The Effects of Videotape Feedback on the Behavior Modification Skills of Student Therapists Working in a School for Multiply Handicapped Children

Denniston
THE EFFECTS OF VIDEOTAPE FEEDBACK
ON THE BEHAVIOR MODIFICATION SKILLS OF
STUDENT THERAPISTS WORKING IN A SCHOOL FOR
MULTIPLY HANDICAPPED CHILDREN

by

Nancy L. Denniston

A Thesis
Submitted to the
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of the
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Nancy Louise Denniston
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THE PROBLEM AND ITS BACKGROUND

The present study was an evaluation of the effects of videotape feedback on the acquisition of behavior modification skills by non-professionals working in a day school for multiply handicapped children.

The literature on behavior modification programs for individuals whose handicaps include mental retardation, physical disabilities, and behavior disorders has substantiated the effectiveness of the systematic application of operant techniques in facilitating behavior change (Gardner, 1971; Ashbaugh, 1971). Even the profoundly retarded and those with behavior problems previously judged impossible to change have responded favorably to these techniques. Another factor contributing to the overall impact of these programs is that almost anyone, with only a moderate amount of training, can apply these behavioral techniques. This has made it possible for the nonprofessional, who usually has the majority of contact with the retarded, to be an active participant in behavior modification programs.

Several behavior modification training programs for nonprofessionals working in a facility for the retarded have been developed and implemented (Fargo, Fuchigami, Cagauan, 1972; Ashbaugh, 1971; Watson, et al., 1971; Schoonmaker, 1971; Gardner, 1971). A behavioral approach to training, with carefully planned curricula and efficient methods, has helped in meeting these objectives.

Basic to the behavior modification approach has been the idea that those who successfully complete training should teach new trainees. The professional's time-consuming task of training each para-
professional, especially when the staff is large, is relieved by an approach in which each new training group generates a new set of teachers for the next group of trainees. Subsequently, a large number of people can be trained to apply operant techniques in a short time.

The curricula which have evolved from various training programs have involved lecture, discussion, and practicum in either a simulated, i.e., role-playing (Gardner, 1971; Fuchigami, et al., 1972) or real situation (Schoonmaker, 1971; Watson, et al., 1971). These programs have shown that a practicum part of training behavior modification was effective in increasing the number of practical skills, and either improving, or at least maintaining verbal skills as measured on a pre- and post-test comparison.

The development and evaluation of curricula for training programs has been quite thorough. However, many involved in training programs contend that there is yet a lack of data on the most appropriate techniques and methods for training skills (Ashbaugh, 1971; Welsch, et al., 1971; Panyon, et al., 1971).

Most methods for shaping and maintaining the effective use of operant techniques have developed outside the setting for the mentally retarded: in the elementary school (Hall, Panyon, Robon, and Broden, 1968; Cossairt, Hall, and Hopkins, 1973; Cooper, Thomas, and Baer, 1970); junior high (Leonard, Gees, and Paden, 1971); the psychiatric ward (Pomerlau, Bobrove, and Smith, 1973) and in-parent training (Bernal, 1969; Furman, Seymour, and Feighner, 1970).

These methods all involved some type of feedback pertaining to the trainee's performance in the therapy situation. The types of
feedback used could be categorized as: (1) tangible and intangible reinforcers made contingent upon outstanding (or criterion-level) performance; (2) vocal and written forms of instructional and informational feedback pertaining to the performances of the trainee and his client; (3) video and audio feedback showing the teaching session.

The effectiveness of these feedback procedures has been the subject of several studies. In this type of research, the most frequently used approach has been to test two or more different forms of feedback, measuring their separate and combined effects on the trainee's teaching behaviors. To accomplish this, most studies used a multiple baseline design (Baer, Wolf, and Risley, 1968).

Research has shown that the contingent presentation of various reinforcers was sufficient in bringing about desired changes in behavior modification programs, even when there were large populations involved. Pomerlau, Bobrove, and Smith (1973) tested the possible variables controlling the social interactive behavior of aides and patients on a psychiatric ward. Implemented in a multiple baseline across conditions, the feedback conditions were presented successively in the form of noncontingent cash presented weekly to the most cooperative aide, contingent cash presented weekly to the aide whose patients had shown the most improvement, daily supervision, and weekly consultation with the ward superintendent. A significant increase of social interactive behavior resulted when the contingent cash awards and daily supervision were in effect, while social interactive behavior occurred less frequently when the value of the contingent cash award was reduced. Another reduction in the frequency
of these behaviors resulted when aides were no longer supervised on the ward, but only met with the superintendent in his office.

The effects of vocal and written forms of instructional and informational feedback on the attending behavior of three classroom teachers were investigated by Cossairt, Hall, and Hopkins (1973). In a multiple baseline across conditions and subjects, two of the teachers were presented with three conditions in the following sequence: (1) vocal and written forms of instructional feedback specifying how and when to praise students for attending to instructions; (2) these instructions with additional information in the form of quantitative data, i.e., the number of intervals out of a session in which the teacher praised attending and the students attended; (3) social praise added to the instructions and information. For the third teacher, the conditions were not presented separately, but were introduced simultaneously following baseline. Results showed that the frequency of the teachers' contingent praising increased significantly only when praise was introduced. Another study on information and instructional feedback and teacher attending by Hall, Panyon, and Rabon, (1968) was designed to train novice teachers of a special education class to attend to and praise student study behavior. In a multiple baseline reversal procedure, with a return to baseline conditions between each feedback phase, feedback was presented successively as follows: (1) discussion of the effects of reinforcement on study behavior (2) discussion with added instructions to increase positive comments for study behavior (3) data on the class study rate and the frequency of the teacher's comments. The instructions and
information without programmed praise were shown to be sufficient. The contrast in results of both studies illustrates the inconclusiveness of the evidence, based on different subjects, procedures and situations.

The most recent development in feedback systems has been the videotape recording. It has several advantages over "live" feedback. The tape can be stopped at any point where behavior to be categorized is questionable. Interobserver reliabilities can be taken from the tape, and observers can work separately, assuring more validity. A taped session, or part of a session, can be played back instantly (Hylton and Quellmatz, 1970).

Before many educators had accepted its utility, videotape playback had been used to facilitate behavior change in psychotherapy (Danet, 1965; Bailey and Sowder, 1970) and in parent training (Bernal, 1969; Furman and Feighner, 1973). It was initially introduced into teacher training programs by Roger and Lewis (1963) from which developed a procedure called "microteaching." With this technique, teachers would watch tapes of themselves teaching and evaluate their interaction with their students. From these evaluations, the trainees specified a target behavior, then systematically implemented changes in their own teaching behavior (Klabenes and Spencer, 1970; Leonard, Gees and Paden, 1971). Fargo, et al., (1973) have outlined how this same approach applies to training teachers of the mentally retarded.

In spite of an overall acceptance of the serviceableness of videotape, little research has been done to show how the benefits would override the costs. In a cost-benefit analysis, the cost of all the equipment, space, and employment of technicians would have to be
analyzed (see Equipment List and Current Costs for the present study in Appendix I), then the actual benefits would have to be evaluated. Such an evaluation would have to include evidence that the improvement in the trainee's behavior is significantly greater with videotape than with some other form of cost-analyzed feedback.

The benefits of a videotape feedback system have been of more concern outside the field of retardation. With the small number of subjects and settings surveyed in the existing literature, no substantial evidence either for or against the effectiveness of videotape in modifying teacher behavior has yet emerged.

With married couples, Eisler, et al. (1973) studied the effects of videotape and focused instructions on the nonverbal behaviors, looking and smiling. In a group experimental design, the three treatments were videotape feedback, focused instructions, and videotape and focused instructions combined. Videotape feedback alone resulted in only a small increment in the frequency of looking, while focused instructions alone lead to a significant increase in the rate of looking. The combination of videotape feedback and focused instructions did not result in more looking and smiling responses compared to the focused instructions alone.

Another study assessed the effects of having the teacher discuss the session with the supervisor compared to supplementing this discussion with video and/or audio feedback (Leonard, et al., 1973). In a group design employing 12 teachers of regular elementary classes, pre- and post-test data showed that videotape feedback with supervision resulted in the most significant change on the teacher's verbal be-
behavior which was evaluated by a formal categorical scale. Under videotape conditions, there was an increase in "indirect teaching" in that the teacher used more probes and prompts rather than explanation and direct instruction. There was no significant effect with the audio feedback.

In the above two studies, the results favor videotape in one, but not in the other. Yet, it is difficult to compare these studies, not only because of the differences in subjects, setting, and design, but because, in either case, the nature and frequency of the verbal feedback were not specified. Also, in the Eisler, et al. (1973) study, there were only two dependent variables, while in the Leonard, et al. (1973) several were observed. In either study, no reliability checks were taken. The present study will attempt to avoid these problems by specifically defining the independent and dependent variables, sessions, and reliability.

The review of the literature has shown that some kind of feedback seems to be necessary for maintaining the behavior of making consequences contingent on specific behaviors. The general conclusions have been that the variables which would make feedback effective must be specified.

Setting

Kalamazoo Valley Multihandicap Center (K.V.M.C.) in Kalamazoo, Michigan, is a day-school facility for individuals up to 25 years of age who had two or more handicaps, including mental retardation, emotional disturbance, physical handicaps, etc. The purpose of the pro-
gram was to take children whose severity of handicap did not allow them to be placed in any other existing special education program, and to ameliorate these problems through a highly structured, intensive training program so that they could eventually be placed back in one of the other programs.

At the time of this study, there were 31 handicapped males and 10 handicapped females enrolled. On the staff were 54 part-time therapists who were all students from Western Michigan University working for either credit or pay. There were also two part-time speech therapists, one part-time physical therapist, and one full-time teacher-coordinator.

The main features of this program were that most of the therapy was conducted on a one-to-one basis; that the children were taught a wide range of skills according to their needs; and that the components were organized according to the age and level of functioning.

One-to-one therapy was made possible by the large staff-child ratio. The class day was typically divided into 30-minute segments, and each 30 minutes a student would be trained on a different task by a different therapist. Individual sessions could be held in a sound-attenuated booth separate from the main therapy area.

The skills which were being taught one-to-one were in three areas: preacademic (fine-motor, gross-motor, attending, object and color discrimination), academic (writing, reading, math) and self-care (toilet-training, dressing, feeding, etc.). The child's level of progress on these behaviors was graphed and recorded each day.

Each child was placed in one of five components, which were classes organized in general according to age and skill level. The infant
component, for children from birth to 5 years, involved two programs. One was a 6-week intervention program in which the infants were trained on a basic, preacademic skill. At the same time the parents would be taught how to use behavior modification. The children in this program did not necessarily have to be multiply handicapped. The second program was exclusively for multiply handicapped children, whose training continued in a year-around program of prelanguage, perceptual and gross-motor training. In the Nursery component, for children ages 4-7, further training was given in preacademic and self-care skills. In the Special component, age was not so much a determining factor for placement, as was the fact that its students were lower in functioning than others of comparable age or had behavior problems that precluded functioning in another component. In Elementary, in which the age range was from 8-14, advanced preacademic, academic, and self-care skills were taught, while in the Youth component, ages ranging from 15-25, emphasis was placed on academic, self-management, and pre-vocational skills.

Course structure

The course in applied behavior analysis was divided into two sections: a quiz section, which met one evening a week to cover concepts of behavior modification, and a lab section, in which the students attended K.V.M.C. 90 minutes during the day, 5 days a week.

At the beginning of the semester, the students were assigned to work 30 minutes with each of three clients. They were presented with
a set of behavioral deficits, over which they were quizzed during the quiz session. The students could discuss the client with the client's supervisor, or with other members of the staff familiar with the client. Students were told to interact with their clients the first 3 days, establishing themselves as conditioned reinforcers. The supervisor would specify the problem and target behavior, and from this the students were to plan and implement a program. By day 10, procedures were designed for each of the three clients. These "Proposals for Procedure" included a description of the materials, reinforcers and punishers used, an operant definition of the problem, and a detailed description of the phases and contingencies of the procedure.

The course grade was based on a point system. Opportunities for earning points came from daily maintenance points, monitor evaluation points, assignments and lab reports. There were five possible "maintenance points" which could be earned each day. For these the student was required to sign in and sign out, read the bulletin boards, be with their client on time and have materials ready, and to have graphs posted on a bulletin board with data points up-to-date. Students' completion of these criteria was monitored by a course assistant, who would post the total maintenance points earned each day.

Absences from class were controlled not only by the reduced opportunity to earn daily maintenance points, but also by a separate contingency. If the student had more than four unexcused absences, one letter grade was dropped and one for each additional four unexcused absences. If there were more than 15 excused or excused and unexcused absences combined, an automatic E (fail) would result. An
absence was excused only if a student had petitioned for it on a written form accompanied by some validation (doctor's excuse, etc.) which had then to be approved by the course assistant.

Since the purpose of the course was to develop both practical and writing skills, the essential features of the course were the monitoring system for evaluating the student's therapy session, and the system for training in writing lab reports.

Under the monitoring system, each student was evaluated once a week with each of his three clients. The evaluation was conducted by either the component supervisor, or assistant supervisor in the room which the student regularly used for therapy. The position of the monitor varied depending on where therapy was conducted: a small cubicle, the open classroom, or a room in which therapy could be viewed through a closed circuit television (C.C.T.V.) monitoring system, in which case the monitor was in a separate room.

During the evaluation, the monitor would observe several aspects of the student's behavior: the consistency in consequating the client's behavior, the appropriateness of consequating the client's behavior, enthusiasm in presenting social reinforcers, appropriateness in presenting stimuli, etc. The monitor would sometimes interrupt the session to comment to the student about the ongoing behavior. At the end of the session, the monitor would complete a monitor evaluation form (see Appendix I), which was a list of 15 performance criteria, each worth from two to five points. A percent total would be computed, the total possible points divided into the points for items which met criterion. If the percent was 90 or above, the student earned full
points for the weekly evaluation. Students were given the monitor evaluation sheet after the session, along with an additional sheet for indicating their response to the evaluation session and the performance of the monitor.

Summary and Conclusions of Study I

The purpose of the initial study (see complete write-up in Appendix II) was to evaluate the possible effects of instructional and videotape feedback on the therapy skills of student behavior modifiers.

In a reversal design, two subjects were first presented instructions as the only feedback, while the other two were given videotape feedback along with the instructions. Time ran out before the second phase could be introduced, and with absences and equipment problems, there was sufficient data for only two of the subjects, one from each treatment. Figures 1 and 2 in Appendix II show the subject who received instructions had a 14% decrease in inappropriate stimulus presentations, from an average of 38% of the trials/session in baseline, to 24% during intervention, while the subject receiving videotape feedback showed an average of 20% in baseline which increased to 58% in the first session of intervention, then dropped to zero for the remainder of the phase. Excess prompts for each subject were 11% and 17% of the total trials, respectively, these rates dropping to zero during intervention. Reliabilities were not above the acceptable 80% criterion level, which could have been a function of too short a practice time for the observers and of the rapid rate of the behaviors to be recorded. The evidence could not be considered sufficient to
show a difference in the effects of the two conditions; however, for both conditions, there was a decrease in responding between baseline and intervention, suggesting that feedback was having some effect, although the percent inappropriate presentations and excessive prompting was not high during baseline.

The reduced number of subjects and dependent variables facilitated the implementation of this study. These changes were incorporated into the subsequent study along with two additional changes involving the recording procedure and the independent variable. Responses which did not have a specific beginning or end were recorded with an interval recording technique, and an apparatus was designed to accomplish the interval recording of more than one type of response. Another component of the independent variable would be information feedback in the form of data quantifying the rates of the subject's behavior.

Introduction to Study II

The purpose of the main study was to evaluate the possible effects of instructional, informational and videotape feedback on the performance of student therapists.

The procedure was adapted from the Cossairt, et al. (1973) study, described earlier, which used a multiple baseline across subjects and conditions design for determining the separate and combined effects of instructions, information, and praise on teacher praising for student attending. The present study differed in three essential ways: (1) A multiple baseline across conditions was used, excluding the "across subjects" component; (2) the length of baseline was determined from the
point at which the response level stabilized, instead of a predeter-
mined number of sessions; (3) two variables, instructions and informa-
tion, were presented together first, and later the third variable, 
videotape, was added.

In addition, an interval recording technique was used in which 
stimulus presentations, the client's response, verbal and physical 
consequences were recorded at 3-second intervals. In the recording 
procedure, a letter representing each response was typed on a paper 
tape which automatically line-spaced every 3 seconds.
METHOD

Subjects

The subjects were three undergraduate college students working at the Kalamazoo Valley Multihandicap Center as part of a psychology course in applied behavior analysis at Western Michigan University during the Spring Semester, 1974. Subject A, a female, was 19 years old, Subject B, a male, was 20, and Subject C, a male, was 21. All were majoring in psychology, but Subject A was a sophomore, Subject B a junior, and Subject C a senior. In the four earlier courses of the psychology curriculum, all subjects had acquired a background in the basic principles of behavior. No one had had any formal field experience in applying behavior modification techniques in a human situation. Only Subject C had experience working with the physically handicapped which consisted of teaching gross-motor skills for one summer.

At the beginning of the Spring semester, all 13 students enrolled in the course were given a letter which described the study and asked them if they would participate. From eight who volunteered, two were dropped because of the nature of the work they had to do with their clients (feeding lunch) and because of time conflicts. The final three subjects were selected according to which booths were available at the times needed.

The two children who were being trained in the subject's programs were a male, 13 years 8 months, diagnosed as autistic, mentally retarded, emotionally retarded, with speech articulation problems, and
a male 7 years 2 months, diagnosed as mentally retarded, emotionally disturbed, and echolalic. The first student was being trained by Subject B to trace various shapes, while the second student was being trained by Subjects A and C, Subject A teaching body-part and room-part discriminations, Subject C teaching color discrimination.

Materials

The physical space included a central room off of which were individual therapy booths, 6 feet by 5 feet. In one of the upper corners of the booth was a TV camera, Panasonic Model WV200P. Suspend ed 1 foot from the ceiling, and 1 foot from the back wall, was a Sony Cardioid microphone, Model F-98. In a separate control room the sessions were monitored over a TV monitor, Panasonic Model TR22V, which was also used for feedback sessions. A Panasonic Tape-A-Vision NV-3020 videotape recorder was used for making videotapes. The recording apparatus consisted of an I.B.M. Selectric typewriter on which the return key was controlled by a solenoid, 120 volt ac/dc push type. A pulse from a time clock, Industrial Timer Series TDA P-15-M, was sent every 3 seconds to the solenoid which operated the return key of the typewriter to produce 3-second interval recording. The paper run through the typewriter was a tape 5 inches wide and 2\(\frac{1}{2}\) feet long, which had been pretyped with 200 number-labelled lines.

Procedure

Performance was defined as the number of stimulus presentations presented per 3-second interval and the average number of 3-second
intervals in which the therapist was presenting a verbal and or physical consequence of the client's response. A stimulus presentation was the command or series of commands not repeated more than 2 seconds from the last command. Consequences, both verbal and physical, and the response contingencies were also defined in the procedure of each therapist (see Appendix V—Procedures).

Sessions

Students were observed daily, 10 minutes of their 20-minute therapy time, 5 days a week. Observations were made from TV monitors in a separate room. Subjects were informed that the monitoring cameras in their booths would be on at unscheduled times, so they knew at some time they would be monitored, but they would not know the exact day. Feedback sessions were presented twice a week on varying days. Subjects were asked following their sessions if they would come in the next day for feedback.

General procedure

A multiple baseline across conditions design was used with two conditions: Condition I--vocal and written instructions and information; Condition II--instructions and information with videotape feedback. Subjects A, B, and C were presented Condition I after baseline had stabilized over three sessions, and after the response level had again stabilized, Condition II was introduced.

During Condition I, the average number of intervals for each trial in which stimulus presentations, verbal and physical consequences were
presented and were computed at the end of a session. If the subject was to have a feedback session on that day, this data was presented in writing with an indication of whether a change in behavior was needed. An example would be: "Your procedure indicates you will present two commands, first alone, and the second paired with a physical prompt if the client has not responded to the first command. Data on your therapy session indicate that you presented an average of 5.3 3-second intervals (16 seconds) of stimuli (commands) per trial. You will need to follow your procedure and decrease these. You also presented praise during an average of 17 seconds for each correct response, and verbal reprimands during an average of 4 seconds following the client's incorrect responses. Good work. To have more attention follow the correct than the incorrect response will be more effective in helping [name of client] acquire the appropriate response."

During Condition II, subjects were presented the written explanation of the data, along with a 5-minute videotaped segment of the therapy session from the previous day. Specific instances of an appropriate or excessive number of stimulus presentations and sequations were pointed out on the videotape. For example, E would say "Here you are giving the client too many commands, even when he continues to not respond. Repeat the command only once, and if there is no response, present a physical prompt with the command. Right now, your client is getting too much attention for non-responding, on the average of 35 seconds of commands per trial."
Recording

Each response, either a stimulus presentation, the client's response, or a consequence, was recorded throughout the session. Records were made by typing different symbols for each response. For each initial, or programmed presentation of the command, an "s" would be typed. Example: "Put the block in the box" "Put it in, you can do it" would be recorded as "s s".

For recording the client's response, a "c" was used for "correct" and either "i" or "w" for "incorrect" (or "wrong"). For recording the therapist's verbal and/or physical responses, the letters "v" for verbal and "p" or "t" for physical (or touch) were used. In this case, it was not necessary to discriminate discrete responses, but only whether or not the consequences occurred during each 3-second interval.

Observer Training Procedure

In training, each observer read the intervention plans, and the directions on how to code behaviors (see Appendix VII). This first session of recording the 10-minute videotape was considered a practice session. For each reliability session, the observer would watch the tape once without recording before starting the actual recording. During each session, E would be out of the room.
RESULTS

Interobserver reliability was calculated from each phase for each of the dependent variables, as shown in Table I. Reliability was computed by dividing the number of agreements by disagreements plus agreements and then multiplying by 100 to obtain a percentage. Reliability ranged from 68% to 93%, while the mean agreement over all sessions for all subjects was 78%.

Figure 1 shows the mean intervals/response for baseline and each phase for all dependent variables. For Subject A, the mean number of 3-second intervals of verbal consequences/correct response was two over a baseline of five sessions. This mean was 1.9 over seven sessions of Phase I, in which instructions and information were presented. When videotape was added in Phase II, a three-session phase, this mean was 1.4. Physical consequences of a correct response were presented a duration of 1.8 intervals/trial in baseline, and for one interval in Phases I and II. The mean number of intervals in which verbal consequences were presented for an incorrect response was one in baseline, decreasing to zero in Phases I and II.

During baseline for Subject B, the mean intervals of verbal consequences/correct response was 1.3 over four sessions, increasing to 2.5 during the four sessions of Phase I, and decreasing slightly to 2.3 in Phase II of three sessions. There were zero intervals of physical consequences/correct response during baseline, and Phase I, increasing to 1.5 in Phase II. Verbal consequences/incorrect response were presented with a mean of 2.1 intervals/trial during
### TABLE I

**ANALYSIS OF RELIABILITY**

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<tr>
<td>Stimulus Presentations</td>
<td>83.3%</td>
<td>87.5; 82.4%</td>
<td>93.3%</td>
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<td>Verbal Consequences of Correct R</td>
<td>68.8%</td>
<td>100; 82.1%</td>
<td>90.9%</td>
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<tr>
<td>Verbal Consequences of Incorrect R</td>
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<td>Ave:</td>
<td>74.2%</td>
<td>Ave: 87.9%</td>
<td>Ave: 92.1%</td>
</tr>
<tr>
<td><strong>SUBJECT B</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stimulus Presentations</td>
<td>78.8%</td>
<td>81.9%</td>
<td>72.3%</td>
</tr>
<tr>
<td>Verbal Consequences of Correct R</td>
<td>78.6%</td>
<td>84.6%</td>
<td>84.7%</td>
</tr>
<tr>
<td>Verbal Consequences of Incorrect R</td>
<td>86.4%</td>
<td>76.5%</td>
<td>81.2%</td>
</tr>
<tr>
<td>Ave:</td>
<td>81.2%</td>
<td>Ave: 81.0%</td>
<td>Ave: 79.7%</td>
</tr>
<tr>
<td><strong>SUBJECT C</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stimulus Presentations</td>
<td>68.9%</td>
<td>87.3%</td>
<td>71.4%</td>
</tr>
<tr>
<td>Verbal Consequences of Correct R</td>
<td>73.8%</td>
<td>68.0%</td>
<td>72.7%</td>
</tr>
<tr>
<td>Verbal Consequences of Incorrect R</td>
<td>80.0%</td>
<td>83.3%</td>
<td>86.6%</td>
</tr>
<tr>
<td>Ave:</td>
<td>74.2%</td>
<td>Ave: 79.8%</td>
<td>Ave: 78.4%</td>
</tr>
</tbody>
</table>

**OVERALL AVERAGE = 78.4%**
FIGURE LEGEND

Figure 1: Figure 1 shows the mean intervals/trial of verbal and physical consequences and stimulus presentations of Subjects A, B, and C for baseline and both experimental phases.
Figure 1

SUBJECT A

SUBJECT B

SUBJECT C
baseline, this mean decreasing to 1.3 in Phase I, and to zero in Phase II.

Subject C presented a mean of 1.6 intervals of verbal consequations/correct response in eight sessions of baseline, increasing to 2.5 intervals in Phase I of five sessions, and decreasing to 2.1 in Phase II of three sessions. For each correct trial, there was a mean of zero intervals of physical responses in baseline and in both experimental phases. There were 1.7 intervals of verbal consequations/incorrect response in baseline, decreasing to one in Phases I and II.

In the last column in Fig. 1 are the mean intervals of stimuli presented during baseline and each phase. If the mean is greater than three, there is an excess of stimulus presentations, according to the definition stated in the procedures, (Appendix V). The mean 3-second intervals of stimuli/trial presented by Subject A were on the average of one/trial during baseline and both experimental phases. For Subject B, the mean was 4.3 intervals/trial in baseline, six/trial during Phase I, and three/trial in Phase II. Subject C presented stimuli during an average of five intervals/trial in baseline, 3.3 in Phase I, and two in Phase II.

In Figures 2-4, a comparison was made between recording the stimulus presentations with an interval recording technique and an event, or discrete stimulus recording technique. Figures 2-4 represent the sessions-by-session data from interval recording. A few sessions were re-evaluated with the discrete stimulus recording, represented by the data points marked with "G". With the exception of Subject C
FIGURE LEGEND

Figures 2-4: Figures 2-4 show the mean intervals of stimulus presentations as a function of sessions for Subjects A, B, and C, respectively.
Figure 2

Mean intervals of stimuli presented

□ = Recording of discrete stimuli

Sessions

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Figure 3

Mean intervals of stimuli presented

□ = Recording of discrete stimuli

Sessions

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Figure 4

□ = Recording of discrete stimuli

MEAN INTERVALS OF STIMULI PRESENTED

SESSIONS

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in Figure 4, the points did not differ greater than half a unit. Although the difference between these points was greater in Figure 4, the direction of change was the same.

The results were limited by the short semester, several absences, and equipment breakdown. The study was initiated the third week of the 8-week term, and was terminated the middle of the last week when lab ended, allowing for 6 weeks of data. The client of Subjects A and C was absent for a total of 5 days, while Subject B's client was absent 3 days. Subject A was absent 3 days, Subject B 7 days, and Subject C 2 days. In Session 2, there was a mixup in schedules and the equipment was needed in one of the components. As a result, one tape was made that day, that for Subject C. During Sessions 3-6, the equipment had broken down. The tapes were giving pictures which were not discernible, being to "snowy." For Sessions 7 on, some equipment had been borrowed from the University Television studios. There were no further problems, except that the equipment had to be returned for 1 day, Session 22. In Session 9, Subject C had taken the client to time out.
DISCUSSION

With respect to the limitations on the data, it is with caution that any interpretation is presented. For Subjects B and C, there was no immediate change in the length of presenting verbal reinforcers when videotape was added to the instructions and information feedback, while one of these subjects showed only a slight increase in the presentation of physical reinforcers. Nevertheless, under the videotape feedback conditions there was a decrease in the number of intervals of stimulus presentations and verbal punishers, compared to the number occurring under instructions and information.

Although videotape feedback may have had no effect in terms of a change in verbal reinforcers, feedback in general did have an effect. This was shown by the increase in this variable with Subjects B and C when instructions and information were introduced.

For Subject A, there was no increase in verbal and physical consequences as a function of feedback. However, verbal consequences per inappropriate response decreased slightly as the subject was fading out presenting verbal reprimands with extinction to extinction only.

A possible confounding variable influencing the effects of the feedback would be the evaluations which the students received for other therapy done outside of this study. Some of the behavior changes specified in these other evaluations may have generalized to the video feedback sessions. Some of those changes were to increase eye contact, to decrease attending to inappropriate behavior, etc. If the student were attending to some of the changes described in the other evaluations
while different behaviors were being pointed out on the videotape, the effect of the given instructions may have been weakened. On the other hand, the outside evaluations could have had a positive influence on the subjects' behavior, since some of the behavior changes specified were the same as those specified in the ongoing study, such as "use more physical reinforcers," and "use fewer stimulus presentations."

The extent of the influence of outside evaluations can only be speculated until further research is conducted.

The trend towards videotape feedback having a minimal effect compared to instructions and information is not easily explained. One might assume that the visual properties from the videotape would sharpen the auditory stimuli from the instructions, facilitating behavior change. Yet, for some behavior changes at least, vocal and written instructions would seem sufficient. These behaviors can be specified clearly, such as attending to student's appropriate behavior, appropriate presentation of verbal reinforcers and punishers, smiling, etc. The probability of subsequent changes in these behaviors would depend on both the precision of the wording in the information and in the instructions, and on the use of positive feedback for improved behavior (Cossairt, et al., 1971). A capable trainer should be able to present instructions and information effectively without the added visual information. However, there may be other behavior changes which are more complex, not given to a precise description, for which videotape may be useful. Examples of some of these behaviors would be showing how to make verbal and nonverbal behaviors coincide, how a teacher can use less direct explanation and use more indirect probing for answers.
These findings suggest an approach towards acquiring a videotape feedback system for the purpose of evaluation. Such an investment should not be made until the behaviors to be dealt with are determined, and until information and instructional feedback have been used, tested modified and retested several times to determine the need for a visual dimension.

More evidence has yet to be accumulated to confirm the results of this study and the relationship between instructions and information with changes in therapy behavior. Other studies might examine other dependent variables which may be more appropriate measures of therapy behavior, including amount of eye contact, smiling, appropriateness of teacher's attention, etc. A different recording technique could be used, such as event recording of discrete responses instead of interval recording. This would be more appropriate for variables which have a well-defined beginning and end. In the present study, event recording may have been more appropriate for stimulus presentations. A re-evaluation revealed no major difference between event recording and recording with a 3-second interval, but more data would be necessary to determine this.

Although the present study came short of one of its goals, to contribute significant evidence on the effects of videotape feedback, more was achieved in the way of methods, techniques, apparatus, and procedures for recording accurate data. In the future, time should be allowed for the accumulation of a larger quantity of data, while the quality, i.e. validity, of the data is maintained. If this study is taken as a basis, or guide, for further research, perhaps there will be both.
REFERENCES


## APPENDIX I

### Equipment List and Current Costs

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Type</th>
<th>Model</th>
<th>Max Each</th>
<th>Min Each</th>
<th>Total Max Each</th>
<th>Min Each</th>
<th>Total Min Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Panasonic monitor camera</td>
<td>WV 200-P</td>
<td>$255.00</td>
<td>$1275.00</td>
<td>$235.00</td>
<td>$1150.00</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Panasonic TV</td>
<td>TR 200V</td>
<td>$375.00</td>
<td>$375.00</td>
<td>$337.00</td>
<td>$337.00</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Videotape recorder</td>
<td>NV 3020</td>
<td>$950.00</td>
<td>$950.00</td>
<td>$475.00</td>
<td>$475.00</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Sony Cardioid microphone</td>
<td>F-98</td>
<td>$12.95</td>
<td>$64.75</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Twin monitor Screens</td>
<td>TN 952</td>
<td>$660.00</td>
<td>$660.00</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Sound system amp</td>
<td>AV999</td>
<td>$449.95</td>
<td>$449.95</td>
<td>$404.95</td>
<td>$404.95</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sansui Solid State</td>
<td>(also Pioneer SA9100)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Therapy booths, 5' x 6', sound attenuated</td>
<td></td>
<td>$7000.00</td>
<td>$7000.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL $10,774.70  TOTAL $10,091.70

Important Note: In developing the system in the present study, it was essential to consider how the system would be applied, where, how many people would use it per day, etc. It, therefore, was designed exclusively to meet the needs of the school (K.V.M.C.) and may not be applicable to other settings.
APPENDIX II

Study I

The original design of this study required 12 subjects in a multiple baseline across conditions-reversal, with two conditions. In Condition I, instructions and information were the only forms of feedback while in Condition II, videotape feedback was added to the instructions and information. Instructional feedback consisted of a behavior check-list of appropriate therapy behaviors, while information feedback was data on performance. Videotape feedback was a post-session presentation of a 5-minute tape accompanied by specific suggestions on how to improve performance. Performance, or appropriate therapy behavior, was to be measured in two ways: (1) appropriate presentation of the SD or prompts; (2) the appropriate consequence of the client's behavior. A plan for intervention was to be submitted by each subject prior to the beginning of this study.

Problems arose from this initial strategy. The first was that 12 subjects was too large a N. With each student, the following had to be monitored: (1) maintaining a precise, up-to-date definition which was frequently subject to changes from day-to-day, e.g., music or a ball introduced as reinforcers, a CRF schedule changed to an FR3 schedule, a new token procedure introduced. As a result, the experimenter had to obtain written descriptions of the current procedure each day, and clarify any ambiguities in the definition prior to the student's session; (2) finding a schedule for feedback ses-
sessions was difficult, because of frequent absences; (3) filling out the feedback sheets clearly and with appropriate details required at least 10 minutes. With 12 students, an average of four each hour, the processes of recording data, writing feedback, and delivering feedback did not result in the quality of feedback necessary for this study. Either the time for observing students had to be reduced from 10 to 5 minutes, or the number of students had to be reduced.

An additional problem involved the dependent variable, in that the accuracy of the data was questionable, as indicated by the instability of the session-by-session data and reliability checks, ranging from 50-80%. This variability was thought to be a function of the multiple dependent variables, which, if reduced in number, or simplified, could reduce the variability.

As a result of these problems, two changes were to be made for the study to be implemented. The first was that the number of subjects was reduced to four, eliminating those who were already responding appropriately more than 90% of the time. The number of subjects was reduced instead of the length of recording sessions since a shorter recording period may have decreased the validity of the data for each subject. Second, the number of dependent variables was reduced. The selection of dependent variables was based on an observation of the data, which revealed two common errors--inappropriate presentation of the stimulus and excess verbal prompting. Two subjects were then presented Condition I, while the other two were presented Condition II. If time allowed, the condition of each group was to change to the other.
Method

Subjects

The subjects in this study were four female undergraduate college students working at K.V.M.C. as part of the psychology course in applied behavior analysis at Western Michigan University during the Winter Semester, 1974. All were majoring in psychology, but Subject A, 21, was a junior, Subject B, 19, was a freshman, Subject C, 22, a senior, and Subject D, 19, a sophomore. In four earlier courses of the psychology curriculum, all subjects had acquired a background in the basic principles of behavior. None had had any formal field experience in applying behavior modification techniques in a human situation.

At the beginning of the semester, all 64 subjects in the course had been given a letter describing the study, and asking them if they would participate. From the 24 who responded, 14 volunteered. Two were eliminated because of schedule conflicts and the availability of the therapy booths. The final four were selected from those subjects whose level of responding was not already above 90% appropriate.

Materials

The physical space and the monitoring system were the same as in the main study. Written feedback in this study was presented on a Monitor Evaluation form. Items on this form could be checked as "Yes," "No," or "Does Not Apply." Items 9 and 12 were filled out with more detailed descriptions of situations in which the therapist did or did not correctly respond to the client's appropriate behaviors (Item 9)
and to the client's inappropriate behaviors (Item 12). An example of
Item 9 would be:

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correctly responded to T's command</td>
<td>Presented social &quot;Good boy!&quot;</td>
</tr>
<tr>
<td>&quot;Touch your nose.&quot;</td>
<td>with 1 token within 3 seconds</td>
</tr>
<tr>
<td></td>
<td>of clients response.</td>
</tr>
</tbody>
</table>

An example of Item 12 would be:

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client did not respond to command</td>
<td>T correctly waited 2-4 seconds,</td>
</tr>
<tr>
<td></td>
<td>then presented prompt again paired</td>
</tr>
<tr>
<td></td>
<td>with a physical prompt.</td>
</tr>
</tbody>
</table>

**Procedure**

Performance was defined as the appropriate presentation of SD or
prompt, and the number of times the stimulus was repeated in excess.
An appropriate SD or prompt was one which was presented only when the
subject was attending. An excess prompt was verbal prompt repeated
more than once without a physical prompt, or more than once with a
physical prompt. Definitions of the stimuli to be presented, the
correct and incorrect responses on the part of the client, and the
reinforcement contingencies were written by each subject and given to
E at the beginning of the study. Any subsequent changes were to be
reported as soon as they were made (see Appendix V: Procedures).

**Sessions**

Sessions were conducted in the same manner as in the main study.
**Recording**

Recording generally followed the procedure outline in Appendix VII. Event recording was used to record the appropriateness of the stimulus presentation, the number of presentations, and the client's response by recording a "+" for each appropriate stimulus, a "-" for each inappropriate or excessive stimulus, a "+" for the client's correct response, and a "-" for an incorrect response.

**Feedback**

Instructional and informational: At the end of the observation session, all items on the Monitor Evaluation Form were filled out. One copy of this form was given to the subject, along with a copy of the data sheet showing the percent correct appropriate responses.

Videotape feedback: The first 5 minutes of the 10-minute tape was shown to the subject while E pointed out the events on the tape which were described on the Monitor Evaluation Form in Items 9 and 12.

**Design and procedure**

A reversal procedure was used with two conditions: information and instructions only, and information and instructions with videotape feedback. These conditions were presented in sequential order to each of two groups of two subjects, one in reverse of the other, with a return to no contingencies between each intervention.

Baseline: During baseline, stimulus presentations and client's responses were recorded for each subject. No written or videotape feedback was presented, but all subjects continued to graph their data daily. Baseline ended when response level stabilized.
Phase I: Subjects A and B received written feedback only, while C and D received videotape and written feedback. This phase lasted until a stable response level appeared.

Phase II: All subjects returned to baseline conditions.

Phase III: Subjects A and B received videotape and written, while Subjects C and D received only written feedback.

Reliabilities

Reliabilities were taken at least once each phase for each subject by a second observer trained to use a code system and to fill out the data sheets. In training, he was to read the students' operant definitions, and the directions on how to code and record data (see Appendixes IV and V: Procedures and Directions on Recording, respectively). Only questions about the coding system were answered. None concerning the definition were answered, in order to decrease the possibility of influencing the observer's interpretation of the definition. The second observer recorded from the videotape of the student's session while E was out of the monitoring room. Reliabilities were then computed according to the number of agreements divided by the number of agreements plus disagreements multiplied by 100.

Results

Reliabilities for Subject B were 51% and 55% during baseline, and 85% in Phase I. For Subject C, Baseline was 52%, 55% and 65%, while in Phase I, it was 79% and 65%.

For all subjects, only Phase I was completed as a result of several absences and equipment breakdown. Only Subject B, who was under
instruction and information feedback conditions, and Subject C, under videotape conditions, presented sufficient data for evaluation. Figures 1 and 2 show the number of inappropriate stimulus presentations and excess prompts as a function of sessions for Subjects B and C, respectively, while Figure 3 shows the data for Subject A. Subject D's data was not available. For Subject B, there was a relatively small change in the number of inappropriate stimulus presentations which averaged 38.25 during baseline, in that inappropriate presentations averaged 20.2 during baseline, increased to 60.6 initially in Phase I, then dropped to zero for the remaining four sessions. In terms of excess prompts, results for both subjects showed a stable decrease to zero.
FIGURE LEGEND

Figures 1-3: Figures 1-3 show the percent total trials in which inappropriate stimulus presentations and excess prompts occurred as a function of sessions for Subjects A, B, and C, respectively.
Figure 1

- Inappropriate stimulus presentations
- Excessive prompts
- Reliability

Sessions:

Percentage total trials:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
Figure 2

PER CENT TOTAL TRIALS

Excessive prompts
Reliability
Inappropriate stimulus presentations

SESSIONS
Figure 3

PERCENT TOTAL TRIALS

SESSIONS

- Inappropriate stimulus presentations
- Excessive prompts
- Reliability
APPENDIX III

Monitor Evaluation Form

<table>
<thead>
<tr>
<th>Therapy time</th>
<th>Yes</th>
<th>No</th>
<th>Does Not Apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Student is on time to remove child from classroom within time limit of no later than 3 min. past the hour, finishing no earlier than 3 min. before the end.</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>2. Student cooperates in following any general rules for child specified by staff.</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>3. Has materials ready at beginning, put away at end.</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Implementation of procedure

| 4. Procedure up-to-date; has indicated in writing new contingencies which are appropriate to child. | 4   | 4  | 4              |
| 5. Procedure followed as described on procedure sheet.                          | 4   | 4  | 4              |
| 6. Used small steps in shaping/fading procedure.                                | 4   | 4  | 4              |
| 7. Had established prerequisite behaviors using reinforcers appropriate to child. | 3   | 3  | 3              |
| 8. Consequated appropriate behaviors using reinforcers appropriate to child.    | 5   | 5  | 5              |

Behavior | Consequence
---------|--------------

9. Delivered reinforcers with enthusiasm and without delay.  
   Yes | No | Does Not Apply
   ---|---|---
   5  | 5  | 5

10. More work was gradually required from subject for fewer reinforcers without losing a high response rate.  
    3  | 3  | 3

11. Consequated inappropriate behaviors using extinction, time out, response cost, or a punisher correctly.  
    5  | 5  | 5

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. Presented SD, task, or prompt appropriately, i.e., when was sitting quietly and looking at the therapist or task.  
    4  | 4  | 4

13. Presented physical and/or verbal prompts appropriately, not in excess.  
    4  | 4  | 4

14. Recorded data correctly, and accurately.  
    5  | 5  | 5

Total "Yes" X 100 = _____ % Total

See other side for comments.
APPENDIX IV

Procedures Used in Study

Subject A

Definition of therapist's appropriate and inappropriate stimulus presentation:

Appropriate: Following instructions to develop gross-motor skills. Stimulus must be presented only when subject is attending (hands in lap, sitting still, eyes directed at therapist). The therapist's stimulus consists of instructing the subject to either jump on one foot, or jump on both feet. Once the instruction has been presented, the therapist may repeat it by saying "Jump". Other acceptable variations may be like "Hop on both feet like a bunny".

Exclusions: No stimulus like "touch the ceiling" or "touch the light".

Inappropriate: Following instructions to develop gross-motor skills. If therapist's verbal stimulus is presented while subject is not attending or is emitting incompatible behavior.

Definition of subject's appropriate and inappropriate responses:

Appropriate jumping response: The subject must jump within 3 seconds from therapist's command. He must jump (for jumping on both feet) so that both feet do not connect with the floor, and (for jumping on one foot) one foot must be raised more than 6 inches above the floor, while balancing on the other foot,
which must not remain connected with the floor. Subject may put a hand on the wall for support only while jumping on one foot.

Exclusions would be when subject jumps and no command had been presented.

Inappropriate response: Continuing in the behavior he was engaging in prior to the therapist's stimulus presentation; sitting on the floor without permission; humming; making nonsense verbalizations; jumping without permission from therapist.

Definition of therapist's consequence of appropriate jumping response:

Appropriate consequence: Therapist says "good boy", or a similar social and presents one token.

Inappropriate consequence: Therapist says social or presents token during the time subject is emitting any response incompatible with appropriate response.

Inclusion: If subject responds appropriately, then immediately sits down or screams. Therapist should not present socials nor tokens.

Definition of therapist's consequence of inappropriate responses:

Appropriate consequence: If subject did not emit a response to therapist's stimulus, therapist should physically prompt him to stand up and jump, then reinforce him with a social, and have him sit down again, then present stimulus as soon as he attends appropriately.

Appropriate consequence: If subject emits inappropriate behavior, therapist should present verbal Sp (stop that! or stand
up! or No!) if, within 3-5 seconds, subject's behavior stops, then therapist can present stimulus or prompt when subject attends. If subject continues to behave inappropriately, therapist should, within 3-5 seconds, present a more aversive stimulus (time out, extinction, loud noise, louder voice, etc.) paired with the verbal Sp.

**Subject B**

Definition of subject's appropriate and inappropriate responses:

**Appropriate attending to therapist:** Subject is to sit up, put his hands in his lap, and have his eyes oriented towards therapist's eyes. He may lean forward or sit back; have his hands on his knees or thighs; feet on or off the floor, as long as they do not move.

**Exclusions:** Attending during reinforcement period, outside of session.

**Inappropriate:** Tantrums, crying, biting hand during reinforcement period.

**Exclusions:** Moving legs, hands, vocalizing during reinforcement period.

Definition of therapist's consequence of appropriate attending behavior:

**Appropriate:** A token will be presented following 3 seconds or greater of appropriate attending, and a verbal reinforcement for any time attending (May occur before subject has attended 3 seconds).
Inclusion: Therapist says "good boy, you're looking at me, you're being so quiet, etc.) and hands subject a token after 3 seconds of attending by the subject.

Exclusion: Any verbal praise presented during free play.

Inappropriate: If therapist presents verbal praise or token while subject is not attending or presents verbal praise or token before 3 seconds have passed since subject stopped behaving inappropriately.

Definition of therapist's consequence of inappropriate attending behavior:

Appropriate consequence:

1. If subject has a tantrum or cries, therapist says "Stop it."
   If behavior has not stopped within 3 seconds, subject is placed in time out.

2. If subject's hands are out of his lap, or if he is not looking at the therapist, or not sitting up, therapist presents verbal prompt. If the response does not yet occur, therapist should wait 3 seconds, then present the verbal prompt with a physical prompt.

Inappropriate consequence: Repeating verbal prompt (or Sp) without adding a physical prompt. Not presenting consequence within 3 seconds from onset of response. Not using procedure specified for given behavior.

Subject C

Definition of therapist's appropriate and inappropriate stimulus presentation:

Appropriate: Therapist is to present a verbal stimulus for sub-
ject to point to the body part named (head, eye, nose, ear, hands, knees) while simultaneously presenting an imitative model for the required response. Therapist's stimulus must be presented only while subject is attending.

Inclusion: While subject is sitting still, hands in lap, looking at therapist, therapist says "Touch your mouth", and puts her finger on her mouth.

Exclusion: If the subject is not looking at therapist, or behaving inappropriately in any other way, or if 3 seconds or less have passed since inappropriate behavior has stopped, therapist's presentation of the verbal stimulus is not appropriate.

Definition of subject's appropriate and inappropriate responses:

Appropriate receptive response to body part named: Subject may point with finger, or use whole hand, and have it no more than \( \frac{1}{4} \) inch from body part named by therapist. Response must occur within 3 seconds from the verbal stimulus.

Inclusion: Subject may use both hands, or finger, to indicate part. If subject names the part, as well as points to it, that is also appropriate.

Exclusion: Any touching of body parts when no command had been given. Touching parts during reinforcement session (playing with a ball) even if therapist repeats the model for emphasis, i.e., therapist says "You were such a good boy, you touched your mouth!"

Inappropriate receptive response to body part named: Pointing to part other than that named; emitting incompatible behaviors, i.e.,
getting out of seat, giggling, playing with token can and/or tokens, not responding within 3 seconds from therapist's command.

Definition of therapist's consequence of appropriate receptive responding:

Appropriate consequence: Therapist presents one token with 3 seconds from time appropriate response was emitted, giving social reinforcer, followed by 15 seconds of playing with a ball.

Inclusions: If therapist says "Point to your mouth" and subject points to his mouth, or covers it with his whole hand, therapist should within 3 seconds from this response, present the token and say "good boy," then present him the ball.

Exclusions: Any socials or tokens presented any more than 3 seconds after subject's response, i.e., during ball playing like "You were so good, such a good boy, you touched your mouth!" Also exclude from the definition any instance of the therapist presenting reinforcement while the subject emits any inappropriate behavior simultaneously with or after an appropriate response.

Appropriate consequence of inappropriate receptive response:
1. As a consequence of incorrect response, 5 seconds of extinction.

2. As a consequence of no response (or change in behavior occurring at the time stimulus was presented) therapist should repeat the command paired with a physical prompt after 5 seconds have lapsed since the first prompt.
Inclusion: Therapist says "Point to your mouth" and subject's behavior does not change. Therapist should then repeat the command in 5 seconds, and guide the subject's hand to his mouth.

Exclusion: If therapist merely repeats the command without presenting an added prompt.

3. As a consequence of aggressive behavior, therapist presents a verbal Sp. If, in 5 seconds, the behavior is still being emitted, therapist should pair a more aversive stimulus with the verbal Sp.

Inclusion: Subject is moving towards therapist. Therapist says "Stop that!" and/or "Get back!" Subject continues to move towards therapist. Therapist says "Stop" and shuts off lights for 15" time out.

Exclusion: If therapist continues to repeat the verbal Sp, without an added prompt, each repetition is an inappropriate consequence.

Subject D

Definition of therapist's appropriate and inappropriate stimulus presentations:

Appropriate: Therapist is to present a verbal stimulus (command) for subject to point to the body part named (eye, nose, mouth, hair). If S does not respond, therapist should present an imitative model with a command, and if there is still no response, therapist should add a physical prompt to the verbal command.
Inclusion: While subject is sitting still, hands in lap, looking at therapist, therapist says "B___, touch your mouth," and puts her finger on her mouth.

Exclusions: If the subject is not looking at therapist, or behaving inappropriately in any other way (arms waving, hitting therapist, etc.) or if 3 seconds or less have passed since inappropriate behavior has stopped, therapist's presentation of the verbal stimulus is not appropriate.

Definition of subject's appropriate and inappropriate response:

  Appropriate response to body part named: Subject may point with finger, or use whole hand, and have it no more than ¼ inch from body part named by therapist. Response must occur within 3 seconds from the verbal stimulus.

  Inclusion: Subject may use both hands, or finger, to indicate part.

  Exclusion: If the subject is not looking at therapist, or behaving inappropriately in any other way (arm waving, hitting therapist, etc.) or if 3 seconds or less have passed since inappropriate behavior has stopped, therapist's presentation of the verbal stimulus is not appropriate.

  Inappropriate response to body part named: Pointing to part other than that named; emitting incompatible behaviors, i.e., getting out of seat, screaming, waving arms; not responding within 3 seconds from therapist's command.

Definition of therapist's consequence of appropriate responding:

  Appropriate consequence: Therapist presents socials--a hug, bouncing on knee, praise, and physical reinforcers, and edibles
within 3 seconds from time appropriate response was emitted.

Inclusions: If therapist says "Point to your hair" and subject points to his hair, or puts his hand on his head within 3 seconds from this command, therapist should present reinforcers.

Exclusions: Any socials or tokens presented while the subject emits any inappropriate behavior simultaneously with, or after the correct response.

Appropriate Consequence of Inappropriate Response:

1. As a consequence of incorrect response, therapist says "No!" followed by 5 seconds of extinction.

2. As a consequence of no response or change in behavior occurring at the time stimulus was presented) therapist should repeat the command paired with a model prompt after 5 seconds have lapsed since the first prompt.

   Inclusion: Therapist says, "Point to your mouth" and subject's behavior does not change. Therapist should then repeat the command in 5 seconds, pointing to her own mouth. If still no response, again repeat the command, and guide the subject's hand to his mouth.

   Exclusion: If therapist merely repeats the command without presenting an added prompt.

3. As a consequence of aggressive behavior, therapist presents a verbal Sp. If, in 5 seconds, the behavior is still being emitted, therapist should pair a more aversive stimulus with the verbal Sp.
Inclusion: Subject is moving towards therapist, or waving arms. Therapist says "Stop that!" or "Down!"
Exclusion: If therapist continues to repeat the verbal Sp, without an added prompt, each repetition is an inappropriate consequence.
APPENDIX V

Procedures Used in Study II

Subject A:

General definition of client's response: Responding appropriately to a verbal command without any visual cue. The commands required the client to place his hands on various locations named. Visual cues were like the therapist's looking towards the place named, moving his body towards that place.

Reinforcer: Reinforcers were verbal praise "Good boy, John," etc. (See list of verbal responses most frequently used by subject below.) Each of these is recorded as one verbal response. Hugs, and tickles were physical reinforcers. These had to be presented for a duration of at least 3 seconds to be counted as a reinforcer.

Weakeners: Extinction was presented when the client spat, lasting until the spitting stopped, then three more seconds. Time out was used for aggressive behaviors: pinching, kicking, hitting, pushing, pulling hair. This was to last at least 3 minutes, and there had to be at least 15 seconds of quiet before he could then be taken out.

Phase I: This phase was already conducted and consisted of presenting John with simple commands.

Phase II: Consists of presenting John with verbal instructions or commands. If there is no response within 5 seconds, the command is
again presented with a physical prompt, then is reinforced. This ends the trial. The next trial is initiated by presenting the command again, and prompting if necessary. This phase continues until John is able to emit the correct response three times in a row without physical prompt.

The following commands are presented. After the client has responded correctly three consecutive times, the next instruction is presented. At the beginning of the sessions, the therapist starts at the beginning of the sequence of commands. If, for three consecutive sessions, the subject has responded to the first three presentations of a command correctly, the command is excluded from the sequence.

1. Put your hands in your lap (S is required to fold hands together in his lap)
2. Put your hands on your head
3. Put your hands on your shoulders
4. Put your hands on the wall
5. Touch the floor
6. Touch the door
7. Touch the chair

The following verbal reinforcers are presented most frequently:

That's the way you do it (J___) (Yeah)
That's how you do it
That's the way you do it there punkin
That's it
There you (we) go
(Now) you got it
You got it now
Subject A--verbal reinforcers

There
That's it
What a big (good) boy (you are)
Good goin!
Wat's a matter?
That's your lap (shoulders, etc.)
Yay, (J__)!
Yeah for (J__)!
You can do it!
That's a boy (good) boy
Like that!
Hey there!
Good boy (J__)
J__, you got your hands in your lap!
That was so (really) good!
Real good
All right there boy
Really good (J____)
Just like me, I've got my hands in my lap!

The following verbal reprimands are presented most frequently

No, (J__) 
That's not it, (J__) 
Stop that
Subject B

General definition of client's response: Tracing the figures and staying within specified boundaries.

Reinforcers: When the client emits a correct response, praise is presented paired with tokens on a CRF schedule.

Weakeners: If the client emits an inappropriate response, the following procedure is used:

<table>
<thead>
<tr>
<th>Response</th>
<th>Consequation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonsense, inappropriate speech</td>
<td>Verbal reprimand</td>
</tr>
<tr>
<td>2nd occurrence</td>
<td>Reprimand with response cost--3 tokens</td>
</tr>
<tr>
<td>3rd occurrence</td>
<td>Reprimand with response cost--store card</td>
</tr>
<tr>
<td>4th occurrence</td>
<td>Time out</td>
</tr>
</tbody>
</table>

Phase I: Successful tracings of 10 circle squares and triangles without going out of specified 1-inch boundaries.

Phase II: Change criterion to a successful tracing not going outside of one-half inch boundaries.

Phase III: Reduce thickness of figure lines to one-quarter inch and record, then compute percent correct out of 10.

The following stimuli are presented:

Can you do it again
Do it again for a token
Stay in between the lines
Once more
Do you want to go to the store
Do it again
Do this circle (triangle, square)
Go slow
Press down (hard)
(Go) all the way around
Once more
The following were presented as verbal reinforcers:
That's right
That's great
You're doing fine

The following were presented as verbal reprimands:
No, that's wrong
That's bad
Give me a token; one token

Subject C

General definition of client's response: John will be taught to discriminate by picking up the brown, green, or orange block on command on 85% of the trials.

Reinforcers: Tokens will be presented on an FR 10 schedule, salty food, roughhousing, tickling, M and M's.

Weakeners: For incorrect response, a verbal reprimand "No!" will be presented, paired with 10 seconds of extinction (looking away).
Phase I: Pretest for color discrimination using colors indicated.

Phase II: Ask J to pick up the green block, presenting only the green block. The correct response is to be reinforced by praise on a CRF schedule, and by a token on an FR 10 schedule. Responses are recorded by event recording. John must pick up the green block 100% of the trials in one session to advance to Phase III.

Phase III: Fade in the brown block. Continue asking for the green block. Place the brown block 1 foot from the green block initially, then fade the distance until they are 1 inch apart. Next, randomize the order of presentation. Same contingencies as in Phase II. Same recording techniques J must pick up the brown block 100% of the trials to move to Phase IV.

The following stimuli are presented:
Pick up the green (orange, brown) block
Pick it up
Green (or orange, etc.)

The following were presented as verbal reinforcers:
That's right
Right
Good (boy)
That's it
That's green, etc.

The following were presented as verbal reprimands:
No!
That's not green (orange, etc.)!
APPENDIX VI

Instructions Written for Students in Study I

Follow this sequence of steps for evaluating each trial, which is represented on the data sheet by a box divided into 3 sections for S-stimulus, R-response, and C-consequation, respectively. When the therapist is ready to begin a trial, watch the client's behavior:

I. Before and during therapist's presentation of the stimulus

A. If the client is sitting still, hands in lap, eyes directed at the therapist:

Does the therapist present the appropriate stimulus immediately after attending behavior begins? (within 5 seconds from start)

1. If "yes", mark a "+" in column 1 and go to II: A or B
2. If "no", mark a "-" in column 2 but go to II: A or B

After filling in column 1, go onto II: Following the therapist's stimulus presentation

B. Is the client sitting appropriately, but is not looking at the therapist? If "yes", therapist should follow procedure for shaping attending behavior (see accompanying program) to bring about the conditions in I-A.

C. If the client is emitting any other behavior incompatible with attending (arms waving, rocking, leaving seat, drumming finger, vocalizing) has the response been consequated once before by a verbal punisher (Sp)?
1. No, behavior has not before been consequated
   a. Does the therapist present a verbal Sp (No! Stop that!)?
      (1) If "yes", mark a "+" in column 3 and go on to B
      (2) If "no", mark a "-" in column 3 Make next recording when conditions described in I-A occur.
   b. Does the client stop this behavior within 3-4 seconds from the time the Sp is presented?
      (1) If "yes", therapist should wait 3 seconds, then present the appropriate prompt, depending on the subject's attending behavior, I-A or I-B.
      (2) If "no", go on to No. C-2.

2. Yes, the response was consequated by a verbal Sp once before. Does the therapist pair the verbal Sp this time with a more aversive event (louder voice intensity, a loud noise, extinction, time out, etc., as specified in the procedure)?
   a. If "yes", mark a "+" in column 3 and go to I-B or I-C.
   b. If "no", mark a "+" in column 3, and a "-" in column 3 of the next box for each additional unpaired verbal Sp.

3. Yes, the response was consequated more than once by a verbal Sp paired with the more aversive event during the entire session, resulting in no measurable decrease over the last 2-3 sessions. Procedure should be re-evaluated.
Whever subject's inappropriate behavior has stopped following implementation of the techniques described in I-B and I-C, therapist should wait 3 seconds from time behavior has ended, and if there is appropriate attending behavior, therapist presents verbal stimulus and is recorded as described in I-A.

II. Following the therapist's stimulus presentation

A. Does client respond appropriately within 3 seconds of therapist's verbal stimulus? (see written definition of appropriate response)
   1. If "yes", mark a "+" in column 2 + +
   2. If "no", mark a "-" in column 2 + -

B. Does the client respond inappropriately? (see written definition)
   If the inappropriate response is a "no response" (a continuation of behavior occurring prior to the therapist's command) or if it is another response incompatible with appropriate responding mark a "-" in column 2 + -

III. Therapist's consequence of appropriate and inappropriate behavior

A. Following client's appropriate responses, is the therapist's consequence within 3 seconds following onset of the client's behavior?
   1. If "yes" mark a "+" in column 3
   2. If "no" mark a "-" in column 3
B. If client's inappropriate response was "no response", had the verbal stimulus been presented once already?

1. If no:
   a. Does therapist wait 3 seconds, then repeat prompt?
      (1) If "yes", mark a "+" in column 3
      (2) If "no", mark a "-" in column 3
   b. Does subject respond appropriately following repeated prompt?
      (1) If "yes", go to II-A then to III-A
      (2) If "no", go to II-B then to III-B-2

2. If yes (the verbal prompt had been presented once already, and the subject continues to emit inappropriate responses)
   Does therapist present prompt again, accompanied by a physical prompt?
      (1) If "yes", mark a "+" in column 3
      (2) If "no", mark a "-" in column 3, one in each successive box for each time the verbal prompt is presented without the physical prompt.

C. If client's inappropriate response was a response incompatible with the appropriate response, follow procedure for recording described in I-C.
APPENDIX VII

Instructions Written for Students in Study II

During the observation sessions, you will be watching the inter-
action of a student therapist with his or her client, specifically,
the stimulus presentation and the consequence of the client's re-
sponse. Verbal (v) and physical (p) responses made by the therapist
in both these situations will be recorded on a 3-second interval basis.

Stimulus presentation

1. Before focusing on the therapist's behavior, look at the client's
   attending-type behaviors:
   Condition A: The client is looking at the therapist, hands in
   lap, feet on floor, sitting still.
   Condition B: The client is not emitting one or more attending-
   type behaviors: therapist must wait 5 seconds from the initial
   stimulus, then verbally prompt the client, saying "Look at me!"
   The client will then be in either Condition A or C.
   Condition C: The client continues to not emit attending-type
   behaviors: therefore, the therapist should wait 5 seconds from
   the first verbal prompt, then present a physical and verbal
   prompt which will reinstate Condition A.

2. The client should be in Condition A, attending for a period of
   at least 3 seconds before the therapist gives the verbal stimulus.
   Type a small "s" for the initial, or programmed, stimulus, and
for every verbal response emitted which is the same command, or some modification of that command. Ex: "Put the block in the box." "Put it in, you can do it!" This would be recorded as "s s". When the carriage returns, and a command is being presented, type an "s" again. For example first line: "s s" and second line "s".

**Client's response**

Prior to the recording session, the observer should be familiar with the definition of the client's appropriate and inappropriate responding. Type a "c" for correct, and "i" for incorrect response.

**Consequation**

The response recorded will be whether verbal and/or physical responses occur in intervals of 3 seconds during the therapist's consequation of the client's appropriate or inappropriate behavior. The typewriter returns every 3 seconds. All you have to do is type the symbols for the ongoing behavior whenever the carriage returns.

1. If the client's response was correct:
   As soon as the correct response occurs and it has been recorded, observe the behavior of the therapist (on the TV monitor) and record whether it is verbal, with a "v", and/or physical, with a "p" (or "t" for touch). A verbal response would be like a sentence ("You did that just right") phrase ("way to go") or word (usually an interjection like yes! great!) Review and be familiar with the list of verbal responses most frequently used.
by the student. A physical response would be a hug, pat, hand-shake, etc. Extraneous physical like putting the client's shoe on, or brushing a bug off his shirt would not be included. Continue to type "v" and/or "p" when the carriage returns as long as the behavior continues.

2. If client's response was not correct, or there was no response:
Type a "v" for any verbal response which is a reprimand "No, that's not right," etc. If the carriage returns, and the verbal responses continue, type another "v".
Type a "p" for every interval in which a physical response occurs, like pulling the client's hand away from the task, etc.

If the client does not respond following the initial or programmed stimulus, the therapist will repeat the stimulus or some modification of it as a prompt. A physical prompt might also be presented. Type an "s" for the verbal prompt as it occurs in each interval, the same procedure as for stimulus presentation. Type a "p" or "t" if the physical prompt was presented. A physical prompt is any manual guidance which reproduces the response sequence leading to the correct response.

Example:
"Give me the blue block" "no, that's not right, the blue one!"
"Right!" "Good boy!"

Recorded as:

Si
v
sc
vv