A Staff Training Program to Change Target Behaviors: Acquisition, Transfer, and Effects of Behavior Management Training with Paraprofessionals

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A STAFF TRAINING PROGRAM TO CHANGE TARGET BEHAVIORS: ACQUISITION, TRANSFER, AND EFFECTS OF BEHAVIOR MANAGEMENT TRAINING WITH PARAPROFESSIONALS

by

Patricia D. Foster

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A STAFF TRAINING PROGRAM TO CHANGE TARGET BEHAVIORS: ACQUISITION, TRANSFER, AND EFFECTS OF BEHAVIOR MANAGEMENT TRAINING WITH PARAPROFESSIONALS

Patricia D. Foster, M.A.
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This study assessed the direct and transferred effects of a training package consisting of written rules, modeling, role playing, and vocal verbal feedback on the behavior management skills of three paraprofessional staff and evaluated the resulting impact of these techniques on the maladaptive behaviors of severely multiply impaired adults. A multiple baseline across three instructional situation types (a transition period in which staff were not assigned to a particular pupil, a group instructional session in which one staff was assigned to three pupils, and an individual instructional session in which each staff was assigned to one pupil) was utilized. The rate of self-stimulatory behavior of three multiply impaired pupils was measured simultaneously to evaluate the effectiveness of the behavior management techniques. The results demonstrated that the behavior management techniques, when applied consistently, resulted in substantial reduction in the rate of self-stimulation for each of the three multiply impaired pupils.
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Patricia D. Foster
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CHAPTER I

INTRODUCTION

In spite of a large body of research addressing staff training techniques for example (Adams, Tallon, & Rimell, 1980; Gardner, 1972) and an extensive body of research relating to the treatment of stereotypic behaviors of impaired populations for example (Lovaas, Litrownik, & Mann, 1971; Mulhern & Baumeister, 1969), no comprehensive synthesis of these areas has been accomplished. Many procedures used to control stereotyped behaviors have failed to generalize to novel situations (Lovaas & Simmons, 1969; Rollings & Baumeister, 1977). It is, therefore, essential that staff who encounter stereotypic behaviors be trained with an efficient and effective procedure to manage these behaviors across various situations.

Stereotypic behaviors frequently observed in retarded individuals may be classified according to three basic operants:

1. Those maintained by extrinsic reinforcement, such as attention (Lovaas & Simmons, 1969).

2. Those maintained by a decrease in aversive stimulation, such as escape.


The topographies vary and often include head hitting, finger and hand manipulation, rocking, and head weaving.

Various treatment techniques have proven effective at reducing rates of self-stimulatory behaviors. Overcorrection (Foxx & Azrin, 1973) has been demonstrated to simultaneously decrease collateral
nontarget, inappropriate behaviors (Epstein, Doke, Sajawaj, Sorrell, & Rimmer, 1974). Differential reinforcement of other behavior has often been used effectively in conjunction with punishment procedures; however, the development of superstitious behaviors (deVillers, 1977) may result. Shock techniques have been employed to decrease a variety of inappropriate behaviors; however, consent is often difficult to obtain, and a variety of undesirable side effects may result (Hutchinson, 1977).

In recent years, the training of educational and mental health staff has received increasing attention. Numerous methods have successfully been employed in staff training with modeling and role playing (Adams et al., 1972) among the most popular. Two critical aspects are frequently omitted from training research: the extent to which skills generalize to untrained situations and the impact of staff training on the behavior of pupils or clients. Without these data, it is impossible to evaluate the practical effectiveness of any training program. Greene, Willis, Levy, and Bailey (1978) analyzed one of these aspects, the effects of a staff implemented toilet training program and a physical therapy program on mentally retarded clients. Public posting and feedback increased staff training interactions with clients, resulting in substantial gains in client outcome measures. Krumhus and Malott (1980) evaluated the effects of modeling and feedback on training tutors to use descriptive social reinforcement with clients enrolled in a remedial education program. Although the procedure appeared effective in training tutors, it was not possible to determine whether or not the tutors were more effective in teaching clients as a result of the training program.
The purpose of the present investigation was to evaluate a training package devised to teach behavior management skills to paraprofessional staff and to determine the extent of skill transfer across various instructional settings. The specific skills trained included physical guidance to discontinue stereotypic behaviors believed to be maintained by response produced stimulation and differential reinforcement of incompatible behaviors. Measures were included to evaluate the impact of staff training on the rates of self-stimulation.
CHAPTER II

METHOD

The present investigation employed six subjects, three of whom were part-time paraprofessionals in a classroom for the severely multiply impaired. Each subject was observed to exhibit inconsistent and ineffective behavior management repertoires. The remaining three subjects were severely multiply impaired pupils who exhibited repetitive self-stimulatory behaviors at a rate sufficient to substantially interfere with instruction.

Staff

S1 was a 21-year-old college senior majoring in social work. Prior to the present study, she had been employed at the setting for five months and had accumulated 75 hours of classroom experience. She had no prior exposure to behavior modification and no prior experience working with a severely multiply impaired population. S2 was an 18-year-old female with a high school diploma. Prior to the present study, she had been employed at the setting for eight months, having accumulated 250 hours of classroom experience. She had received no previous training in behavior modification nor had she had any previous experience with the severely multiply impaired. S3 was a 23-year-old college graduate. He had received a Bachelor of Science degree with a major in biology. He had been employed at the setting for seven months prior to the present investigation and had
accumulated 200 hours of experience working with severely multiply impaired pupils. He had no previous exposure to behavior modification.

Pupils

P1 was a 23-year-old female diagnosed as Down's Syndrome. She was institutionalized at one year of age and had been attending the current program for five years. She was essentially untestable on standard intelligence tests, indicating her IQ to be at least 4.5 standard deviations below the mean. Her social age as estimated by the Vineland Social Maturity Scale was reported to be approximately 8 months. She had no expressive or receptive language but responded with head orientation to auditory stimulation and was able to track objects. Although some rudimentary walking skills were present, she was functionally nonambulatory. Gross motor coordination was well developed; she was able to crawl, roll over, and manipulate objects in her environment.

P2 was a 22-year-old severely multiply impaired female diagnosed as encephalopathic. She was institutionalized as an infant and had been attending the current program for four years. She was untestable on standard intelligence scales; her social age was estimated to be 7.5 months on the Vineland Social Maturity Scale. She had no expressive or receptive language and responded inconsistently to auditory stimulation. She was nonambulatory although able to bear weight with assistance. Some self-help skills were exhibited; she was able to feed herself and was toilet conditioned at 60% accuracy. She exhibited a variety of maladaptive behaviors which had not only hindered
educational development but had resulted in physical abnormalities. Repetitive hand movements to the head had caused the formation of bald spots. Hand sucking had led to an enlargement and protrusion of the lower lip, in addition to excessive drooling. Tantrums, characterized by an increased rate of hand-to-body stimulation, rocking, and loud vocal behavior of sufficient volume to disrupt the classroom, were frequent.

P3 was an 18-year-old female who had been institutionalized at age 10. Organic brain syndrome was thought to be caused by a severe ear infection and high fever at age two. She had been enrolled in the current program for five years prior to the present investigation. She was untestable on standard intelligence scales; her social age was estimated by the Vineland Social Maturity Scale to be 3 months. She was nonambulatory and exhibited no self-help skills. She did not respond to auditory stimulation and did not manipulate objects in her environment.

Experimental Design

The design utilized was a multiple baseline (Baer, Wolf, & Risley, 1968) across instructional situation types. After collecting baseline data on staff and pupil target behaviors, the staff was introduced to a behavior management training package. After an initial training session, feedback on the application of behavior management techniques was provided to staff on a daily basis. Feedback was provided during the transition first, with baseline conditions remaining during the group and individual sessions. When responding failed
to stabilize and to transfer to untrained sessions, feedback was provided during a second instructional situation, the group session. Six school days later, when little or no transfer to the individual session occurred, feedback was delivered during the individual session.

The instructional situations were defined as follows:

1. **Transition period**, in which staff were not assigned to a particular pupil or task but were responsible for consequating a pupil upon entering a 10-foot radius around the pupil. If the pupil was engaging in self-stimulatory behavior, the staff was required to remain in the area for 15 seconds following the most recent delivery of a prompt to discontinue the behavior. D. R. I. should have been provided before leaving a pupil's area.

2. **Group session**, in which each staff conducted an instruction following task with the three pupil subjects. One at a time, the staff would present a small wooden block to the pupil and give the verbal stimulus "Touch it."

3. **Individual session**, in which each staff conducted the instruction following session described above with one of the three pupils. S1 was assigned to P1, S2 was assigned to P2, and S3 was assigned to P3.

**Setting and Observation**

The study was conducted in a large open classroom in which there were 10 severely multiply impaired pupils and seven part-time tutors. Aside from the experimental sessions being conducted, the remaining tutors and pupils were engaged in instructional activities throughout the room. Adjacent to the classroom was an observation room enclosed with one-way mirrors. Three observers were positioned in the observation room during group and transition periods, with each responsible for observing one pupil. One observer was utilized for individual sessions. A partial interval observation system (Powell, Martindale, & Kulp, 1975) was used throughout the study. Continuous 10-second
intervals were divided into 7.5-second observation periods, followed by 2.5-second recording periods, with changeovers indicated by means of a cassette tape. At the end of every five cycles, a 10-second rest was provided.

Target Behaviors

Staff

The behavior of interest for staff consisted of effectively using two-handed physical guidance to discontinue self-stimulatory behaviors as they occurred in pupils. Differential presentation of food and tactile stimulation were provided following the occurrence of behaviors incompatible with the target maladaptive behaviors; specifically, if the pupil was sitting quietly with hands in lap or on table top or if pupil correctly responded to the verbal stimulus "touch it" while in a group or individual session.

Pupils

The behavior of interest was individually defined for each pupil according to topography of self-stimulation exhibited.

P1: Entire hand or any part of the hand in mouth or on lips.

P2: Any contact of one or both hands to the hair, mouth, or lips; repetitive finger movements of one hand or both hands together.

P3: Any contact of one or both hands to the hair; repetitive manipulation of clothing; repetitive finger movements of one or both hands.
Procedures

Baseline

During the baseline condition, nothing in the classroom environment was changed; and staff were unaware they were being observed. Both staff and pupils were observed simultaneously in each of the three situations described above. Data were recorded on pupil target behaviors, correct application by staff of physical guidance to discontinue pupil self-stimulation, and differential reinforcement of incompatible behaviors. Generally speaking, staff were observed to consequeate pupil maladaptive behaviors at a low rate, as well as inadvertently reinforcing these behaviors through increased physical contact and verbal interaction. Intervention involved the following order of implementation: transition; group session; individual session.

Phase I: Training Session and Transition Implementation

A one-half hour behavior management training session was conducted by the experimenter with all seven classroom staff following the completion of baseline. Written rules specifying correct consequences for self-stimulatory behaviors and differential reinforcement of incompatible behaviors were given to each staff member. These rules included:

1. Tutor applies physical guidance to discontinue pupil target behaviors within three seconds of its onset.

2. Tutor must use two hands to prompt both hands of pupil to an appropriate position (into lap or onto table top).

3. Physical contact between staff and pupil should not exceed three continuous seconds.
4. During transition periods, staff is responsible for consequating pupil behaviors upon entering a 10-foot radius around the pupil. Staff must remain in pupil's area for at least 15 seconds following the most recent delivery of physical guidance to ensure behavior does not reoccur.

5. D. R. I.: Staff should present edible or tactile consequence when pupil's hands are in lap or on table top; or when pupil responds correctly during an instructional session and is not exhibiting self-stimulatory behaviors.

As part of the package, examples and nonexamples of how the rules were to be applied were demonstrated by the experimenter, following which the staff engaged in 10 minutes of role playing. Staff were paired off and alternated between acting as pupil and staff. It was stressed that the consequences should be consistently applied whenever any pupil was observed to engage in any stereotypic behavior. Differential reinforcement of incompatible behavior was to be applied whenever staff observed a pupil engaging in any behavior which was incompatible with the stereotypic behaviors frequently observed, for example, sitting quietly with hands in lap.

Feedback was then provided daily following the transition period. Violations of rules were specified, with praise being given for appropriate consequation. Baseline data continued to be collected in group and individual sessions.

Phase II: Group Implementation

Feedback on correct application and violation of rules was provided following each group session and continued in transition.

Phase III: Individual Session Implementation

Feedback was provided following each individual session, group
session, and transition period.

Interobserver Agreement

Independent observations were performed at least once during each experimental phase on each observer, for a total of 33 of the 200 sessions. Interobserver agreement for each interval was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. The range of interobserver agreement for staff behavior was 88-100%, with a mean agreement being 97%. The range of interobserver agreement for pupil behavior was 86-100%, with the mean agreement being 98%.
CHAPTER III

RESULTS

Figure 1 represents the overall behavior management scores for each of the staff subjects as indicated by the percent of 10-second intervals in which correct consequation was scored during the transition period, the group session, and the individual session. During the baseline condition, all staff demonstrated near zero percentages of behavior management. Following the training session with feedback provided during the transition period (Phase I), Subjects 2 and 3 showed a slight increase in mean scores (a 9% increase occurred across the three settings for Subject 2 and a 6% increase occurred across the three settings for Subject 3). The mean responding of Subject 1 remained unchanged. The greatest mean increase for all subjects occurred during Phase II, feedback during transition and group. Subject 1 increased 31% over baseline level; Subject 2 increased an additional 30%, for a 39% increase over baseline level; Subject 3 increased an additional 21%, for a 29% increase over baseline. Scores increased slightly during Phase III, feedback provided during transition period, group session, and individual session. Subject 1 demonstrated an additional mean increase of 7%; Subject 2 demonstrated an additional mean increase of 13%; Subject 3 did not participate in Phase III due to voluntary termination of employment.

Figure 2 represents the percentage of behavior management (ratio of correct physical guidance per opportunity plus the ratio of correct
Fig. 1. The overall combined percent of intervals with correct behavior management scored for three staff subjects.

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Fig. 2. The percent of intervals with correct behavior management scored across three instructional sessions for staff Subject 1.
differential reinforcement of incompatible behavior per opportunity) for staff Subject 1 in each of the three conditions. Baseline percentages during transition were near 0%, the mean percentage during group was 6%, and a mean percentage of 21% was scored during the individual session. Phase I resulted in a mean increase of 38% during the transition period; however, responding was highly unstable, ranging from 0-100%. With feedback being given only during the transition period, a 2% mean increase occurred during the group session; and a 9% decrease occurred during the individual session. Phase II resulted in an additional 26% mean increase during the group session. Responding remained highly unstable during the transition period, with an additional 10% mean increase over Phase II. Responding during the individual session showed a slight increase over Phase I, returning to its baseline level. Due to pupil absence, Phase III was in effect for only two sessions with Staff 1. An additional increase of 35% occurred during the individual session, resulting in a 36% increase over baseline level. Responding continued to increase during the transition period and group session. An additional increase of 3% occurred during the transition period, with responding remaining unstable, ranging from 25-100%. The mean score during the group condition increased by 10% to a high of 44%.

Figure 3 represents the percentage of behavior management for staff Subject 2 in each of the three conditions. Baseline percentages were near zero during the transition period, the group session, and the individual session. Phase I resulted in a 23% mean increase over baseline level during the transition period. Responding during
Fig. 3. The percent of intervals with correct behavior management scored across three instructional sessions for staff Subject 2.
transition was unstable, ranging from 0-57%. Phase I was accompanied by slight increases during the untrained sessions, a 10% increase during the group session, and a 4.5% increase during the individual session. Phase II resulted in an additional 36% increase in mean responding during the group session. Responding remained unstable during the transition period, with an increase in mean responding by 22% over Phase I. Mean responding during the untrained individual session increased by 5%, with a slight upward trend in the data. Phase III resulted in an additional 27% increase in mean responding during the individual session, an additional 11% increase during group, and a 15% decrease in mean responding during the transition period.

Figure 4 represents the percentage of behavior management for staff Subject 3. Baseline responding during the transition and group sessions was low—2% and 5%. Responding during the individual session yielded a mean score of 30%. Phase II resulted in little or no change across the three conditions. There was a mean increase during the transition period of 5%, with the range being 3-11%, compared with the baseline range of 0-5%. Phase II had a greater impact on responding during both the transition period and group session but not during the individual session. The mean score during group session increased by 31% over baseline, with an additional increase of 19% during transition. No change resulted during the individual session. Subject 3 was not exposed to Phase III.

The rates of self-stimulation in each of the three pupils was substantially reduced from baseline levels.

Figure 5 represents the overall percentage of 10-seconds in
Fig. 4. The percent of intervals with correct behavior management scored across three instructional sessions for staff Subject 3.
Fig. 5. The overall combined percent of intervals with self-stimulation scored for three pupil subjects.
which self-stimulation occurred during transition, group, and the individual session. The rates of target behaviors declined substantially for all three pupils. Pupil 1 declined from a baseline mean of 37% to a mean of 3% following consistent application of the behavior management techniques across all conditions. Decreases in Pupil 2's rate of self-stimulation occurred consistently across each phase, from a baseline mean of 88% to a mean of 12% during Phase III. Pupil 3's rate declined from a baseline mean of 19% to a mean of 9% during Phase I, the rate remained constant during Phase II, and then declined to a mean of 1% during Phase III.

Figure 6 represents the rate of target behaviors for Pupil 1 in each of the three instructional conditions. During Phase I, the rate of target behavior declined from a baseline mean of 76% to a mean of 47%. This rate remained constant until Phase III had been implemented and then declined to a mean of 2%. The initiation of Phase I did not sufficiently affect responding during the group session. However, following the initiation of Phase II, during the group session, the rate declined from a baseline mean of 38% to a mean of 18%. This rate continued to decline to a mean of 2% during Phase III. Responding during the individual session decreased slightly from a baseline mean of 33% to a mean of 20% following initiation of Phase I. This rate remained constant until Phase III was implemented during which responding declined to a mean of 4%.

Figure 7 represents the percent of 10-second intervals in which self-stimulation was observed across the transition period, group, and individual session. Baseline levels were high across each condition:
Fig. 6. The percent of intervals scored with occurrence of self-stimulation for Pupil 1 across three instructional sessions.
Fig. 7. The percent of intervals scored with occurrence of self-stimulation for Pupil 2 across three instructional sessions.

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a mean of 73% during transition; a mean of 89% during group session; and a mean of 94% during the individual session. During Phase I, the rate of self-stimulation declined substantially in each condition. Responding during transition declined from the baseline mean of 73% to a mean of 33%; during the group session, a decline in responding from a mean of 89% to a mean of 63% was observed; and responding during the individual session declined from a mean of 94% to a mean of 34%. During Phase II, the mean rate of responding during the transition period remained unchanged at 33%. A sharp decline to a mean of 20% in responding was observed in the group session during Phase III. Responding during the individual session continued to decline to a mean of 23%. During Phase III, responding across all conditions continued to decline: during transition, the mean rate of responding was 19%; during group, the mean rate of responding was 90%; and during the individual session, the mean rate of responding was 9%.

Figure 8 represents Pupil 3's responding across each experimental condition. Responding during the transition period declined from a rate of 62% to a mean rate of 34%. Responding in this condition remained stable until completion of Phase III, during which responding declined to a mean of less than 1%. Responding during the group condition declined slightly following the first intervention from a baseline mean of 15% to a mean of 9%. This rate remained constant following the implementation of Phase II, which occurred during the group condition. Following the final intervention, the mean rate was again less than 1%. Responding during the individual condition was relatively unchanged across the study. Following the initial
Fig. 8. The percent of intervals scored with occurrence of self-stimulation for Pupil 3 across three instructional sessions.
intervention, the rate declined from a baseline mean of 12% to a mean of 3%. Following Phase II, the mean rate of responding increased and was consistent with the baseline rate. An increasing trend was observed during Phase II. Phase III was not implemented with the pupil-staff pair due to the resignation of staff Subject 3.
CHAPTER IV

DISCUSSION

The results of this study demonstrate that when given rules and provided with specific feedback concerning the application of these rules, the behavior management skills of a paraprofessional staff can be greatly increased; and when staff consistently applied these skills to the occurrence of self-stimulatory behaviors of the mentally retarded, a significant decrease of self-stimulation resulted. Maximum impact on both the staff's skills and the pupils' behavior did not result until training and feedback were provided in each of the three conditions. This lack of transfer of stimulus control indicates that knowledge of rules was not sufficient to modify the staff's behavior. In order for application of these rules to result across a variety of conditions, it appears from the results that training and feedback must be provided in each of the conditions.

The fact that only moderate rates were achieved by all staff while the rate of self-stimulation decreased to a much greater extent may be a result of an overly strict definition of appropriate punishment. Close approximations of correct consequences (such as prompting only one of the pupil's hands down rather than both or failing to discontinue behaviors within three seconds of its onset) may have been sufficient to decrease pupil behaviors.

In analyzing the variable responding which occurred during the transition period, one must recall the definition of pupil area.
There were many instances in which a staff member would enter a pupil's area only once during an observation period. Depending upon whether or not one consequence was delivered, a score of 100% or 0% was recorded. It was also possible for staff to avoid the contingencies entirely by not entering pupil areas. During this condition, social reinforcement continued to be available to staff subjects for off-task behavior through social interaction with other staff members. In this respect, the contingencies employed were not sufficient. The effort involved in "nagging" staff to be aware of pupil behaviors at all times was quite pronounced, leading to reluctant implementation of immediate feedback. To achieve more consistent application of consequences for pupil behavior, it may be necessary to assign staff to particular pupils during transition periods.

The results of this study appear much more successful in its impact on the pupils' rate of self-stimulation. The rates of self-stimulation of all three pupils had substantially decreased at completion of the study. There were considerable differences between subject rates of self-stimulation; the applied behavior management techniques were effective across all rates. When baseline rates were extremely high, as they were with Pupil 2, decreases were observed consistently from one phase to the next; when baseline rates were relatively low, as they were with Pupil 3, consistent application across all instructional settings was necessary.

The results of the study indicate important parameters which must be considered in training staff in an educational setting. If staff are required to apply skills across a variety of settings, it may be
essential that performance feedback be provided in all possible situations. It may be possible to enhance transfer of behavior management skills through systematic variation of irrelevant and ambient stimuli (Englemann & Carnine, in press). In addition, to avoid the development of misrules and stipulation (Englemann & Carnine, in press), future training packages should include rules, examples, and non-examples covering the full range of instructional possibilities.

A number of questions remain unanswered by this investigation. The extent to which application of behavior management skills would be maintained once daily feedback was withdrawn is essential and requires further investigation. The sequence effects resulting from the order of implementation of the training package should be further explained. It may be possible that greater transfer of skills would have resulted if initial training had taken place in a more structured situation, such as within the group or individual session.

It would also be beneficial to expand research with respect to the affect on pupil behaviors. A primary question remains: did the decrease in pupils' self-stimulation result in additional gains in task acquisition? The effectiveness of the behavior management techniques on a variety of topographical characteristics of stereotypic behaviors needs to be expanded. Finally, the effects on behaviors which co-vary with target stereotypic behaviors should be evaluated.
BIBLIOGRAPHY


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