff Activity</td>
</tr>
<tr>
<td>Operations/Procedure Manual</td>
</tr>
<tr>
<td>Client Records</td>
</tr>
<tr>
<td>Activity Trip Plans</td>
</tr>
<tr>
<td>Sign In/Out Logs</td>
</tr>
<tr>
<td>Job Descriptions</td>
</tr>
<tr>
<td>Time Cards</td>
</tr>
<tr>
<td>28 Day Schedules</td>
</tr>
</tbody>
</table>

38. How much time do you spend with clients? 

- 0 - 20% 
- 21 - 40% 
- 41 - 60% 
- 61 - 80% 
- 81 - 100% 

39. To what extent would you recommend Calhoun County Community Mental Health Residential Services to friends of yours for a potential job? 
Other Mental Health Programs? 

40. If you knew someone needing mental health services, to what extent would you recommend Residential Services? 
Other Community Health Programs? 

* * * * * * * * * *
41. If you could change any part of your job, program, residential services, or other parts of the agency, what changes would you make?

42. Any additional comments?
OK - One final request: Please answer the following questions about the questionnaire.

* * * * * * * * * *

QUESTIONNAIRE EVALUATION

Any comments, criticisms, or suggestions which you have concerning this questionnaire will be greatly appreciated.

Were the directions easy to read? Did you understand what was being asked?

Were the questions clear and unambiguous? If not, which were unclear?

Was it clear how you were to rate each question? Was the scale easy to use?

Comments, suggestions, etc....

Overall impression of the questionnaire.

Thanks again for your assistance.
Appendix H
Evaluative Reading Form

CALHOUN COUNTY MENTAL HEALTH
Residential / Inpatient Services

To: ______________________________ Date: ____________
From: Craig W. Knapp, Chief of Residential Services
Re: Weekly Staff Activity Summary for Week ___________________________

Attached, please find your weekly staff activity summary for the above mentioned week. On page three, you will find the daily and weekly summary of the percentage of time which you spent on activities identified as priorities on your schedule (item 4) and the percentage of time which you spent in direct services (item 8).

I. Using the following overall rating system, your performance this week with respect to meeting identified priorities was:
   A. _____ Outstanding (90-100%)
   B. _____ Very Good (80-89%)
   C. _____ Satisfactory (70-79%)
   D. _____ In need of improvement with respect to meeting established priorities (Below 60%)

Comments: __________________________________________

II. For the next week, you should attempt to increase/decrease the amount of time which you spend in the following activity:____

III. An area in which your performance was especially positive was the following:__________________________
The above summary is intended to provide you with information about the extent to which you are accomplishing your program goals as established by you and/or your supervisors. Of course, formal employee performance evaluations take many factors into account. Nevertheless, you should use the enclosed information to help you in the performance of your ongoing scheduled activities and priorities. As always, I would be pleased to discuss any aspect of your staff activity summary with you. Thank you for your cooperation.

cc: George Boswell, Executive Director
    Program Administrator/Living Facility Manager
    Employee
    Data Records Office
    File
## Appendix I

### Sample Measurement Reliability Test

<table>
<thead>
<tr>
<th>Name</th>
<th>Program</th>
<th>Date</th>
</tr>
</thead>
</table>

#### Calhoun County Mental Health
Residential/Inpatient Services
Daily Staff Activity Summary

<table>
<thead>
<tr>
<th>Time</th>
<th>Log of actual use of time during shift</th>
<th>Time Units</th>
<th>SAR Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:00 pm</td>
<td>Intershift Dinner Preparation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Served dinner to clients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Monitored clients in living room Group therapy - language training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Medications to clients Dinner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Monitored clients at bedtime</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Facility Record Review</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Staff Activity Reports</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Crisis Call</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Actual Time</th>
<th>Log of actual use of time during shift</th>
<th>Time Units</th>
<th>SAR Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00 am</td>
<td>Laundry</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:00 am</td>
<td>Wrote notes in client record</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Off duty</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Time Units Worked on Shift**

Note to all Subjects:
I would appreciate it if you would complete and return this sample SAR to me as soon as possible. Thank you for your cooperation. **Craig**

SAR-02
8/25/81
Appendix J

Research Study Interview

CALHOUN COUNTY COMMUNITY MENTAL HEALTH

RESIDENTIAL SERVICES

RESEARCH STUDY INTERVIEW

Project Name: Variables affecting use of staff time in a mental health center

Date:_________________________ Job Classification:_________________________

Name:_________________________

The following questionnaire is intended to give you an opportunity to express your feelings about the research project in which you have been participating. This survey is voluntary, but I would appreciate it if you would take a few minutes to answer the following questions. Your answers will help us to be sensitive to staff and program needs. Please feel free to leave blank any questions which you prefer not to answer.

Please use the following scale to rate each question, unless you feel that the scale does not apply to a particular item. In each case, your comments are very important, so please mention whatever you feel is most important. Thank you for your cooperation.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Applicable</td>
<td>Very Poor</td>
<td>Poor</td>
<td>Average</td>
<td>Good</td>
<td>Very Good</td>
</tr>
</tbody>
</table>

1. Where do you work? ___________________________ What shift? _________________

2. What is/was your overall impression of the research project?_______

Comments:
3. How well did you know what the different conditions of the research project were? ______ Comments:

4. How useful are the shift schedules in helping you know what your responsibilities are? ______ Comments:

5. How useful are the priorities in helping you know what your responsibilities are? ______ Comments:

6. Have you ever used the Department of Mental Health "green sheets" to account for your time on duty (yes/no)? ______

7. If you had a choice, would you prefer to use:
   (a) the "green sheet" (b) the white daily staff activity sheet (c) no sheet: do not record activity (d) a different form (please specify) ______
   Comments:

8. How useful was the daily staff activity sheet? ______ Comments:

9. How useful were the weekly summaries of your time use? ______ Comments:
10. In general, how do you feel about accounting for your time? _____
   Comments:

11. How useful were the weekly job performance ratings that were attached to your weekly time use summaries within the last few weeks? _____ Comments:

12. Were the Staff Activity Report Codes easy to use? _____ Are there changes (additions or deletions) which should be made in the codes?

13. Were you subjected to any physical, psychological, or social "risk" as a result of your participation in the research? (yes/no) _____ Please explain:

14. Do you feel that your privacy was adequately protected during your participation in this project? (yes/no) _____ Please explain:

15. Was any undue persuasion used to gain your cooperation in the project? (yes/no) _____ Please explain:
16. If asked, would you consider participating in another study at a later date? (yes/no)_______ Please explain:

17. What was your overall feeling about the sample staff activity "tests" which you completed on several occasions?_______
   Comments:

18. How did you feel about the "observers" who occasionally came out to the program?_______ Comments:

19. Were the summaries of your staff activity reports sent to you often enough?_______ too often?_______ not often enough?_______
   Please explain:

20. Did you participate in a condition in which preferred activities were made available when a particular level of performance was met? (yes/no)_______ If yes, please comment on your overall impressions of this condition:

21. What was most enjoyable about participating in the project?
22. What was least enjoyable about participating in the project?

23. What effect, if any, did this project have in making the agency a better place to work?
   It helped_______ It made things worse_______ No effect_______
   Please explain:

24. What effect, if any, did this project have in making the program more effective?
   It helped________ It made things worse_______ No effect_______
   Please explain:

25. How do you feel about completing job satisfaction surveys such as these?
   _________ Comments:

26. What changes would you make to improve the overall functioning of the agency and program?

27. Please make any additional comments which you have concerning the project, the agency, or the program in which you work:

***
28. As a final question on this survey, I would appreciate it if you would answer the questions on the following page about the questionnaire. Thanks for your cooperation.
QUESTIONNAIRE EVALUATION

Any comments, criticisms, or suggestions which you have concerning this questionnaire will be greatly appreciated.

Were the directions easy to read? Did you understand what was being asked?

Were the questions clear and unambiguous? If not, which were unclear?

Was it clear how you were to rate each question? Was the scale easy to use?

Comments, suggestions, etc....

Overall impression of the questionnaire:

Thanks again for your assistance!


Kazdin, A.E. The role of instructions and reinforcement in behavior changes in token reinforcement programs. *Journal of Educational Psychology*, 1973(a), 64, 63-71.


Panyon, M.C., & Patterson, E.T. Teaching attendants the applied aspects of behavior modification, Mental Retardation, 1974, 5, 30-32.


Sturges, P.T. Information delay and retention: Effect of information in feedback and tests. *Journal of Educational Psychology,* 1972, 63, 32-43.


