Acquisition and Transfer of Behavior Management Skills: An Empirical Functional Analysis of Staff and Client Gains

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ACQUISITION AND TRANSFER OF BEHAVIOR MANAGEMENT SKILLS: AN EMPIRICAL FUNCTIONAL ANALYSIS OF STAFF AND CLIENT GAINS

by

Elaine Bellis

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ACQUISITION AND TRANSFER OF BEHAVIOR MANAGEMENT SKILLS:
AN EMPIRICAL FUNCTIONAL ANALYSIS OF STAFF AND CLIENT GAINS

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A multiple baseline design across instructional conditions was used to assess the effects of a staff training package consisting of written rules, daily monitoring, public posting of performance data, and allotments of contingent break-time privileges on the behavior management skills of tutors in suppressing the stereotypic behavior of retarded individuals. The intervention package was sequentially introduced in three different instructional conditions in the following order: a group session, a one-to-one session, and a transition period. Following baseline, three tutors were trained to apply consistent and accurate consequences to varying rates of self-stimulatory behavior exhibited by three impaired subjects. The findings suggest that the training package produced direct and transferred changes in behavior management skills. In addition, a substantial decrease in self-stimulatory behavior occurred as a result of improved and increased behavior management techniques. However, reliable changes in academic task performance were not observed.
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Elaine Bellis
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CHAPTER I

INTRODUCTION

The etiology and function of self-stimulation remains debatable (Berkson & Mason, 1963). However, it has been established that the topographies of such behaviors and the contingencies which maintain them vary greatly across different individuals and for the same individuals across different situations (Schrum, 1980). The three types of stereotypic behavior most commonly dealt with consist of those which are maintained by extrinsic reinforcement, those which are maintained by escape contingencies, and those which are maintained by response produced stimulation. Examples include rocking, hand waving, and head weaving (Kaufman & Levitt, 1965; Berkson & Mason, 1963), mouthing and repetitive rubbing of various parts of the body (Berkson & Mason, 1964; Hollis, 1965), and head hitting (Schrum, 1980).

Adams, Tallon, and Stangl (1980) report that since residents that display stereotypic behavior interact less with their environment, it is important for institutions serving retarded individuals to provide an environment which lessens the likelihood of the occurrence of self-stimulatory behavior (Koegel & Covert, 1972). Furthermore, Risley (1968) reported data showing that when self-stimulatory behaviors are punished, certain appropriate behaviors may show increases. This suggests the possibility that the elimination of self-stimulatory behavior may be a necessary prerequisite to the establishment of more desirable behaviors.
In addition to its unattractive appearance and its incompatibility with learning (Koegel & Covert, 1972), self-stimulatory behavior may be potentially harmful to the individual's health (Schrum, 1980). For example, repetitive hand-to-hand movements have been observed by the author to result in c-curvature of the hands and fingers, hand sucking has been known to cause swelling and chaffing of the tissue in addition to enlargement and protrusion of the lips, while head hitting and face slapping may lead to contusions and abrasions (Schrum, 1980).

Due to its problematic nature, numerous attempts have been made to develop techniques for suppressing stereotypic behavior. They have had varying success. Pendergrass (1972) used a verbal reprimand and a 2-minute time-out to decrease self-stimulation in two retarded children. Laws, Brown, Epstein, and Hocking (1971) reduced self-stimulatory behavior by instructing a teacher to turn his back when a student engaged in self-stimulation and to present reinforcement when the student attended. Similarly, Azrin, Kaplan, and Foxx (1973) reduced such behavior in retarded adults by teaching them appropriate use of work and play materials. One of the most innovative approaches to the treatment of self-stimulation was Foxx and Azrin's (1973) use of overcorrection to reduce stereotypic mouthing and head weaving in four retarded children. More recently, a new treatment procedure has been described for self-stimulation which is based on the principle of sensory extinction by removing its auditory, visual, or proprioceptive sensory consequences (Rincover, Rook, Peoples, & Packard, 1979). In addition to these relative unintrusive procedures, other researchers have employed physical punishment, such as a slap (Koegel & Covert, 1972) and shock.
(Lovaas, Litrownik, & Mann, 1971) to suppress self-stimulatory behavior.

While several of these procedures have demonstrated success, many have inherent difficulties which may limit their effective application. For example, overcorrection entails a significant amount of effort on the part of the individual applying the consequence which may lead to hesitation when considering its use. Differential reinforcement of other behavior has the potential for unintentionally strengthening the occurrence of additional inappropriate behaviors. Shock, on the other hand, is often accompanied by opposition due to its unethical implications and possible side effects (Hutchinson, 1977). It is highly unlikely that self-stimulatory behavior would decrease without the consistent and intense application of these procedures.

In spite of this extensive applied investigative effort, the problem of self-stimulation continues because, among other reasons, no efficient and economical procedure which can be quickly and easily applied has yet been developed. Regardless of the local effectiveness of various available procedures, it is of primary importance that the development of effective treatment techniques be combined with the design of a powerful technology for training staff to consistently and accurately apply the appropriate procedures necessary to control self-stimulatory and other stereotypic operants.

There has been increasing attention directed to staff training among educational and mental health professionals in relation to treating stereotypic behavior. Role playing and modeling are popular techniques which have been gaining greater acceptance (Krumhus & Malott, 1980). However, despite their success in settings such as mental
hospitals (Ivancic, Reid, Iwata, Faw, & Page, 1981) and schools (Parson & Heward, 1979) and with foster grandparents (Fabry & Reid, 1978) and high school students (Gladstone & Sherman, 1975), current approaches to staff training typically neglect the two critical aspects which are essential in determining their effectiveness: (a) the extent to which the staff's behaviors transfer beyond the training session/condition; and (b) the impact of the staff's behavior on the students/clients' behavior. Krumhus and Malott (1980) examined the differential effects of instructions, modeling, and feedback in the training of tutors in a remedial education program. The findings suggest that modeling is the most effective of the three in training tutors to correctly apply descriptive social reinforcement. However, no mention was made of the behavior's generalization beyond the training session or the impact of tutor improvement on the academic behavior of the students. Panyan, Boozer, and Morris (1970) initiated a feedback system to increase the daily use of operant training methods by nonprofessional hall personnel in a state institution for retarded children. While the results indicate that a significant increase in appropriate staff behavior occurred, no data exist which represent the impact on the children's behavior. Without attention directed to generalization and outcome results, it is impossible to evaluate the effectiveness of any staff training procedure.

The purpose of this experiment was to directly address these missing aspects of staff training. More specifically, the aim was to assess the sequential introduction of a multifaceted staff training package into three different instructional conditions (a group condition, a one-to-one condition, and a transition condition, respectively).
It was the intent of this study to evaluate the effects of this package on the behavior management skills of part-time tutors in suppressing self-stimulatory behavior of mentally retarded individuals. In addition, the extent to which the tutors' behavior transferred beyond the training session to the other conditions was also examined. This component analysis provided a means for determining the most efficient and economic method of applying behavior management technology in an attempt to best manage the occurrence of stereotypic behavior. Finally, the study investigated the impact of the tutors' behavior on the rate of self-stimulatory pupil behavior and the concurrent effects on academic performance. The specific sequence in which the intervention package was introduced (group, one-to-one, transition) was a significant variable in the overall analysis.
CHAPTER II

METHOD

Subjects

Two levels of subjects were utilized in this experiment: pupil subjects and staff subjects.

Pupils (General)

Three mentally retarded pupils were recruited for participation in this study. The inclusion criteria were:

1. The pupil was required to exhibit one or more clearly observable and measurable self-stimulatory behaviors, as defined by the investigator.

2. As determined through a pre-baseline probe, the pupil was required to perform satisfactorily on a simulated instructional task ("Touch the object").

3. The pupil had to be attending school full time and be available to participate in sessions five days per week.

Pupils (Specific)

Subject 1 was a black female, 22 years, 1 month of age. She was a severely multiply impaired (SXI) individual with mental impairment listed as untestable, indicating an estimated IQ lower than 4.5 standard deviations below the mean. Hearing evaluations suggested a moderate to severe range impairment, while no ocular limitations were apparent. The subject exhibited good eye contact and tracking, although not under consistent instructional control. Deformities present in the
upper and lower extremities were characterized by elbow flexion con­tractive, limited forearm pronation, heel cord contractures of the right foot, and restriction of dorsiflexion of the left foot, resulting in functional quadriplegic. Subject 1 exhibited no demonstrative or receptive language while self-help skills were limited to independent feeding. Her self-stimulatory behaviors consisted of repetitive hand-to-head movements, hand-to-hand movements, repetitive independent hand movements, hand-in-mouth, rocking, and tantrums characterized by increased self-stimulatory behavior and loud vocalizations. Maladaptive behaviors involving hand movements had resulted in a c-curve of her fingers. Subject 1 was diagnosed as suffering from encephalopathy due to unknown prenatal etiology.

Subject 2 was a white male, 25 years, 11 months of age. He was a severely multiply impaired (SXI) individual with mental impairment listed as untestable, indicating an estimated IQ lower than 4.5 standard deviations below the mean. The subject was totally blind due to a congenital defect. He exhibited no deformities of the upper extremities. His lower extremities were severely deformed, characterized by hip flexion/abduction contractures and bilateral knee range limitations rendering him nonambulatory. Subject 2 was classified as a functional paraplegic; in addition, he exhibited no demonstrative or receptive language or self-help skills. He had a tendency toward food aversion; his self-stimulatory behaviors consisted of repetitive hand-to-head movements, hand-to-hand movements, hand-in-mouth, head weaving, and excessive drooling. The subject received Polyviflor (vitamin) once in the morning and Phenobarbital, 30 mg. morning, 45 mg.
evening, and Dilantin, 100 mg. twice daily to control seizures. The subject's seizures seemed to be well controlled and occurred at a rate of approximately one per year. Subject 2 had been diagnosed as suffering from an encephalopathy due to unknown prenatal/neonatal factors.

Subject 3 was a white male, 20 years, 10 months of age. He was also a severely multiply impaired (SXI) individual with mental impairment listed as untestable, indicating an IQ of 4.5 standard deviations below the mean. According to State definitions for visual impairment, the subject qualified for visually impaired on the basis of his central vision. He exhibited no deformities of the upper extremities. His lower extremities were moderately deformed, characterized by bilateral hip and knee flexion contractures, a shortened heel cord, and an internally rotated leg gait on the anterior lateral aspects of the feet; his right leg being shorter than the left made ambulation difficult yet possible. He was classified as a functional spastic paraplegic. Subject 3's self-stimulatory behaviors consisted of rocking, hand-in-mouth, inappropriate vocalizations, and drooling. He exhibited no expressive or receptive language, and his self-help skills were limited to independent feeding. The subject received 100 mg. of Dilantin and 60 mg. of Phenobarbital daily. His seizures occurred at a rate of two per year. Subject 3 was diagnosed as suffering from an encephalopathy due to postnatal cerebral infection and spastic cerebral palsy since birth.

Staff Subjects (General)

Three part-time paraprofessionals employed at Croyden Avenue School
were selected for participation in this experiment. The inclusion criteria were:

1. The staff member had to exhibit inconsistent and/or ineffective application of behavior management techniques as defined by the investigator.

2. The staff member had to have attended and met the requirements of a 3-hour in-service held at the work site which covered general building policies, lifting regulations, seizure procedures, and observation and recording techniques most effective with the retarded population.

3. The staff member was required to work a minimum of 3 hours a day, 5 days per week, in order to contact the different instructional conditions.

Staff Subjects (Specific)

Staff Subject 1 was a 21-year-old male, a senior undergraduate majoring in psychology. He had been employed in the setting as a part-time tutor for 3,000 hours over a 3-year-period prior to the current study. Subject 1 had completed 17 hours of course work in the area of behavior modification, 3 hours of course work in the area of research methods, 3 hours of statistical analysis, and a total of 200 hours of practicum experience in a variety of applied settings. His overall GPA was 3.4 at the time of the investigation.

Staff Subject 2 was a 21-year-old female, a senior undergraduate also majoring in psychology. She had been employed at the setting as a part-time tutor for 1,200 hours over a period of 18 months preceding the execution of this study. Subject 2 had completed 17 hours in the area of behavior modification, 3 hours of course work in the area of research methods, 3 hours of statistical analysis, and a total of 200 hours of practicum experience in several applied settings. Her overall
GPA was 3.7 at the time of the experiment.

Staff Subject 3 was a 24-year-old female, a college graduate who had received her B.S. in special education. She had been working at the work site as a part-time tutor for 300 hours over a period of 10 months prior to the implementation of the project. Subject 3 had no prior experience or course work in behavior modification other than that she may have attained at a required pre-employment in-service. Her overall GPA at the time of graduation was 3.6.

Setting/Apparatus

The study was conducted in a 46' x 40' open classroom at Croyden Avenue School. Adjacent to this room was a 26' x 14' observation booth enclosed in one-way mirrors. The observer was seated behind the mirrors prior to each observation period. The sessions took place in close proximity to the observation booth to maximize accurate and reliable identification and recording of the target behaviors. Aside from the experimental sessions being conducted in the room, remaining staff members and pupils could be observed engaging in a variety of instructional and custodial activities at different locations in the area. Classroom furniture consisted of tables, chairs, desks, and screens which were arranged to promote uninterrupted educational sessions.

Design

A multiple baseline design across instructional conditions (Baer, Wolf, & Risley, 1968) with a reversal was used to assess the effects of a staff training package on the behavior management skills of the three
part-time tutors and the effect of the package on pupil maladaptive behavior. The subjects were observed in three 30-minute instructional activities per day which included:

1. **Group.** Each staff subject executed a simple instructional session with the three pupil subjects simultaneously, in which the pupils were required to touch an object immediately following the presentation of the command, "Touch it."

2. **One-to-one.** Each staff subject conducted the instructional session described above with a single pupil subject.

3. **Transition.** This involved unstructured 30-minute periods of each day in which the staff subjects were not assigned to any particular pupil subject. This condition was scheduled to occur as the students were being prepared for departure from the school setting (i.e., coats put on, pupils lifted into wheelchairs, diapers changed). Participants' proximity to the observation booth varied throughout this period as they engaged in various custodial tasks.

**Observation**

Two female psychology students served as observers for the study. Prior to execution of the investigation, the observers were given written definitions of target behaviors for the two levels of subjects. In addition, they were trained to identify examples and nonexamples of these behaviors by observing and scoring simulated instructional sessions conducted by the investigator and an assistant. The observers were also allowed to view the pupil subjects in extremely close proximity to help familiarize them with the specific topographical characteristics of the designated target behaviors. The two observers were arbitrarily assigned to different sessions prior to the study.

A partial interval observation system (Powell, Martindale, & Kulp, 1975) was used throughout the study to assess changes in the
four previously defined response categories. Continuous 10-second intervals were divided into 7.5-second observation periods followed by 2.5 second recording periods which were defined by a cassette tape. The tape consisted of 120 intervals of this type, with each set of 5 followed by a 10-second rest period.

A rotation system of observation was used to obtain data in all three conditions. During group observation periods, each pupil was observed sequentially for 40 of the 120 intervals. Each day, the order of the observation sequence was altered in order to avoid any trends related to consistent differential rates in one part of the session. All three one-to-one sessions were conducted at the same time. During this 30-minute observation period, each staff/pupil pair was observed sequentially for 40 of the 120 intervals. Each day, the order of this observation sequence was also altered. During the transition periods, each pupil was again observed for 40 of the 120 intervals, tutor behavior being scored only when one of the staff subjects entered a pupil's "vital zone."

A pre-experiment designed data sheet allowed one of four possibilities to be recorded in each interval. Two separate classes of behavior were recorded at the end of each 10-second time period: (a) pupil subject behavior; and (b) staff subject behavior. Possibilities included:

++ Self-stimulatory behavior occurred; staff subject applied correct consequence.

+- Self-stimulatory behavior occurred; staff subject applied incorrect consequence or no consequence.

-- Self-stimulatory behavior did not occur; staff subject failed to present a correct consequence.
Target Behaviors

For the purpose of this experiment, there were two levels of target behaviors which were measured: pupil target behaviors and staff target behaviors.

Pupil Target Behaviors

Pupil 1: Any contact of one or both hands to the head, lips, or mouth; hands together either moving or dormant; and independent repetitive hand movements.

Pupil 2: Entire hand or any part of hand in mouth or on lips; hands together above the waist either moving or dormant.

Pupil 3: Entire hand or any part of hand in mouth or on lips.

Staff Target Behaviors

Target Behaviors during Group and One-to-One Condition

1. **Physical guidance.** Tutor abruptly discontinues behavior with physical guidance within 3 seconds of its onset; tutor/pupil contact should not exceed 3 continuous seconds; tutor will bring pupil's hands apart and to his/her lap by applying firm pressure to the pupil's wrists and moving in a quick downward motion.

2. **Differential reinforcement of other behaviors.** Tutor presents tactile stimulation or edible material to the pupil following the emission of other, more appropriate behaviors which vary in topography from the maladaptive behaviors (e.g., sitting quietly with hands in lap).

3. **Possible incorrect consequences:**
   a. Failing to discontinue maladaptive target behavior within 3 seconds of its onset.
   b. Maintaining physical contact with pupil for more than 3 continuous seconds.
   c. Presenting edible or tactile stimuli for a correct task response while the pupil is engaging in maladaptive behavior.
4. Failing to present edible or tactile stimuli while the pupil is not engaging in maladaptive behavior.

**Target Behaviors during Transition Condition**

1. **Physical guidance.** Tutor becomes responsible for consequating the maladaptive behavior when he/she enters the pupil's "vital zone," defined as a 5-foot radius in relation to the pupil. Following the discontinuation of the target behavior (as described in the section above), the staff subject must remain in the zone for at least 5 seconds to ensure that the self-stimulatory behavior does not reoccur.

2. **Differential reinforcement of other behaviors.** Same as that described in the section above; scored only when staff subject is in pupil's "vital zone."

3. **Possible incorrect consequences:**
   a. Failing to discontinue maladaptive target behavior within 3 seconds of entering the "vital zone."
   b. Maintaining physical contact with the pupil for more than 3 continuous seconds.
   c. Failing to present the necessary tactile or verbal stimuli when in the pupil's "vital zone."
   d. Failing to remain in "vital zone" for at least 5 seconds following the most recent delivery of consequation of the maladaptive behavior.

**Procedures**

The intervention procedures included a staff training package which consisted of a set of written rules, a daily meeting between the staff subject and the classroom supervisor to discuss performance in the experimental sessions, a frequency count of the number of rule violations which took place within each session, and public posting in the form of a graphic display which provided the percent of correct consequences applied during each session. Furthermore, extended break time
(5 minutes) was made contingent on the highest percent received each day between the staff subjects. The set of written rules outlined the significant aspects of good instruction as they applied to the control of maladaptive behavior. Examples were provided for the correct and incorrect application of behavior management techniques across the three conditions. Sessions were monitored by the classroom supervisor (in this case, the investigator) on a daily basis as part of the standard classroom procedure (no staff were exempt), following which the staff subject received a verbal evaluation of his/her performance from the supervisor. The public posting graphs were located in a highly visible area of the classroom and were referred to frequently. Contingent break time was allotted the day after the particular staff subject received the highest percentage score.

Baseline 1

Baseline data were obtained for both levels of subjects (i.e., staff and pupils) for 5 days across all three conditions, for a total of 15 sessions. During baseline, no special contingencies were in effect. The staff subjects received general instructions detailing techniques to be used when conducting group and one-to-one instructional sessions. In this case, the academic task of "touch the object" was individually explained and demonstrated for the staff subjects. With respect to transition, the staff subjects received verbal instructions outlining the custodial activities to be performed during this time when first employed and again at the start of each new semester (i.e., diapering, lifting, positioning).
Condition 1

Condition 1 was designed to evaluate the direct and transfer impact of introducing the intervention package into the group session. Subjects were aware of monitoring during group sessions only. Baseline continued in the one-to-one and transition conditions.

Condition 2

Condition 2 was designed to evaluate the impact of introducing the intervention package into the one-to-one sessions. The procedures were identical to those applied in Condition 1 yet were specifically applicable to the characteristics of this particular condition. Contingencies continued to operate in the group sessions while baseline continued in transition.

Condition 3

Condition 3 was designed to evaluate the impact of introducing the intervention package into the transition period. Again, the procedures were identical to those in Conditions 1 and 2 but were specifically tailored to the characteristics of transition. Contingencies continued to operate in group and one-to-one sessions.

Baseline 2

Baseline 2 was identical to Baseline 1 and was designed to evaluate the importance of the contingencies for both levels of subjects.
Interobserver Agreement

Independent observations were conducted a minimum of one time in each experimental condition and for 43% of the total number of sessions. Interobserver agreement for the interval data was calculated by dividing the number of agreements by the agreements plus disagreements and multiplying by 100. The range of interobserver agreement for Pupil 1 during each condition was: Baseline 1, 92%; Condition 1, 92-100%; Condition 2, 96-100%; Condition 3, 96-100%; Baseline 2, 96-100%. The range for Pupil 2 during each condition was: Baseline 1, 92-100%; Condition 1, 96-100%; Condition 2, 96-100%; Condition 3, 100%; Baseline 2, 96%. The range for Pupil 3 during each condition was: Baseline 1, 96%; Condition 1, 94-100%; Condition 2, 100%; Condition 3, 100%; Baseline 2, 98%. The range for staff Subject 1 during each condition was: Baseline 1, 94%; Condition 1, 92-100%; Condition 2, 90-100%; Condition 3, 96-100%; Baseline 2, 94-100%. The range for staff Subject 2 during each condition was: Baseline 1, 98%; Condition 1, 96-100%; Condition 2, 100%; Condition 3, 100%; Baseline 2, 96%. The range for staff Subject 3 during each condition was: Baseline 1, 97%; Condition 1, 96-100%; Condition 2, 96-100%; Condition 3, 100%; Baseline 2, 100%.
CHAPTER III

RESULTS

All staff subjects demonstrated an increase in correct and effective behavior management including the application of accurate and consistent consequences for self-stimulatory behavior and an increase in the correct application of differential reinforcement of other behavior following the introduction of the intervention package in each type of instructional condition. In addition, a moderate degree of transfer of behavior management skills occurred from trained to untrained conditions. It was also evident that increases in effective staff management behavior produced substantial concurrent reductions in pupil stereotypic behaviors. Furthermore, a significant transferred decrease in self-stimulatory behavior was noted from trained to untrained sessions. No reliable changes in academic behavior were observed.

Staff Training - Overall

Figure 1 represents the overall behavior management scores of the three staff subject across all three instructional conditions including the percent of 10-second intervals scored physical guidance plus the percent of 10-second intervals scored differential reinforcement of other behaviors. During Baseline 1, staff Subject 1 exhibited a range of 3-12% intervals scored correct for the two behavior management categories; the range of correct behavior management for staff Subject 2 was 9-25%; and the range for staff Subject 3 was 17-38%. Implementation
Fig. 1. Overall Combined Percent of Intervals with Correct Behavior Management Scored for Three Staff Subjects.
of the intervention package in instructional Condition 1 (small group) resulted in a mean increase of 39% over baseline level for staff Subject 1, a mean increase of 31% over baseline level for staff Subject 2, and a mean increase of 20% over baseline for staff Subject 3. Implementation of the intervention package in instructional Condition 2 (one-to-one) resulted in a mean increase of 83% over baseline level for staff Subject 1, a mean increase of 68% over baseline level for staff Subject 2, and a mean increase of 59% over baseline for staff Subject 3. Scores continued to increase following the introduction of the intervention package in instructional Condition 3 (transition) with a mean increase of 92% over baseline level for staff Subject 1, a mean increase of 74% over baseline level for staff Subject 2, and a mean increase of 69% over baseline level for staff Subject 3. During the second baseline condition, all staff subjects exhibited a reduction in 10-second intervals scored correctly for physical guidance and differential reinforcement of other behaviors. Staff Subject 1 decreased from a high of 99% in Condition 3 to 94% following the withdrawl of all contingencies, staff Subject 2 went from a high of 92% to 64%, and staff Subject 3 went from a high of 94% to 86%. The transition condition was not observed during Baseline 2 due to the school's scheduling of in-service days (4 hours/day). Therefore, Baseline 2 data represent only group and one-to-one scores.

Staff Training - Individual

Figure 2 represents the percent of 10-second intervals scored physical guidance and differential reinforcement of other behaviors for
Fig. 2. Percent of 10-second Intervals Scored Physical Guidance and Differential Reinforcement of Other Behavior for Subject 1 across Three Instructional Conditions.
staff Subject 1 graphed separately across all three conditions.

During Baseline 1, mean physical guidance scores across the three conditions were near zero. Implementation of the intervention package in Condition 1 (group) resulted in a mean increase of 71% over baseline level in the group session, with simultaneous mean increases of 50% and 12% over baseline levels occurring in the untrained one-to-one and transition sessions, respectively. Following the introduction of the intervention package in Condition 2 (one-to-one), this subject demonstrated a mean increase of 90% over baseline level in the one-to-one session, with a simultaneous mean increase of 41% occurring in the untrained transition session. Implementation of the intervention package in Condition 3 (transition) resulted in a mean increase of 93% over baseline level in the transition session. Withdrawal of the intervention package in Baseline 2 resulted in mean decreases of 10% and 18% under levels noted in Condition 3 for group and one-to-one, respectively.

During Baseline 1, mean differential reinforcement of other behavior scores across the three conditions were near zero. Implementation of the intervention package in Condition 1 (group) resulted in a mean increase of 46% over baseline level in the group session, with simultaneous mean increases of 32% and 4% over baseline levels occurring in the untrained one-to-one and transition conditions, respectively. Following the introduction of the intervention package in Condition 2 (one-to-one), staff Subject 1 demonstrated a mean increase of 90% over baseline level in the one-to-one session, with a simultaneous mean increase of 60% over baseline level occurring in the untrained transition session. Implementation of the intervention package in
Condition 3 (transition) resulted in a mean increase of 73% over baseline level in the transition session. Withdrawal of the intervention package in Baseline 2 resulted in mean decreases of 4% and 20% under levels noted in Condition 3 for group and one-to-one, respectively.

Figure 3 represents the percent of 10-second intervals scored physical guidance and differential reinforcement of other behavior for staff Subject 2 graphed separately across all three conditions.

During Baseline 1, mean physical guidance scores across the three conditions were near zero. Implementation of the intervention package in Condition 1 (group) resulted in a mean increase of 67% over baseline level in the group session, with simultaneous mean increases of 19% and 26% over baseline levels occurring in the untrained one-to-one and transition sessions, respectively. Following the introduction of the intervention package in Condition 2 (one-to-one), staff Subject 2 demonstrated a mean increase of 55% over baseline level in the one-to-one session, with a simultaneous mean increase of 67% over baseline level occurring in the untrained transition session.

Implementation of the intervention package in Condition 3 (transition) resulted in a mean increase of 72% over baseline level in the transition session. Withdrawal of the intervention package in Baseline 2 resulted in mean decreases of 39% and 17% under levels noted in Condition 3 for group and one-to-one, respectively.

During Baseline 1, mean differential reinforcement of other behavior scores across the three conditions were relatively low, with a range of 4-23%. Implementation of the intervention package in Condition 1 (group) resulted in a mean increase of 34% over baseline level
Fig. 3. Percent of 10-second Intervals Scored Physical Guidance and Differential Reinforcement of Other Behavior for Subject 1 across Three Instructional Conditions.
in the group session, with simultaneous mean increases of 19% and 17%
over baseline levels occurring in the untrained one-to-one and transi­
tion sessions, respectively. Following the introduction of the inter­
vention package in Condition 2 (one-to-one), staff Subject 2 demon­
strated a mean increase of 64% over baseline level in the one-to-one
session, with a simultaneous mean increase of 44% over baseline level
occurring in the untrained transition session. Implementation of the
intervention package in Condition 3 (transition) resulted in a mean
increase of 77% over baseline level in the transition session. With­
drawl of the intervention package in Baseline 2 resulted in mean
decreases of 33% and 14% under levels noted in Condition 3 for group
and one-to-one, respectively.

Figure 4 represents the percent of 10-second intervals scored
physical guidance and differential reinforcement of other behavior for
staff Subject 3 displayed separately for all three conditions.

During Baseline 1, mean physical guidance scores for one-to-one
and transition conditions were near zero, while the group score was
noted as a mean of 52%. Implementation of the intervention package in
Condition 1 (group) resulted in a mean increase of 33% over baseline
level in the group session, with simultaneous mean increases of 61%
and 7% over baseline levels occurring in the untrained one-to-one and
transition sessions, respectively. Following the introduction of the
intervention package in Condition 2 (one-to-one), staff Subject 3
demonstrated a mean increase of 100% over baseline level in the
one-to-one session, with a simultaneous mean increase of 82% over base­
line level occurring in the untrained transition session.
Fig. 4. Percent of 10-second Intervals Scored Physical Guidance and Differential Reinforcement of Other Behavior for Subject 3 across Three Instructional Conditions.
Implementation of the intervention package in Condition 3 (transition) resulted in a mean increase of 83% over baseline level in the transition session. Withdrawal of the intervention package in Baseline 2 resulted in a mean decrease of 10% under the level noted in Condition 3 for group, with no reduction occurring in one-to-one.

During Baseline 1, mean differential reinforcement of other behavior scores across the three conditions were relatively low, reflecting a range of 7-31%. Implementation of the intervention package in Condition 1 (group) resulted in a mean increase of 37% over baseline level in the group session, with simultaneous mean decreases of 2% under baseline levels occurring in the untrained one-to-one and transition sessions, respectively. Following the introduction of the intervention package in Condition 2 (one-to-one), staff Subject 3 demonstrated a mean increase of 51% over baseline level in the one-to-one session, with a simultaneous mean increase of 1% over baseline level occurring in the untrained transition session. Implementation of the intervention package in Condition 3 (transition) resulted in a mean increase of 63% over baseline level in the transition session. Withdrawal of the intervention package in Baseline 2 resulted in mean decreases of 7% and 21% under levels noted in Condition 3 for group and one-to-one, respectively.

Table I represents the percents of 10-second intervals scored physical guidance and differential reinforcement of other behavior for each staff subject across the three conditions.
# TABLE 1

The Percents of 10-second Intervals Scored Physical Guidance and Differential Reinforcement of Other Behavior for Each Staff Subject across the Three Conditions

<table>
<thead>
<tr>
<th>Types</th>
<th>Baseline 1</th>
<th>Condition 1</th>
<th>Condition 2</th>
<th>Condition 3</th>
<th>Baseline 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>DRO 17%</td>
<td>DRO 63%</td>
<td>DRO 92%</td>
<td>DRO 99%</td>
<td>DRO 96%</td>
</tr>
<tr>
<td></td>
<td>PG 5%</td>
<td>PG 76%</td>
<td>PG 99%</td>
<td>PG 100%</td>
<td>PG 90%</td>
</tr>
<tr>
<td>One-to-one</td>
<td>DRO 0%</td>
<td>DRO 32%</td>
<td>DRO 90%</td>
<td>DRO 99%</td>
<td>DRO 80%</td>
</tr>
<tr>
<td></td>
<td>PG 0%</td>
<td>PG 50%</td>
<td>PG 90%</td>
<td>PG 98%</td>
<td>PG 80%</td>
</tr>
<tr>
<td>Transition</td>
<td>DRO 10%</td>
<td>DRO 14%</td>
<td>DRO 70%</td>
<td>DRO 83%</td>
<td>DRO --</td>
</tr>
<tr>
<td></td>
<td>PG 0%</td>
<td>PG 12%</td>
<td>PG 41%</td>
<td>PG 93%</td>
<td>PG --</td>
</tr>
<tr>
<td>Overall</td>
<td>7%</td>
<td>46%</td>
<td>90%</td>
<td>99%</td>
<td>94%</td>
</tr>
<tr>
<td>Subject 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>DRO 23%</td>
<td>DRO 57%</td>
<td>DRO 89%</td>
<td>DRO 93%</td>
<td>DRO 60%</td>
</tr>
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<td>PG 100%</td>
<td>PG 98%</td>
<td>PG 59%</td>
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<tr>
<td>One-to-one</td>
<td>DRO 7%</td>
<td>DRO 26%</td>
<td>DRO 71%</td>
<td>DRO 92%</td>
<td>DRO 78%</td>
</tr>
<tr>
<td></td>
<td>PG 5%</td>
<td>PG 24%</td>
<td>PG 60%</td>
<td>PG 100%</td>
<td>PG 83%</td>
</tr>
<tr>
<td>Transition</td>
<td>DRO 4%</td>
<td>DRO 21%</td>
<td>DRO 48%</td>
<td>DRO 81%</td>
<td>DRO --</td>
</tr>
<tr>
<td></td>
<td>PG 5%</td>
<td>PG 31%</td>
<td>PG 72%</td>
<td>PG 77%</td>
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<tr>
<td>Overall</td>
<td>18%</td>
<td>49%</td>
<td>86%</td>
<td>92%</td>
<td>64%</td>
</tr>
<tr>
<td>Subject 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>DRO 18%</td>
<td>DRO 55%</td>
<td>DRO 84%</td>
<td>DRO 99%</td>
<td>DRO 92%</td>
</tr>
<tr>
<td></td>
<td>PG 52%</td>
<td>PG 85%</td>
<td>PG 100%</td>
<td>PG 100%</td>
<td>PG 90%</td>
</tr>
<tr>
<td>One-to-one</td>
<td>DRO 31%</td>
<td>DRO 29%</td>
<td>DRO 82%</td>
<td>DRO 96%</td>
<td>DRO 75%</td>
</tr>
<tr>
<td></td>
<td>PG 0%</td>
<td>PG 61%</td>
<td>PG 100%</td>
<td>PG 100%</td>
<td>PG 100%</td>
</tr>
<tr>
<td>Transition</td>
<td>DRO 7%</td>
<td>DRO 5%</td>
<td>DRO 8%</td>
<td>DRO 70%</td>
<td>DRO --</td>
</tr>
<tr>
<td></td>
<td>PG 7%</td>
<td>PG 14%</td>
<td>PG 89%</td>
<td>PG 90%</td>
<td>PG --</td>
</tr>
<tr>
<td>Overall</td>
<td>25%</td>
<td>45%</td>
<td>84%</td>
<td>94%</td>
<td>86%</td>
</tr>
</tbody>
</table>

DRO - Differential reinforcement of other behavior  
PG - Physical guidance  

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Behavior Management - Overall Rates (Pupils)

Figure 5 represents the overall rates of self-stimulatory behavior of the three pupil subjects across all three instructional conditions. The rates of target behaviors declined substantially for all three pupils. Pupil 1 decreased from a baseline mean of 62% to a mean of 12% following the introduction of the intervention package in the final condition. Pupil 2's rates declined steadily with each additional intervention phase, with a baseline mean of 44% to a mean of 12% following the final intervention. Pupil 3's rates also decreased from a baseline mean of 13% to a mean of 2% following the introduction of the intervention package in the third condition. During Baseline 2, the rates of self-stimulatory behavior decreased even further to near zero for all three subjects.

Behavior Management - Individual Rates (Pupils)

Figure 6 represents the rate of target behavior for Pupil 1 in each of the three instructional conditions. Following the introduction of the intervention package in Condition 1 (group), the subject's rate of self-stimulatory behavior decreased from a baseline mean of 43% to 9% in the group session, with a simultaneous mean decrease of 73% under baseline level occurring in the untrained one-to-one condition. However, the rate of self-stimulatory behavior in the transition session increased by 1% over baseline level following intervention in the initial condition. Implementation of the treatment package in Condition 2 (one-to-one) resulted in a mean decrease of 90% under baseline
Fig. 5. Overall Combined Percent of Intervals Scored Self-stimulation for Three Pupil Subjects.

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Fig. 6. Percent of 10-second Intervals Scored Self-stimulation for Pupil 1 across Three Instructional Conditions.
level in the one-to-one session, with a simultaneous mean decrease of 20% under baseline level occurring in the untrained transition condition. Intervention in Condition 3 (transition) resulted in a mean decrease of 40% under baseline level in the transition session. During Baseline 2, rates of self-stimulatory behavior declined even further for Pupil 1, with mean decreases of 7% and 3% under levels noted in Condition 3 for group and one-to-one, respectively.

Figure 7 represents the rate of target behavior for Pupil 2 in each of the three instructional conditions. Following the introduction of the intervention package in Condition 1 (group), the subject's rate of self-stimulatory behavior decreased from a baseline mean of 30% to a mean of 7% in the group session, with a simultaneous mean decrease of 65% under baseline level occurring in the untrained one-to-one condition. However, the rate of self-stimulatory behavior in the transition condition increased by 5% over baseline level following intervention in the initial condition. Implementation of the treatment package in Condition 2 (one-to-one) resulted in a mean decrease of 67% under baseline level in the one-to-one session, with a simultaneous mean decrease of 1% occurring in the untrained transition condition from Phase 1 to Phase 2. Implementation of the intervention package in the third condition (transition) resulted in a mean decrease of 36% under baseline level in the transition session. During Baseline 2, the rate of self-stimulatory behavior reflected a mean decrease of 3% under the level noted in Condition 3, while a mean increase of 5% occurred in the one-to-one condition.

Figure 8 represents the rate of target behavior for Pupil 3 in
Fig. 7. Percent of 10-second Intervals Scored Self-stimulation for Pupil 2 across Three Instructional Conditions.
Fig. 8. Percent of 10-second Intervals Scored
Self-stimulation for Pupil 3 across Three Instructional Conditions.
each of the three instructional conditions. Following the introduction of the intervention package in Condition 1 (group), the subject's rate of self-stimulatory behavior increased from a baseline mean of 4% to a mean of 5% in the group session, with simultaneous mean decreases of 6% and 4% under baseline levels occurring in the untrained one-to-one and transition sessions, respectively. Implementation of the treatment package in Condition 2 (one-to-one) resulted in a mean decrease of 6% under baseline level in the one-to-one session. The rate of self-stimulatory behavior in the transition condition increased slightly from the first introduction of the treatment package to the second. Implementation of the intervention package in the third condition (transition) resulted in a mean decrease of 5% under baseline level in the transition session. During Baseline 2, a mean increase of 2% over the level noted in Condition 3 occurred in the group session, while a mean decrease of .4% resulted in the one-to-one session.

Table II represents the percents of 10-second intervals scored self-stimulation for each pupil subject across the three conditions.

**Academic Pupil Behaviors**

Table III represents the mean scores of correct task behavior (in group and one-to-one sessions) for each subject across three conditions. Staff Subjects 1 and 3 demonstrated consistent mean scores across the three conditions. The performance of staff Subject 2 declined following the initial introduction of the intervention package and did not begin to improve until withdrawal of the package as indicated by the table.
TABLE 2

The Percents of 10-second Intervals Scored Self-stimulation for Each Pupil Subject across the Three Conditions

<table>
<thead>
<tr>
<th>Types</th>
<th>Baseline 1</th>
<th>Condition 1</th>
<th>Condition 2</th>
<th>Condition 3</th>
<th>Baseline 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pupil 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>43%</td>
<td>9%</td>
<td>10%</td>
<td>10%</td>
<td>3%</td>
</tr>
<tr>
<td>One-to-one</td>
<td>99%</td>
<td>26%</td>
<td>9%</td>
<td>9%</td>
<td>6%</td>
</tr>
<tr>
<td>Transition</td>
<td>81%</td>
<td>82%</td>
<td>61%</td>
<td>41%</td>
<td>-</td>
</tr>
<tr>
<td>OVERALL</td>
<td>62%</td>
<td>31%</td>
<td>19%</td>
<td>12%</td>
<td>4%</td>
</tr>
<tr>
<td><strong>Pupil 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>30%</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
<td>2%</td>
</tr>
<tr>
<td>One-to-one</td>
<td>69%</td>
<td>4%</td>
<td>2%</td>
<td>3%</td>
<td>8%</td>
</tr>
<tr>
<td>Transition</td>
<td>78%</td>
<td>83%</td>
<td>82%</td>
<td>42%</td>
<td>-</td>
</tr>
<tr>
<td>OVERALL</td>
<td>44%</td>
<td>22%</td>
<td>20%</td>
<td>12%</td>
<td>3%</td>
</tr>
<tr>
<td><strong>Pupil 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>4%</td>
<td>5%</td>
<td>1%</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>One-to-one</td>
<td>7%</td>
<td>1%</td>
<td>1%</td>
<td>.4%</td>
<td>0%</td>
</tr>
<tr>
<td>Transition</td>
<td>12%</td>
<td>8%</td>
<td>11%</td>
<td>7%</td>
<td>-</td>
</tr>
<tr>
<td>OVERALL</td>
<td>13%</td>
<td>3%</td>
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<td>2%</td>
<td>.6%</td>
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<td>Condition 3</td>
<td>80%</td>
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<td>Baseline 2</td>
<td>73%</td>
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<td>77%</td>
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<td>Condition 3</td>
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<tr>
<td>Baseline 2</td>
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<tbody>
<tr>
<td>Baseline 1</td>
<td>75%</td>
<td>Baseline 1</td>
</tr>
<tr>
<td>Condition 1</td>
<td>67%</td>
<td>Condition 1</td>
</tr>
<tr>
<td>Condition 2</td>
<td>65%</td>
<td>Condition 2</td>
</tr>
<tr>
<td>Condition 3</td>
<td>70%</td>
<td>Condition 3</td>
</tr>
<tr>
<td>Baseline 2</td>
<td>58%</td>
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CHAPTER IV
DISCUSSION

The modification of staff behavior has been a domain of an increasing amount of research in the past decade. In addition, the significance of staff behavior as an influential factor in determining client behavior has gained increasing prominence since the work of Ayllon and Michael (1959) which demonstrated that the mental health aide was an extremely valuable change agent in the management of the client. The present study also recognized the relevance of staff behavior to client behavior and, therefore, attempted to conduct a thorough analysis of the relationship between the two.

This investigation clearly demonstrated that the application of an intervention package consisting of written rules, daily meetings between the staff member and the supervisor to discuss performance in experimental sessions, frequency counts of the number of rule violations, public posting of performance data, and the allotment of contingent break time was effective in increasing and maintaining behavior management skills applicable to the suppression of self-stimulatory behavior in retardates.

The synthesis of contingencies seemed to be a crucial factor in the rapid acquisition of the effective behavior management skills and an imperative strategy for ensuring the consistent and accurate application of these techniques. Elimination of any single component of the intervention package would most likely have lessened the potency
of its implementation as indicated by the return to baseline; yet, this is subject to empirical investigation. In an attempt to separate the effects of the confounding variables inherent in a multifaceted feedback procedure, Greene, Willis, Levy, and Bailey (1978) compared immediate supervisor verbal feedback with feedback plus public posting on program implementation and client outcome measures. While the former produced unsubstantive and unstable change, feedback/public posting produced substantial changes for well over two months. Iwata, Bailey, Brown, Foshee, and Alpern (1976) confirmed the effectiveness of contingent break time or selected days off as additional inexpensive reinforcement procedures which could be easily incorporated into a comprehensive intervention package for maintaining appropriate staff behavior.

While the behavior of the retarded client has been one of the most frequently measured variables in applied behavior analysis (Kazdin, 1975), few studies of program implementation by staff have provided measures of client performance (Gardner, 1972; Kreitner, Reif, & Morris, 1977). The present study provided these data. The measures of client impact devised to evaluate the adequacy of a staff implemented program yielded fundamental evidence that staff can indeed be trained and managed to implement programs effectively.

This study included two measures of client impact. First, the degree of change reflected in the rate of self-stimulatory behavior; second, a measure of long-term client gains in the area of academic performance. Collectively, these measures revealed the effect of the intervention package on the quality of program implementation. The
credence of the demonstration is supported by the fact that self-stimulatory behavior declined substantially with each introduction of the training/management package into the three different instructional conditions. The academic performance of Pupils 1 and 3 remained consistent throughout the study. However, the performance of Pupil 2 declined dramatically following the initial intervention and remained at a low level until the package was withdrawn in Baseline 2, where the pupil's task performance began to improve. The sharp decline may have resulted from the tutor's new responsibility of consequating maladaptive behaviors which occurred at a rather high rate with Pupil 2. Attention may have been diverted from improving task acquisition and directed to the suppression of self-stimulation, which was not typical during baseline. In addition, Pupil 2 exhibited signs of frustration in the form of increased attempts to self-stimulate and inappropriate vocalizations upon discontinuation of his self-stimulatory behaviors which may have also influenced his task performance.

The motivation behind this investigation originated from a need to expand and improve on an earlier experiment which addressed similar issues of staff training, behavior management, and generalization of the two (Foster, 1982). The intent was to utilize a linear research approach to thoroughly analyze the complex dimensions involved with staff training/management and the suppression of self-stimulatory behavior. Too often, single unrelated research endeavors are conducted yielding only broad and ambiguous conclusions which are of limited value in the applied setting.
Foster (1982) employed a multiple baseline design across instructional conditions to assess the effects of an intervention package on the behavior management skills of tutors in suppressing the stereotypic behavior of retarded individuals. This was essentially the purpose of the present study as well. The major difference between the two experiments was the sequence in which the intervention package was introduced in the three instructional conditions (the first, transition, group, one-to-one; the latter, group, one-to-one, transition). This component analysis provided a means for determining the most efficient and economical sequence for training staff to deal effectively with self-stimulatory behaviors across different conditions.

The findings of the initial investigation suggest that the intervention package produced direct changes in behavior management skills; yet, little to no transfer effects. As previously established, the present study yielded more successful results in that both direct and transferred changes occurred in behavior management skills. Although both studies resulted in a substantial decrease in self-stimulatory behavior, the variation in staff outcomes may have been due to any one of the many methodological differences which existed between the two experiments. The use of public posting and the allotment of contingent break time may have strengthened the impact of the intervention package employed in the current study; whereas, the initial investigation relied on rules and feedback to improve program implementation.

In addition, each staff subject in this experiment had the opportunity to sit in the observation room during an actual experimental period and observe one of the other subjects conducting a group session following
the initial introduction of the intervention package. This opportunity undoubtedly increased their awareness of the control exerted by the observational rules and the recording methods.

Another significant variable was the use of a more effective sequence of intervention in this study (i.e., group, one-to-one, transition) than that which was employed by Foster (1982). The group condition possessed several stimulus characteristics common to the one-to-one and transition conditions (i.e., the structure of the one-to-one and the number of pupils typically encountered in transition [3]). Therefore, by initially introducing the intervention package in the group session, the likelihood of transfer effects to the other conditions was increased. However, although transfer of both behavior management skills and reduced maladaptive behavior did occur, the degree was not sufficient to meet the ultimate goals of effective staff training/management. The lack of transfer of stimulus control may indicate that the knowledge of the rules was not adequate to modify staff behavior across the three conditions. A more probable explanation may be that without the consistent application of the contingencies (i.e., posting of performance scores, verbal feedback, contingent break time) in all three conditions, the staff were less likely to accurately implement the behavior management techniques in those situations free of consequences. Maximum impact on staff skills and pupil behavior did not result until the intervention package was introduced in each condition. Therefore, evidence suggests that staff training/management is most effective when applied across all three conditions.

An additional methodological concern which warrants attention is
that of the high degree of uniformity which existed between the staff subjects and the pupil subjects. While staff Subject 1 reflected the most substantial increase in effective application of behavior management techniques (7% to 99%) as a result of having the lowest baseline level, the intervention package was a powerful change agent for all of the staff subjects. The differences in outcome results, despite variations in baseline levels, were quite minimal, indicating the effectiveness of robustly applying the contingencies of the intervention package. Data indicate that both direct and transferred effects were quite consistent across the three subjects. This may have been a result of their similar histories of rule-governed behavior which were evident prior to the initiation of the investigation. In addition, they had all established positive rapports with their supervisor (in this case, the investigator) and were very receptive to her suggestions. The staff subjects seemed comfortable with their working environment and willing to ask questions when unsure about certain procedures. They frequently displayed signs of competitiveness in terms of receiving the highest behavior management scores. This may have also been a contributing factor to the high rate of appropriate applications which occurred. For these reasons, the present study had a slight advantage over the Foster (1982) investigation in that the subjects of Experiment I seemed less apt to follow rules consistently, tended to resent tight supervision, and were more easily distracted.

A great deal of similarity existed between the data collected on each pupil subject as well. While Pupil 1 demonstrated the most dramatic decline in the overall percent of self-stimulation (62% to 4%) as
a result of having the highest baseline rate, the applied behavior management techniques were effective across both moderate (Subject 2, 44% to 3%) and low (Subject 3, 13% to 6%) rates of self-stimulation. Evidence suggests that the three subjects were equally responsive to the applied behavior management techniques, although their performance was quite diverse in other areas of educational development unrelated to the study.

The variability in correct application of behavior management techniques in transition is in need of attention. It is important to recall the rule defining the pupil's "vital zone" as a 5-foot radius in which the staff became responsible for applying the necessary behavior management techniques. While it was often the case that a staff subject entered a pupil's "zone" only once during an observation period, scores of 0% or 100% were typical depending on the accuracy of the contingencies delivered. It was also possible to entirely avoid entry into the "vital zone" by attending to activities at opposite locations in the classroom. Staff subjects were given a verbal warning if this seemed to be occurring.

Although the staff's percent of correct behavior management began to decline in Baseline 2, a complete return to the level noted in Baseline 1 did not occur. Evidence suggests that if baseline were to be extended, all staff subject scores would have declined substantially.

The future research possibilities in this area are vast. The complexities of both staff training/management and the suppression of self-stimulatory behavior warrant extensive exploration in the form of comprehensive lines of research. A component analysis of the intervention

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package employed in this study might provide a means for determining the most potent tactics to be used when training and managing staff to implement specific programs. There are essentially two dimensions involved in the modification of staff behavior: training and management (Miller & Lewin, 1980). While training connotes the teaching of behaviors not presently in the aide's repertoire through instruction, modeling, rules, or guidelines, management is concerned with the increase and maintenance of behaviors already in the aide's repertoire with the use of such tactics as posted feedback, money, and contingent break time. Unfortunately, the two are typically considered dichotomous areas. In general, the literature has dealt with the acquisition of behavior; yet, little attention has been directed to the maintenance of gains after training has been completed. It is doubtful that the behaviors of newly trained staff will continue unless reinforcement contingencies are programmed. The present study focused on a combination of training and management techniques in a quest to establish new staff behaviors, strengthen those previously acquired, and maintain both types. However, further research, with this philosophy in mind, is imperative if a powerful and applicable body of knowledge is to be developed in the area of staff training/management.

When considering the large scheme of things, mental health delivery systems are in a double-jeopardy situation. For decades, they have often operated under nonexisting or poorly defined goals on a institutional, community, and client level. Therefore, it is difficult for such facilities to differentially reinforce staff with further goals in the most cost-efficient manner (Miller & Lewin, 1980). Human services
are allotted a fixed amount of funds by the government in terms of their estimated functioning expenses, often a very minimal amount. The contingencies under which these institutions are operating typically reduce the incentive for specifying goals, thus decreasing the possibility of arranging reinforcing contingencies for staff. It is essential that research endeavors are intensively continued to develop high potency, cost-effective methods for training staff to implement effective behavior change programs. Further sequence manipulations of the conditions described in this study (i.e., one-to-one, transition, group), although just the tip of the iceberg, would be a step in the right direction.
BIBLIOGRAPHY


