The Effects of Instructions with and without Contingencies on Parent’s Attending Behavior

Betty Lou Fry

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THE EFFECTS OF INSTRUCTIONS WITH AND WITHOUT CONTINGENCIES ON PARENT'S ATTENDING BEHAVIOR

by

Betty Lou Fry

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment
of the
Degree of Master of Arts

Western Michigan University
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ACKNOWLEDGEMENTS

I especially wish to thank Professors David Lyon, Hermann Peine, and Robert Hawkins for their substantial advice and assistance in designing this study and in writing this thesis. My thanks also go to James H. Kaye, director of the Multihandicap Center, for his cooperation and permission to use staff and facilities of the Center in completing this research. I cannot neglect to thank the mothers and children who acted as subjects for this experiment. Hopefully, this research project has benefitted them and will continue to benefit others.

Betty Lou Fry
The Effects of Instructions With and Without Contingencies On Parent's Attending Behavior

Betty Lou Fry, M.A.
Western Michigan University, 1973

Mother attending to appropriate child behavior and accompanying changes in appropriate child behavior were measured to assess the effects of various instructional conditions. Several appropriate behaviors for a group of child subjects were measured concurrently under various stimulus conditions using interval recording procedures. A multiple baseline design was used with instructional conditions of (a) no instructions to mother, (b) instructions to mother to attend to all appropriate behaviors and only to appropriate behaviors, (c) instructions to mother to attend to specific behaviors as defined by one-word definitions, (d) instructions to mother to attend to the same specific behaviors as defined by detailed behavioral definitions, and (e) instructions to mother to attend to these behaviors as defined by detailed behavioral definitions supplemented by intermittent experimenter praise to the mother contingent upon mother attending to these designated behaviors. Results showed that the most effective instructional condition, as reflected by the most change in child behavior, was that of provision of detailed behavior definitions with contingent praise to the mother.
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The present investigation was designed to study changes in parent behavior as a function of various instructional conditions. The effect of instructions is of growing importance as the work of the clinical psychologist and behavior therapist becomes more that of consultation than of direct intervention (Kanfer and Phillips, 1970). The shift is from an emphasis on working directly with a single client and being the direct agent of behavior change to that of being consultant or supervisor of others who function as the change agents (Garfield, 1971). As Tharp and Wetzel point out,

"behavior modifiers frequently do not see the patient himself but work through someone who bears a natural relationship with him. The behavior modifier tells people what to do. He gives specific instructions and . . . accepts . . . responsibility for the outcome (1969, p. 41)."

This increased use of others as agents of change can be a highly desirable trend. The therapist can work through others who are a natural part of the client's environment, thereby facilitating immediate effects, assuring the maintenance of change, and providing for generalization of the changed behaviors (Kanfer and Philips, 1970). Often this natural agent is a substantial contributor to the problem behavior so that intervention at the mediator agent point can be effective in changing both the behavior of the agent and the client. Intervention at this point allows for
reprogramming the environment in which the client lives by reprogramming this functional agent of change (Patterson, McNeal, Hawkins, and Phelps, 1967).

The importance of natural agents of change is especially apparent in the family environment of the child client. The Wahler, Winkel, Peterson, and Morrison study (1965) as well as other replications (Wagner and Ora, 1969; Bernal, Duryee, Pruett, and Burns, 1968) indicate that a mother's social behaviors may function as a powerful source of positive reinforcers. The studies also indicated that deviant behaviors could be weakened by eliminating mother's attention to deviant behaviors, and that behaviors incompatible with deviant behaviors could be strengthened by making mother's attention contingent on these appropriate behaviors.

Home intervention through training parents has already been recognized as an important means for eliminating deviant child behavior and maintaining more acceptable child behavior. Training techniques to prepare parents as agents of change have ranged from group lecture sessions (Peine, 1971) to individual and specific intervention designs (Hawkins, Peterson, Schweid, and Bijou, 1966). Settings have varied from the artificial laboratory environment (Hanf, 1971) to controlled intervention training in the natural environment of the home (Hall, 1972).

The emphasis of many of these approaches has been the
training of new ways to provide consequences for behaviors. For example, to reduce a child's behavior of head banging, Peine (1972) taught the parents to dispense a loud "No!" contingent upon the head banging. Other researchers (Risley and Wolf, 1964; Hall, Axelrod, Tyler, Grief, Jones, and Robertson, 1972) have introduced tokens, candy or praise as reinforcing consequent events to be used by the parents. One very frequently used conditioned reinforcer has been adult attention. Both teacher attention (Harris, Wolf, and Baer, 1964; Hart, Reynolds, Baer, Brawly, and Harris, 1968) and parent attention (Hawkins, et al., 1966; Herbert and Baer, 1972) have been shown to increase the child behaviors they follow.

Parents are frequently counselled to use differential social attention to change child behaviors. This procedure of providing contingent and frequent application of adult attention following appropriate child behaviors while removing adult attention following inappropriate child behaviors has often resulted in successful modification of those child behaviors (Wahler, et al., 1965; Wagner and Ora, 1969; Bernal, et al., 1968). There have been a few reported failures (Wahler, 1969; Herbert, Pinkston, Hayden, Sajwaj, Pinkston, Cordua, and Jackson, 1973). Herbert, et al. (1973) even found unexpectedly that deviant child behaviors increased substantially with the parents' use of differential
attention.

Still, it may be particularly useful to train parents in the differential use of adult attention because of certain practical advantages of this procedure.

"First, it has been suggested that parents of children with behavior problems are reinforcing deviant child behaviors by giving attention to those behaviors. Second, few new parent behaviors would need to be taught. Rather, the present levels of parent attention would be rearranged with respect to child behaviors. Third, parents could use this procedure in any setting with their children (Herbert, et al., 1973, p. 16)."

However, it can be the case initially, that parents provide attention following almost every child behavior (Herbert, et al., 1973). As Bernal (1970 a) has pointed out, home intervention must involve more than just new ways to provide consequences for behaviors. Home intervention must also teach the parent to discriminate appropriate from inappropriate child behaviors. Hawkins, et al. (1966) warned that a deficiency of many child therapies has been that the child's behavior was seldom observed by the therapist, leaving the definition of the problem and description of the child's behavior totally up to the parents. Behavior modification programming has used a number of methods to teach discrimination of appropriate and inappropriate behaviors. Bernal (1970 a) used light cues to indicate to the parent when he should reinforce a response, and provided
videotapes as feedback to the parent. Some training programs use physical modeling and few have neglected at least verbal descriptions of behavioral definitions. Many researchers (Bernal, 1970 b; Wagner and Ora, 1969; Wahler, et al., 1965) have initiated casework with discussions of child behaviors that most concerned parents and as casework continued, these researchers provided feedback and praise to parents for their appropriate attending to child behaviors.

The research just cited looked at the combined effects of initial instructions, feedback and praise, but did not attempt to make a component analysis to determine the differential effects of instructions and instructions with feedback or praise. There is no clear consensus on just what effect the specification of the behavior to be changed may have on the rate of the parent's attending (already shown to be a probable reinforcer for the child) to that behavior.

Herbert and Baer (1972) have shown, for example, that as a parent self-monitors the frequency of attention he gives to a behavior, the frequency of that attending is modified. The nature of the definitions and specification of behaviors to be modified may act as significant independent instructional variables affecting parent behavior. The affect of behavioral definitions and experimenter praise
contingent upon the parent's attending to the defined behaviors is important to consider.

Comparison of these instructional conditions may alert the consultant therapist to possible procedures, aside from defining child behavior problems, that he should consider when working through a parent mediator. Tharp and Wetzel (1969) warn that there must be reinforcement for the mediator's behavior and that most often the critical source of this reinforcement is the consultant. They argue that "the target's modification is attributable to mediator effectiveness, . . . the mediator's modification (and effectiveness) is attributable to the consultant-effectiveness (Tharp and Wetzel, 1969, p. 57)."

The present study investigated the effectiveness of various instructional conditions for mother's attending as shown by changes in child behavior, both with and without experimenter praise contingent on the mediator-mothers following these instructions. The present study was designed to control for and compare the various effects of behavioral definitions alone on parent's attending behavior. The multiple baseline design permitted the study of parent attending with no behavioral definitions modeled, with one-word definitions modeled, and with detailed behavioral definitions modeled. The design also separated the effects of detailed definitions without consequences to the mother for attending
to the defined behaviors from the effects of detailed definitions with consequences contingent upon parent-attending to the defined behaviors. The study investigated the function of any changes in parent attending upon child behavior.
METHOD

Subjects. The experimental subjects were three mother-child pairs. The mothers were the mediator-subjects for the assessment of the operational variables of the parent-training procedures, and their children were the target-subjects for evaluating the function of any changes in the mothers' behaviors. Three pre-school boys were ages 2 ½ years, 3 years, and 4 years old; their mothers ranged in age from 25 years to 32 years. The child-subjects and their mothers were participating in the six week training course of the Infant Training Component of the Multihandicap Center, a service of the Kalamazoo Valley Intermediate School District of Kalamazoo, Michigan. All three children had been referred to the Multihandicap Center because of severe expressive language deficits, functional retardation, and disruptive social behaviors including tantruming, aggressive biting and kicking, inconsistent ability to follow simple directions, and inability to remain seated and attend to a simple task for more than thirty seconds. Two of the children also displayed moderate motor disabilities. These problem behaviors and deficits interfered with group pre-school placement which would be highly desirable for treatment of their severe language deficits.

The mothers and children attended the Center three
days a week on Monday, Wednesday, and Friday for two hours each morning. Children received one hour group work with Center staff using behavior modification procedures to increase language skills and appropriate peer interactions. Two of the child-subjects also received one half hour of physical therapy each day. The mothers received instructional materials on reinforcement, extinction, time-out, shaping, chaining, punishment, growth and development, developmental scales, general language training, Distar language training, Peabody language training, and physical therapy. In addition, there were intermittent quizzes and daily staff discussion of the readings.

The mothers worked with their own children for one twenty-minute experimental session each day. Conditions of the experimental sessions were discussed with the mothers only when in the experimental observation booth and only prior to or during the experimental sessions. At no time were Center staff (other than the experimenter) who were working with the children or parents aware of the instructional conditions or purposes of the experimental sessions.

Setting: Experimental sessions for the mother-child pairs were twenty minutes long and held three days a week, over a six week period. During all sessions each mother and child were observed in the observation booth, a room about 6' x 8', furnished with two chairs, assorted toys, and
many books. The same booth and furnishings were used throughout all sessions for all subjects.

All recording observations were made over closed-circuit television, originating from a camera and microphone installed in the observation booth. The observers, equipped with stop watches, data sheets, and clip-boards were stationed in a viewing room with two 8" x 8" television screens, a speaker system to and from the observation booth, and an automatic interval timer. The interval timer clicked at the beginning of each new interval and simultaneously lighted one of six red lights. This interval timer allowed observers to record behaviors for predetermined time intervals without also trying to follow a stop watch. In addition, the automatic timer insured that two observers could begin and stay on the same data entry space for each interval. Reliability checks were made by two observers, sitting one to the side and behind the other. Observers referred to written behavior definitions before each recording session and all reliability observers participated in a practice recording session with the experimenter (who was the primary observer) before an actual reliability check was taken.

The experimenter would escort each mother-child pair to the observation booth, provide written instructions for that session, briefly discuss the instructions and post
them on the inside of the booth door, and leave, closing
the booth door to indicate initiation of that session.

Interval recording of mother and child behaviors was done
for ten minutes of each session. Observers began recording
simultaneously with the click and initiation of the inter­
val timer light indicator numbered one, and continued for
the ten-minute period. At the end of the twenty-minute
session, the experimenter announced the end of the session
over the booth speaker or by knocking at the door of the
booth. There was no interval recording during the first
three sessions of observation which were used for develop­
ing the child-behavior definitions.

Behavior definitions

Child behavior. Six appropriate active child behaviors
were defined for recording use for each child throughout the
study. These same behavior definitions were later used in
training the mothers. Examples of appropriate behaviors
included:

Obeying: child follows a vocal instruction
within five seconds of completion of the
command.
Naming: child names an object or action
without the prompt, "Say (name)," occurring
immediately before.

These behaviors were determined and defined by reference
to observational records, professional reports, and develop­
mental assessments. A list of all child-subject behavior
definitions is included in the Appendix.

**Mother behavior.** Parent attention was defined as any vocalization or verbalization directed to the child, any physical contact with the child, and any accepting materials from or handing materials to the child.

**Recording**

**Counting.** The child and mother behaviors were continuously recorded for ten-second intervals of one ten-minute period of each session (Hall, 1971). For a single ten-second interval two classes of behaviors were recorded:

1. **child behavior,** the occurrence of any of the six specifically defined appropriate behaviors. Each behavior was coded and this code checked on the data sheet only for the first observation of that behavior in that interval. Zero to six different child behaviors could be recorded in one interval.

2. **mother behavior,** as attention or no attention. Only one occurrence of parent attention was recorded for each interval. If no parent attention was observed for that interval then a code for no attention was recorded on the data sheet.

Basic dependent variables for the mothers were the frequencies of total recorded attention that occurred in the same intervals as any of the appropriate child behaviors and frequencies of attention that occurred in intervals
where no appropriate child behaviors were observed. For the children, the dependent variable was the number of recorded intervals that any of the six appropriate behaviors occurred. Each of the six behaviors for each child was also considered separately for frequency of occurrence.

Reliability. Inter-observer agreement on the occurrence of appropriate child behavior and mother attention or no attention was computed by a frequency ratio. The number of instances of agreement on the observer records was divided by the total number of agreements plus disagreements. This quotient was multiplied by 100 to obtain percentage of agreement between observer records (Hall, 1971). One or more reliability checks were made for each condition (except the Phase 1 baseline condition) for each mother-child pair.

Parent training procedures. Before any intervention, the experimenter explained the intent of parent-training, the need for recording over a long time period, and the delay of training during assessment and baseline. Parents were assured that the procedure used might be helpful in managing their child but the parents were not told specifically what variables would be used.

Assessment. During the first three sessions of observation, mothers were told to interact with their children as usual, and observational data were collected to determine
definitions of child behaviors to be used throughout the study. Mothers were told that they would be monitored by closed-circuit television at all times while in the observation booth.

Phase 1. During Baseline, mothers were told to interact with their children as usual. Observers began interval recording of mother and child behaviors. Baseline continued through only two sessions. Because it was necessary to complete this research within the six week time span of the training course, this condition and some others were necessarily short.

Phase 2. This phase measured attending to appropriate behaviors with no behavior definitions provided. Each mother was given written instructions to attend to appropriate child behaviors. Instructions were briefly discussed by the experimenter and then posted on the inside of the booth door where they remained throughout this baseline. The instructions simply stated:

Please give attention to your child for appropriate, desirable behavior. By attention I mean anything you say to him whether it is praise, scolding, or just 'umhum'. Attention also means any time you touch him, hug him or spank him and any time you give him materials or toys or accept them from him. Attention is anything you do directed toward your child. Only attend to his good behavior.

The experimenter left the mother and child in the booth, indicating that the mother should start as instructed. No
feedback was given pertaining to the mothers' accuracy of attending to appropriate behaviors. Phase 2 was in effect for three sessions (from session 3 through session 5).

Phase 3. This phase measured attending to appropriate behaviors given one-word definitions. During this condition, the mothers were instructed to continue attending as before but in addition each mother was given one-word definitions of the six appropriate child behaviors being recorded. She was directed to attend as originally defined, to these six behaviors. The list of six behaviors was posted on the inside of the booth door and remained there throughout the remainder of the study.

An example of a one-word definition was "walking." A list of all one-word definitions for all subjects appears in the Appendix.

This one-word definition phase was in effect for each child for sessions 6 through 8 for all six behaviors, for sessions 6 through 10 for four of the behaviors, and for sessions 6 through 12 for two child behaviors.

Phase 4. This phase measured attending to appropriate behaviors with detailed behavioral definitions provided. During this condition, mother-attending was to continue but each mother was supplied with detailed behavioral definitions for her child's appropriate behaviors and was instructed to attend to her child following these behaviors.
She reviewed these definitions with the experimenter and then the definitions were posted on the inside of the booth door throughout the following sessions. The definitions were exactly those used by the observers for interval recording of child behavior. An example of a behavioral definition was:

Appropriate walking should include: child going from one place to another using walking gait with arms and hands at his side. Child walks without using wall or furniture to support him.

Each mother was given two detailed definitions for each part of this phase. This phase had three parts.

**Part 1.** At session 9, each mother was given two detailed behavioral definitions to attend to; these detailed definitions remained in effect for the rest of the study.

**Part 2.** At session 11, each mother was given two more detailed behavioral definitions as in Part 1, but in addition, intermittent social praise was given by the experimenter over the booth speaker contingent on the mother's attending to either or both of these two behaviors. For example, the experimenter announced, "I really like the way you are attending to his appropriate walking," immediately following the mother's behavior of hugging her child while he was walking appropriately. This contingent praise for mother attending to these two behaviors remained in effect from session 11 until the end of the study at session 14.
Part 3. At session 13, in addition to continuing instructions and contingencies as in Parts 1 and 2, two new detailed behavior definitions were provided. The conditions on these two behavior definitions were the same as those in Part 1, with no experimenter praise for attending, and were in effect for the last two sessions, session 13 and session 14.
RESULTS

Subject pair number one

Child behavior. Six appropriate child behaviors (sharing, walking, sitting, reading, obeying, and being quiet) were recorded for the child George. Observers recorded the occurrences of the six different behaviors during each ten-second interval of a ten-minute period for each experimental session. Observers recorded only the first occurrence of each kind of behavior so that a total of six behaviors could be recorded for each interval but one kind of behavior could be recorded only once per interval. Since only one occurrence of a particular kind of behavior was recorded per interval, the greatest frequency of interval-occurrence that could be recorded for any one behavior was 60 per session. Figure 1 indicates the frequencies of each of George's behaviors for each session of the study. The figure has been appropriately divided to represent the four phases of the study.

During Phase 1, the first two sessions of baseline, no special instructions were given to George's mother. She was told only to interact with George as usual. The figure indicates that all child behaviors occurred at low rates. The average percentage of interval-occurrence for the six behaviors was only 8%.
Fig. 1: Individual Frequencies of Appropriate Behaviors For the Child George

Frequencies of ten-second intervals for which each of six appropriate child behaviors were observed for George during each session of the study are shown here. Recording was done through four experimental phases: Phase 1, baseline, no instructions were given to his mother; Phase 2, attending, George's mother was instructed to attend to George following appropriate behaviors only; Phase 3, six one-word definitions were given to his mother and she was instructed to attend to these behaviors; and Phase 4, Part 1, detailed definitions for sharing and walking were provided, during Part 2, detailed definitions for sitting and reading were given George's mother and she was intermittently praised for attending to George following these two behaviors, and during Part 3 two more detailed definitions, obeying and being quiet were provided but with no contingent praise for attending to them.

Reliability checks are indicated by the notation 1.
Fig. 1

Phase 1  Phase 2  Phase 3  Phase 4

Part 3  Part 2  Part 1

Quiet  Obeying  Reading  Sitting  Walking  Sharing

FREQUENCY  60  60  60  60  60  60

SESSIONS  1  2  3  4  5  6  7  8  9  10  11  12  13  14

KEY: 1: Reliability Check
During the three sessions of Phase 2, attending, George's mother was provided with the definition of attending and told to attend to George only for appropriate behaviors. The figure indicates that there were no orderly changes for the six behaviors.

During Phase 3, George's mother was given six one-word behavior definitions for George's appropriate behaviors and told to attend to these behaviors. As indicated in Figure 1 there were no substantial changes in the frequency of the six behaviors though 'sharing' and 'walking' were under the Phase 3 conditions for three sessions, 'sitting' and 'reading' were under this phase for five sessions, and 'obeying' and 'being quiet' were under this phase for seven sessions. The average percentage of interval-occurrence for all behaviors under Phase 3 conditions was about 9% per session.

During Phase 4, Part 1, George's mother was given the detailed behavior definitions for 'sharing' and 'walking' and was instructed to attend to these appropriate behaviors. Although these conditions were in effect for six sessions, 'sharing' remained at its previous rate and 'walking' showed no substantial increase. The frequencies of these two behaviors remained essentially unchanged through all conditions of the study.

During Phase 4, Part 2, George's mother was given
detailed behavior definitions for 'sitting' and 'reading'. During these four sessions, experimenter praise was given intermittently following the mother's behavior of attending to one or both of these behaviors. No praise or feedback was given at any other time. Figure 1 indicates that 'sitting' and 'reading' both increased rapidly. Contingent experimenter praise was given only about four times per session. The two behaviors in this instructional condition occurred in an average of 50% of the intervals though their average percentage of interval-occurrence had been only about 5½% for all previous conditions.

During Phase 4, Part 3, George's mother was given the detailed behavior definitions of 'being quiet' and 'obeying' and told to attend to these child behaviors. As in Part 1, no experimenter contingencies were made on the mother's attending. Neither behavior showed changes during the two sessions of this condition. 'Obeying' and 'being quiet' occurred in an average of only 7% of the intervals per session in Part 3, just less than the 10% average occurrence over all previous sessions.

Reliability. Reliability checks were made by two observers recording for at least one session of each experimental condition except the Phase 1 baseline. Interobserver agreement was calculated for occurrences of each child behavior and for occurrences of mother attending.
observer agreement for George's six appropriate behaviors averaged 89%. Agreement for 'sharing' was 87%, for 'walking' was 88%, and for 'sitting' was 96%. Agreement for 'reading' was 92%, for 'obeying' was 90%, and for 'being quiet' was 80%. Observer reliability ranges are presented in Table 1.

Mother behavior. Mother attention or no attention was recorded for each ten-second interval for a ten-minute period per experimental session. The greatest frequency of interval-occurrence that could be recorded was 60 per session. The total frequency for each session that mother attention occurred in the same interval as any of the six appropriate child behaviors is indicated in Figure 2. The percentages of intervals of appropriate child behaviors in which the mother attended are shown in Table 2. As Figure 2 shows, rates of mother attention to appropriate child behavior varied very little from rates of appropriate child behaviors across all conditions. George's mother was very consistently attending during intervals when an appropriate child behavior occurred.

The total frequencies for each session that George's mother's attention occurred in intervals for which no appropriate child behaviors were observed is indicated in Figure 3. During Phase 1, baseline, when no special instructions were given to George's mother, attending occurred for
Table 1

<table>
<thead>
<tr>
<th>Subject</th>
<th>Behavior</th>
<th>Range</th>
<th>Average</th>
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<tbody>
<tr>
<td>George</td>
<td>Reading</td>
<td>80%-97%</td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td>Sitting</td>
<td>82%-100%</td>
<td>96%</td>
</tr>
<tr>
<td></td>
<td>Being Quiet</td>
<td>68%-93%</td>
<td>80%</td>
</tr>
<tr>
<td></td>
<td>Sharing</td>
<td>73%-100%</td>
<td>87%</td>
</tr>
<tr>
<td></td>
<td>Obeying</td>
<td>72%-100%</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>Walking</td>
<td>80%-98%</td>
<td>88%</td>
</tr>
<tr>
<td>Mitch</td>
<td>Obeying</td>
<td>70%-98%</td>
<td>87%</td>
</tr>
<tr>
<td></td>
<td>Imitating</td>
<td>72%-97%</td>
<td>82%</td>
</tr>
<tr>
<td></td>
<td>Attending</td>
<td>72%-93%</td>
<td>83%</td>
</tr>
<tr>
<td></td>
<td>Sitting</td>
<td>72%-100%</td>
<td>93%</td>
</tr>
<tr>
<td></td>
<td>Naming</td>
<td>80%-100%</td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td>Reading</td>
<td>70%-100%</td>
<td>89%</td>
</tr>
<tr>
<td>Ralph</td>
<td>Reading</td>
<td>72%-100%</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>Imitating</td>
<td>95%-100%</td>
<td>98%</td>
</tr>
<tr>
<td></td>
<td>Obeying</td>
<td>82%-90%</td>
<td>85%</td>
</tr>
<tr>
<td></td>
<td>Sitting</td>
<td>82%-95%</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>Naming</td>
<td>70%-93%</td>
<td>82%</td>
</tr>
<tr>
<td></td>
<td>Throwing</td>
<td>93%-100%</td>
<td>95%</td>
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Fig. 2: Frequencies of Intervals in Which Appropriate Child Behaviors Were Observed, and Frequencies of Such Intervals in Which Mother Attention Was Also Observed

The number of ten-second intervals per session for which at least one (or up to six) appropriate child behavior was observed are shown here for each subject through the four phases of the study. In addition, the number of such intervals for which the mothers also attended are presented.
Table 2

Percentage of Mother Attending During Intervals With Appropriate Child Behaviors

<table>
<thead>
<tr>
<th></th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Phase 4</th>
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<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>George</td>
<td>100%</td>
<td>100%</td>
<td>80%</td>
<td>52%</td>
</tr>
<tr>
<td>Mitch</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Ralph</td>
<td>92%</td>
<td>97%</td>
<td>66%</td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>George</td>
<td>100%</td>
<td>90%</td>
<td>98%</td>
<td>100%</td>
</tr>
<tr>
<td>Mitch</td>
<td>70%</td>
<td>100%</td>
<td>100%</td>
<td>84%</td>
</tr>
<tr>
<td>Ralph</td>
<td>74%</td>
<td>66%</td>
<td>79%</td>
<td>100%</td>
</tr>
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</table>
Fig. 3: Frequencies of Intervals in Which No Appropriate Child Behaviors Were Observed, and Frequencies of Such Intervals in Which Mother Attention Was Also Observed.

The number of ten-second intervals per session for which no appropriate child behaviors were observed are shown here for each subject through the four phases of the study. In addition, the number of such intervals for which the mothers also attended are presented.
Fig. 3

Phase 1  Phase 2  Phase 3  Part 1  Parts 2 & 3

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<thead>
<tr>
<th>Sessions</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Part 1</th>
<th>Parts 2 &amp; 3</th>
</tr>
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</table>

KEY: CHILD BEHAVIORS ABSENT  MOTHER ATTENDING

29
almost all intervals where no appropriate child behaviors were observed. During Phase 2, George's mother was instructed to attend only to George's appropriate behaviors. The mother's frequency of attending during intervals when no appropriate child behaviors were observed, immediately dropped to a substantially lower frequency than the frequency of intervals of no appropriate behaviors. However, mother attending soon resumed a frequency as great as that of intervals of no appropriate behaviors and remained this way throughout the rest of the study. Frequencies of mother attending gradually decreased as frequencies of intervals with no appropriate child behaviors decreased but there was very little difference between the two frequencies. The percentage of intervals of no appropriate child behaviors for which the mother attended are presented in Table 3.

Reliability. Agreement between observers on the occurrence of mother attending averaged 94% with a range from 87% to 98%.

Subject pair number two

Child behavior. Six appropriate child behaviors (attending, obeying, sitting, reading, naming, and imitating) were recorded for Mitch. Figure 4, divided into the four phases, indicates the frequencies of each of Mitch's behaviors for each session of the study.
Table 3

Percentage of Mother Attending During Intervals With No Appropriate Child Behaviors

<table>
<thead>
<tr>
<th></th>
<th>Phase 1</th>
<th></th>
<th>Phase 2</th>
<th></th>
<th>Phase 3</th>
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<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>6</td>
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<tr>
<td>George</td>
<td>100%</td>
<td>94%</td>
<td>68%</td>
<td>44%</td>
<td>100%</td>
<td>77%</td>
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<tr>
<td>Mitch</td>
<td>98%</td>
<td>90%</td>
<td>53%</td>
<td>43%</td>
<td>29%</td>
<td>100%</td>
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</tr>
<tr>
<td>Ralph</td>
<td>86%</td>
<td>77%</td>
<td>6%</td>
<td>0%</td>
<td>46%</td>
<td>75%</td>
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<td>10</td>
<td>11</td>
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<td>13</td>
<td>14</td>
</tr>
<tr>
<td>George</td>
<td>84%</td>
<td>73%</td>
<td>70%</td>
<td>100%</td>
<td>88%</td>
<td>67%</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitch</td>
<td>35%</td>
<td>100%</td>
<td>28%</td>
<td>65%</td>
<td>100%</td>
<td>100%</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ralph</td>
<td>5%</td>
<td>14%</td>
<td>33%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Fig. 4: Individual Frequencies of Appropriate Behaviors For the Child Mitch

Frequencies of ten-second intervals for which each of six appropriate child behaviors were observed for Mitch during each session of the study are shown here. Recording was done through four experimental phases: Phase 1, baseline, no instructions were given to his mother; Phase 2, attending, Mitch's mother was instructed to attend to Mitch following appropriate behaviors only; Phase 3, six one-word definitions were given to his mother and she was instructed to attend to these behaviors; and Phase 4, Part 1, detailed definitions for attending and obeying were provided, during Part 2, detailed definitions for sitting and reading were given Mitch's mother and she was intermittently praised for attending to Mitch following these two behaviors, and during Part 3 two more detailed definitions, naming and imitating, were provided but with no contingent praise for attending to them.

Reliability checks are indicated by the notation 1.
Fig. 4

Phase 1  Phase 2  Phase 3  Phase 4

Part 3

Imitating

Naming

Reading

Sitting

Obeying

Attending

SESSIONS

KEY: 1: Reliability Check
During Phase 1, the first two sessions of baseline, no special instructions were given to Mitch's mother. All six behaviors occurred at low rates with an average percentage of interval-occurrence of only 10%.

During the three sessions of Phase 2, attending, Mitch's mother was provided with the definition of attending and told to attend to Mitch only for appropriate behaviors. The figure shows that all six behaviors stabilized at very low rates with an average percentage of interval-occurrence of only about 4%.

During Phase 3, Mitch's mother was given six one-word behavior definitions for Mitch's behaviors and told to attend to these. Figure 3 indicates that even though the behaviors were exposed to Phase 3 conditions for varying lengths of time, only 'imitating' and 'reading' increased above baseline levels.

During Phase 4, Part 1, Mitch's mother was given the detailed behavior definitions for 'attending' and 'obeying' and was instructed to attend to these behaviors. The figure indicates that the frequencies of these two behaviors did not change through any conditions of the study.

During Phase 4, Part 2, Mitch's mother was given detailed behavior definitions for 'sitting' and 'reading'. (The definition of 'sitting' for Mitch was not similar to the defined 'sitting' behavior for George, one 'sitting'
being on the floor with legs extended and the other 'sitting' being in a chair.) During these four sessions, experimenter praise was given intermittently following the mother's attending to one or both of these behaviors. The figure shows that both behaviors rapidly increased to the maximum occurrences of 60 intervals for a session. Contingent experimenter praise was given only about four times per session. The two behaviors in this instructional condition occurred in an average of 50% of the intervals though their average percentage of interval-occurrence had been only 7% during Phase 1 and Phase 2 combined, and only 28% during Phase 3.

During Phase 4, Part 3, Mitch's mother was given the detailed behavior definitions of 'naming' and 'imitating' and told to attend to these child behaviors. As in Part 1, no experimenter contingencies were made on the mother's attending. The two behaviors occurred in an average of 15% of the intervals in Part 3, little more than the 13% average occurrence over all other sessions.

Reliability. Inter-observer agreement for Mitch's behaviors averaged 88%. Agreement for 'attending' was 83%, for 'obeying' was 87%, and for 'sitting' was 93%. Agreement for 'reading' was 89%, for 'naming' was 92%, and for 'imitating' was 82%. Reliability checks are indicated in Figure 4. Ranges of agreement are reported in Table 1.
Mother behavior. The total frequency for each session that mother attention occurred in the same interval as any of the six appropriate child behaviors is indicated in Figure 2. The figure shows that Mitch's mother's rates of attention varied very little from rates of appropriate child behaviors across all conditions. The percentages of mother attention during intervals of appropriate child behaviors are shown in Table 2. Mitch's mother was consistently attending during intervals when an appropriate child behavior occurred.

The total frequencies that the mother's attention occurred in intervals for which no appropriate behaviors were observed, is indicated in Figure 3. The percentages of mother attending during intervals of no appropriate behaviors are shown in Table 3. During Phase 1, baseline, when no special instructions were given Mitch's mother, attending occurred for almost all intervals where no appropriate child behaviors were observed. During Phase 2, Mitch's mother was instructed to attend only to appropriate child behaviors. The mother's rate of attending during intervals when no appropriate child behaviors were observed, immediately dropped much lower than the frequency of such intervals; the rates differing by 42% during this phase. Following this condition and through all other conditions, the frequency of mother attending resumed a frequency as
great as that of intervals of no appropriate child behaviors and remained this way. Frequencies of mother attending in such intervals decreased only as the frequency of intervals with no appropriate behaviors decreased.

**Reliability.** Agreement between observers on the occurrence of mother attending averaged 98% with a range from 93% to 100%.

**Subject pair number three**

**Child behavior.** Six appropriate child behaviors (reading, imitating, naming, throwing, sitting, and obeying) were recorded for Ralph. Figure 5, appropriately divided into the four phases, indicates the frequencies of each of Ralph's behaviors for each session of the study.

During Phase 1, the first two sessions of baseline, no special instructions were given to Ralph's mother. All six behaviors occurred at low rates with an average percentage of interval-occurrence of only 16%.

During the three sessions of Phase 2, attending, Ralph's mother was provided with the definition of attending and told to attend to Ralph only for appropriate behaviors. All six behaviors remained at baseline rates with the exception of 'sitting'. The average percentage was about 12%.

During Phase 3, Ralph's mother was given six one-word behavior definitions for Ralph's appropriate behaviors and told to attend to these behaviors. The figure indicates
Fig. 5: Individual Frequencies of Appropriate Behaviors For the Child Ralph

Frequencies of ten-second intervals for which each of six appropriate child behaviors were observed for Ralph during each session of the study are shown here. Recording was done through four experimental phases: Phase 1, baseline, no instructions were given to his mother; Phase 2, attending, Ralph's mother was instructed to attend to Ralph following appropriate behaviors only; Phase 3, six one-word definitions were given to his mother and she was instructed to attend to these behaviors; and Phase 4, Part 1, detailed definitions for reading and imitating were provided, during Part 2, detailed definitions for naming and throwing were given Ralph's mother and she was intermittently praised for attending to Ralph following these two behaviors, and during Part 3 two more detailed definitions, sitting and obeying, were provided but with no contingent praise for attending to them.

Reliability checks are indicated by the notation 1.
that all six behaviors remained at their former rates, though the behaviors were under Phase 3 conditions for varying lengths of time. The average percentage of interval-occurrence for these six behaviors was only 17%, very close to the average for Phase 1 conditions.

During Phase 4, Part 1, Ralph's mother was given the detailed behavior definitions for 'reading' and 'imitating' and told to attend to these appropriate behaviors. The figure shows that the behaviors changed little though these conditions were in effect for six sessions.

During Phase 4, Part 2, Ralph's mother was given the detailed behavior definitions for 'naming' and 'throwing'. During these four sessions, experimenter praise was given intermittently following the mother's attending to one or both of these behaviors. The figure shows that both behaviors increased over Phase 3 conditions. Contingent experimenter praise was given only about three times per session. 'Naming' and 'throwing' occurred in an average of 18% of the intervals per session in Part 2, much more than their 6% average during Phases 1, 2, and 3.

During Phase 4, Part 3, Ralph's mother was given the detailed behavior definitions of 'sitting' and 'obeying' and instructed to attend to these behaviors. (This definition of 'sitting' was the same as that of Mitch's but very different from George's 'sitting'.) As in Part 1, no
experiment terminating praise was given to Ralph's mother for attending to these behaviors. Frequencies of neither behavior changed.

**Reliability.** Inter-observer agreement for Ralph's behaviors averaged 90%. Agreement for 'reading' was 90%, for 'imitating' was 98%, and for 'naming' was 82%. Agreement for 'throwing' was 95%, for 'sitting' was 88%, and for 'obeying' was 85%. Reliability checks are indicated in Figure 5. Ranges for agreement can be seen in Table 1.

**Mother behavior.** The total frequency for each session that mother attention occurred in the same interval as any of the six appropriate child behaviors is indicated in Figure 2. The figure shows that Ralph's mother's rates of attending to appropriate child behaviors varied little from rates of appropriate child behaviors through conditions of Phases 1, 2, and 3. During Phase 4, rates of mother attending were initially much lower but then returned to a very high rate for the last three sessions. The figure indicates that except for a lapse of about three sessions, Ralph's mother was attending closely during intervals when an appropriate child behavior occurred. Percentages of mother attending during intervals of appropriate child behaviors are presented in Table 2.

The total frequencies that Ralph's mother's attention occurred in intervals for which no appropriate child
behaviors were observed is indicated in Figure 3. During Phase 1, baseline, when no special instructions were given to Ralph's mother, attending occurred for most intervals where no appropriate behaviors were observed. During Phase 2, Ralph's mother was instructed to attend only to appropriate behaviors and her rate of attending during intervals when no appropriate behaviors were seen to diminish immediately much lower than the frequency of such intervals. The rates of mother attending and rates of intervals of no appropriate child behaviors differed by 47% during Phase 2. Ralph's mother continued to attend during these intervals only at a very low rate through Phase 3 and most of Phase 4 before she gradually resumed attending to most of such intervals in the last few sessions of Phase 4. Frequency of intervals of no appropriate child behaviors observed quickly decreased in frequency during Phase 2 and remained fairly low during the rest of the study. Percentages of mother attending during intervals of no appropriate behaviors is shown in Table 3.

Reliability. Agreement between observers on the occurrence of mother attending averaged 95% with a range of 90% to 100%.
DISCUSSION

The results of this study clearly support Tharp and Wetzel's argument that "the target's modification is attributable to mediator effectiveness, . . . and mediator's effectiveness is attributable to the consultant effectiveness (1969, p. 57)." Unfortunately it was not possible to record the absolute amount of mother attention (an index of mediator effectiveness) in this study since only one occurrence of mother attention was recorded for each interval and these mothers were observed to consistently attend during almost every interval of appropriate child behavior. The interval recording method used seemed to create a ceiling that did not allow the measurement of absolute changes in mother attending. Still, changes in appropriate child behaviors may be seen as reflections of the mothers' mediator effectiveness. The high observer reliability for all three child-subjects' behaviors and the use of some of the same definitions for all three subjects indicate that these behavior definitions were of similar clearness, across subjects. Thus effects of experimental variables should have been reflected similarly for all three subjects.

Consistent modifications in target behaviors across all three subjects occurred under Phase 4, Part 2 conditions.
These were the only experimental conditions which utilized active experimenter praise to the mediator-mothers contingent upon the mothers' effective attending to the target behaviors. All six behaviors thus treated for the three subjects increased substantially under Phase 4, Part 2 conditions so that their average occurrences were much higher than under any previous phase conditions and/or so that their occurrences reached the maximum frequency of 60 and could not have increased above this ceiling. No other experimental condition resulted in such consistent behavior changes across all three subjects.

The Phase 4, Part 2 praise conditions were maintained at the minimal expense of only three or four experimenter praise statements made during each session. There was considerable difference in effects on target behaviors between the Part 2 condition providing a few contingent praise statements, and the Phase 4, Parts 1 and 3 conditions which provided no experimenter praise or feedback. The main observer noted that mother attention seemed to be occurring more frequently within each interval following the two behaviors defined in Part 2 than previously, but the ceiling effect of the interval measures does not show this in the data. All three parts of the Phase 4 conditions provided the detailed behavior definitions for the mothers but the behaviors treated under conditions of Parts 1 and 3
showed no orderly changes from previous rates as those behaviors treated under Part 2 conditions had. The only additional variable for the Part 2 condition was that of contingent praise. This praise was given contingent on the mothers' attending rather than directly following the child's behavior and was given very sparingly so that its effects should act on the mothers' behavior rather than on the child's behavior. The addition of the contingent praise to the mothers appeared to be responsible for the resulting mediators' effectiveness in consistently increasing appropriate child behaviors. Thus, even the intermittent use of experimenter praise increased the mediator mothers' effectiveness as demonstrated by the modification of the target behaviors.

Without the accompanying contingent praise, the provision of detailed behavior definitions where only one-word definitions had been provided before, did not seem to systematically facilitate modification of child behavior. Four behaviors for each of the three subjects were treated thusly but results showed no consistent behavior changes across subjects. Only one behavior for one subject increased above the one-word definition conditions. The additional verbal specifications of target behaviors did not seem to aid these mothers' discriminations of the behaviors enough to increase their mediator effectiveness.
The provision of just one-word behavior definitions also did not appear to consistently aid the mediator effectiveness of the mothers. Child behaviors did not change consistently across subjects though there were occasional behavior increases for each subject. All six behaviors for each subject were treated under these instructional conditions in Phase 3 but only about one behavior per subject changed in frequency during this phase. The provision of one-word definitions seemed to have scattered effects on mediator effectiveness, resulting in changes in a few child target behaviors but with no orderly changes across behaviors or subjects.

Improvement of the mediator effectiveness of the mothers varied with different instructional conditions. The addition of one-word definitions seemed to result in scattered child behavior increases over their baseline rates. The addition of detailed definitions did not seem to improve effectiveness over the one-word rates unless the definitions were combined with experimenter praise for the mothers' mediating behaviors. This experimenter did not deal with the effects of contingent praise combined with the one-word definitions or praise for attending without provision of any behavior definitions. Experimenter praise appeared to be of vital importance in improving these mothers' effectiveness but investigation of the above
combined effects might reveal more efficient means of improving the mediating behaviors.

Just as Herbert, et al. (1973) observed, the frequency of mothers' attending to all child behaviors was initially very high and attending during intervals of appropriate behaviors remained so throughout all conditions. The mothers' attending during intervals when no appropriate behaviors were observed was also initially high but decreased substantially for all mothers when the instructions to attend only to appropriate child behaviors were first given. This decrease in attending during intervals of no appropriate behaviors was not coupled with decreases in attending to appropriate behaviors. The mothers appeared to be discriminating between intervals in which appropriate behaviors occurred and intervals of no appropriate behaviors. However, this discrimination, as seen by decreasing rates of attending during intervals of no appropriate behaviors was not maintained past the Phase 2 attending conditions. Gradually frequency of mother attending during intervals of no appropriate behaviors increased, until the rates of mother attending and such intervals were exactly the same. Perhaps contingent experimenter praise for non-attending during intervals of no appropriate behaviors would have improved the discrimination by maintaining this non-attending. No experimenter praise or feedback had
been given contingent on non-attending at any time during this study.

Bernal (1970 a) proposed that parents must be taught to discriminate appropriate from inappropriate behaviors. The three mothers in this study demonstrated that they initially could discriminate inappropriate from appropriate without experimenter assistance but that this discrimination was not maintained under conditions of no feedback or praise for the discrimination. On the other hand, mediator discrimination of appropriate behaviors was maintained only under conditions of contingent praise for attending to these behaviors.

It must be noted that even though the mothers did not maintain the differential attention procedure, intervals in which no appropriate behaviors occurred continued to decrease while intervals in which appropriate behaviors occurred continued to increase. This may be simply accounted for by the increases of intervals of appropriate behaviors which occurred for all subjects in the Phase 4, Part 2 condition. Still, this success in obtaining the desired behavior changes without maintaining the differential attention procedure was not an expected result. Perhaps, the assumption based on studies like those of Wahler, et al. (1965) or Bernal, et al. (1968), that the differential attention procedure is generally highly desirable for
obtaining child behavior change, should be questioned. Failures of parents' use of differential attention, as cited in the introduction, have also been reported. Herbert, et al. (1973) even reported its detrimental effects on the behaviors of some children. She warns that differential attention should be used with caution until its effects are better understood. Though not intended, this study showed that successful behavior changes could be obtained without maintaining the differential attention procedure and thus avoiding possible unexpected and troublesome results. It may be more practical at this point in the research history of differential attention to simply teach parents to discriminate and attend more consistently to appropriate children behaviors.

It appeared to be contingent praise rather than verbal instructions or definitions alone that "taught" or maintained the behavior discriminations for these mothers. Hawkins, et al. (1966) indicated that successful parent training seemed to be dependent upon "cooperative" parents. Perhaps this element could be more profitably considered in terms of the experimenter effectiveness in controlling parent mediator behavior. The effective consultant must provide the contingent consequences that will "teach" or maintain this "cooperative" parent behavior. Again, the results of this study substantiate Tharp and Wetzel (1969)
as they point out that the consultant may be the critical source of the necessary reinforcement for the mediator's behavior, even the mother-mediator.
APPENDIX
ONE-WORD BEHAVIOR DEFINITIONS

Subject 1: George
1. Reading*
2. Sitting
3. Being Quiet
4. Sharing
5. Obeying*
6. Walking

Subject 2: Mitch
1. Obeying*
2. Imitating*
3. Attending
4. Sitting*
5. Naming*
6. Reading*

Subject 3: Ralph
1. Reading*
2. Imitating*
3. Obeying*
4. Sitting*
5. Naming*
6. Throwing

* indicates that this is exactly the same behavior as another subject's behavior so marked and of the same name
DETAILED BEHAVIOR DEFINITIONS

Subject 1: George
1. Reading: child's head is oriented toward the book, at least one hand is touching the book, and the book is open to pages other than the two covers.
2. Sitting: child is sitting on the floor with legs extended straight in front of him and toes not turned in.
3. Being Quiet: child does not make loud vocalizations when physical contact is made with another person.
4. Sharing: child remains quiet when an object is taken or accepted from him.
5. Obeying: child follows a vocal instruction within five seconds completion of that command.
6. Walking: child goes from one place to another with hands at his sides, not using the wall or furniture for support.

Subject 2: Mitch
1. Obeying: child follows a vocal instruction within five seconds of completion of that command.
2. Imitating: child responds vocally to the command "Say _____ ."
3. Attending: child's head and eyes are oriented toward mother.
4. Sitting: child is seated in a chair with his bottom on the chair seat.
5. Naming: child names an object or action without the prompt "Say (name)" occurring immediately before.

6. Reading: child's head is oriented toward the book, at least one hand is touching the book, and the book is open to pages other than the two covers.

Subject 3: Ralph
1. Reading: child's head is oriented toward the book, at least one hand is touching the book, and the book is open to pages other than the two covers.
2. Imitating: child responds vocally to the command "Say ______.
3. Obeying: child follows a vocal instruction within five seconds of completion of that command.
4. Sitting: child is seated in a chair with his bottom on the chair seat.
5. Naming: child names an object or action without the prompt "Say (name)" occurring immediately before.
6. Throwing: child sends a ball from his hand or hands into the air.
BIBLIOGRAPHY


Bernal, M. E. Treatment program for training parents in management of antisocial boys. Grant application submitted to the National Institute of Mental Health, February, 1970. (b)


