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EVALUATING GOAL ATTAINMENT SCALING BY
INDEPENDENT OBSERVATION IN PARENT
BEHAVIOR MANAGEMENT COUNSELING.

The University of Oklahoma, Ph.D., 1976
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THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

EVALUATING GOAL ATTAINMENT SCALING BY INDEPENDENT OBSERVATION
IN PARENT BEHAVIOR MANAGEMENT COUNSELING

A DISSERTATION

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BY

ALAN RICHARD SILVERMAN

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1976

EVALUATING GOAL ATTAINMENT SCALING BY INDEPENDENT OBSERVATION
IN PARENT BEHAVIOR MANAGEMENT COUNSELING

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ABSTRACT

Goal Attainment Scaling (GAS) is a means of improving evaluation and accountability in counseling. Previous measures of GAS effectiveness have been counselor-evaluated or based on pencil-and-paper surveys. The present study evaluated GAS progress in parent counseling utilizing nonparticipant observations of in-home behaviors. Using an intensive design, a comparison of observation data with the parent's assessment of her progress on three target behaviors is made. Results are evaluated using Median Slope Analysis and a Pearson Product Moment Correlation.

The study is divided into four-week baseline, three-week treatment, and three-week post-treatment. Twice per weekend, 30-second observations in two-hour blocks are made in all phases. Data is collected on twenty behavioral categories. In the pre-treatment baseline, the counselor and parent construct a GAS grid on three areas of behavioral deficiency as indicated by baseline observations. Target behaviors used in this study were 1) consequences appropriate behavior with verbal response (praising), 2) consequences inappropriate behavior with verbal response (following through), and 3) models alternative response (modeling). The parent specifies behavioral goals and is asked to record hourly frequencies of the target behaviors. For the next two sessions, the counselor and parent work only on strategies for improving GAS outcome. There is no counseling in the final phase.

The study tests the following hypotheses: 1) parent self-observations of GAS behavior are similar to nonparticipant observations, and 2) gains made during the treatment phase do not diminish significantly during the post-treatment baseline phase.

The results of the study indicate that a) parent self-observations are highly inaccurate when compared with nonparticipant observations, and b) all three target behaviors showed their greatest increase during the post-treatment baseline phase. Only one showed significant improvement ($p \leq .05$) during the treatment phase. Inter-observer reliability was $r=0.965$.

This study indicates that GAS is a useful adjunct to counseling, and could be improved if clients were trained in self-observation techniques.

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EVALUATING GOAL ATTAINMENT SCALING BY INDEPENDENT OBSERVATION
IN PARENT BEHAVIOR MANAGEMENT COUNSELING

CHAPTER I

INTRODUCTION

As of June, 1975, the treatment and evaluation technique Goal Attainment Scaling (GAS) has been used by approximately 30,000 clients (Garwick, 1975). There have been 121 articles and dissertations written on GAS (McCree, Garwick, and Brintnall, 1975) and its applications in counseling and program evaluation. The Program Evaluation Project (PEP) in Minneapolis has spent millions of dollars since 1969, of NIMH money to develop GAS and disseminate information on its uses and effectiveness. The GAS procedure has never been validated as a treatment technique by nonparticipant behavioral observation (Garwick, 1975 and Lunde, 1975).

In this study the GAS procedure will be analyzed via comparison with nonparticipant behavioral observations. The durability of GAS effects after the conclusion of treatment will be examined.

GAS has received extensive attention at family-oriented treatment facilities. Benedict (1975) used GAS in establishing therapeutic goals for each adolescent in his residential treatment

center. He claims significant improvement, but supports these conclusions only with GAS data and participant observer ratings. Hedberg (1975) used GAS in a residential treatment center for adolescents. The follow-up guides constructed served as a basis for structuring each client's therapeutic program. Progress along each scale is charted daily by the participants and weekly scale values are derived for each problem area. Soland (1975) has found that GAS is a valuable technique for measuring therapeutic change when it supplements achievement, personality, and intelligence tests. Stoudenmire (1972) conducted a study of children with behavioral adjustment problems. In this study GAS was implemented in a two-week therapeutic camp for children. Stoudenmire's measurement techniques were child self-ratings and global behavioral ratings by the staff, which were done before and after camp. Stoudenmire found equivocal results in that the mean goal attainment score was slightly less than the expected level. Garwick (1972), in a critique of Stoudenmire's method, states that the use of identical scales for different campers may have spuriously lowered the overall group mean.

GAS was used as an adjunct to counseling in a study conducted by Smith (1976). Smith's study examined the effect the addition of Goal Attainment Scaling evaluation would have on the level of outcome of a time-limited counseling situation. The results suggested that GAS enhances counseling outcome. Smith used the Personal Orientation Inventory, Locus of Control Scale, Outcome Assessment Sheet, and Consumer Satisfaction Questionnaire to measure

change. All of Smith's measures were paper-and-pencil tests. He found significant positive change on each instrument as compared with a control group which was counseled without GAS. Smith points out a limitation of his study in stating that there was the possibility that a bias was communicated to the counselors as to whether they were counseling an experimental or control subject. Another criticism noted by Smith is: did this study compare the effects of a clearly defined structure against a more ambiguous or no-structure situation? He cites evidence presented by Archer and Kagan (1973) which suggests it is the relative level of structure/organization and the clarity of the treatment program that is the significant variable influencing the outcome of counseling.

Willer (1973) has conducted the only systematic GAS research in the area of parent counseling. She administered GAS along with the MMPI to an eight-member parent counseling group. The GAS grid was self-administered. A six-month follow-up on four of the members indicated that these parents attained their expected goal or better; there was also a decrease in the psychopathology as measured by the MMPI. The criticism of this study is that only half of these members were followed up and improvement may have been due to group interaction rather than GAS. Paper-and-pencil tests such as the MMPI are viewed by Mischel (1968) as invalid means of measuring post-treatment improvement.

The "Guide to Goals" (Garwick, 1973; see Appendix a) is a form completed by client and counselor. In this follow-up grid,

three problem areas are specified. The Guide to Goals allows for the differential importance of problems to be specified. Counselor and client assign a weight of 3 to the most important problem, 2 to less important problems, and 1 to problems which are fairly important, but which the client could tolerate were the problem not handled. The same importance can be given to more than one problem.

When filling out the Goal Attainment Follow-up Grid, the counselor and client formulate the "expected or more likely results," "much better than expected results," "somewhat less than expected results," and "somewhat better than expected results." For each problem the client indicates his current level of functioning. In reporting results a value of +1 is given for each level he reached over his expected level and -1 for each level below his expected level (Silverman 1975). At the conclusion of the procedure, a designated rater marks each scale to show the client's functioning with respect to each major level area (Austin, Liberman, King and De Risi 1974). Once these outcome levels have been determined, a Goal Attainment score can be computed.

Reliability

According to Garwick (1974), two types of reliability are important with GAS: the reliability of the follow-up guide construction and reliability of the follow-up guide scoring. Most of the reliability studies concentrate on inter-rater agreement, with a few others being concerned with alternate form reliability.

In the original study, conducted between 1968 and 1973 by the Program Evaluation Project, one follow-up guide was constructed by the intake interviewer for each of 44 clients in an inpatient unit, and a second one was made somewhat later by a staff therapist. These two follow-up guides were combined and then scored twice at two separate interviews by two different raters. For the follow-up guide prepared by the intake interviewer, the Goal Attainment scores from the two interviews were correlated at .711, and for that prepared by the therapist, scores from the two interviews correlated at .625, which explains less than 37% of the variance.

In another reliability study conducted by P.E.P., 60 clients were interviewed twice on the basis of the follow-up guides constructed by the intake interviewers, with the interviews first being conducted either by nurses or social workers, and then either by telephone or in person. For this study, Goal Attainment scores from the first and second interview were correlated by .65, and there were no significant differences in mean scores between the two types of interviewers, nor between the telephone and in-person interviews. All comparisons were Pearson Product Moment correlations.

It is important to note that all reliability procedures used participant ratings. The interviews were not conducted blindly.

GAS Validity

Garwick (1974) stated that the construct validity approach was essential to understanding the validity of Goal Attainment Scaling, since there are no clear-cut criteria available for concurrent validation. Garwick stated that the basic construct underlying GAS is the "attainment of expectations." He stated that his findings indicated that the Goal Attainment score was not significantly related to client characteristics such as age, sex, education, marital status, or intelligence. In one study of adult outpatients and day treatment cases, Goal Attainment scores based on a therapist scoring received correlation ranging from .58 to .84, with two questions of global ratings of treatment outcomes answered by the therapists. The correlations of the Goal Attainment score with a consumer satisfaction index was .23. The Goal Attainment score was shown to be correlated by .31 with predictive accuracy for one group of adult outpatients. These correlations indicate at best equivocal validity.

Austin et al (1974), in a study comparing GAS in behavior therapy with milieu therapy at Camarillo-Neuropsychiatric Institute Research Center (UCLA), found the mean outcome score for the Mexican-American clients at a three-month follow-up point (59.34) equal to that of all other day-treatment clients (59.70), and at six months somewhat surpasses the mean follow-up score for all other clients (68.56 and 62.97, respectively).

Austin et al also found that at three, six, and twenty-

four months after admission into day treatment centers, clients who participated in the behavioral-educational programs showed greater attainment of their therapeutic goals than clients involved in a more eclectic approach which was not described. GAS alone was used to evaluate improvement in both cases.

The previous review of the literature indicates that the GAS procedure is in definite need of some type of external validation. The majority of studies mentioned have used GAS without any external comparisons. Those that have made attempts at external validation have used paper-and-pencil tests which O'Dell (1974) and Mischel (1968) state are the least valid measurement indices.

The literature reported on the maintenance of GAS effects (Benedict, 1975), Willer, 1973, Soland, 1975, and Garwick, 1974) has also been equivocal. All follow-up attempts have utilized either self-report data or the reports of participant observers such as teachers and counselors. This study will employ an independent evaluation of the maintenance of GAS effects.

Austin (1974) and Garwick (1973b) state that GAS procedures are easily taught to clients. There is no evidence to support their claims. In this study, subjects will be required to construct their own GAS grids, and their progress will be monitored by independent observers.

Intensive Experimental Design

In lieu of using a conventional pre-test/post-test comparative group design to analyze the data in this study, an intensive reversal design will be employed. Thoreson and Anton (1974) state that for studying the progress in treatment of one subject, this method is superior to comparative group designs. Exclusive concern with group means and variabilities impedes the understanding of the treatment, and may lead to erroneous generalization about the treatment effects.

A major feature of intensive designs which study change over time is that the client serves as his own control. A baseline is derived from observations of the client prior to the implementation of GAS in this study. The data will be analyzed using a non-stationary time-series analysis, Median Slope Analysis (White, 1972). This analysis tests for systematic shifts in slope of data. The Median Slope Analysis has three ways of analyzing the data: 1) the line of progress, 2) step change, and 3) slope change. The line of progress summarizes the data in a straight line. It indicates whether the line is stable ascending or descending. The step change is computed to determine the immediate effect of an intervention upon a behavior. The slope change is computed to determine the long-term or more gradual effects of an intervention on a behavior. The step and slope change are also computed to determine significance of change between treatment phases. Fisher's Exact Probability Test and Binomial Test (Siegel, 1956) are used to

determine significance. See Appendix b for a description of the procedure for calculating a Median Slope.

Gottman (1973) advocated time-series methodology in psychotherapy research on the grounds that it permits the study of a single subject and the use of the subject as his own control. Time-series methodology also permits the study of the form of the effect of the intervention over time, and allows one to use information gathered as a useful tool in the evaluation of psychotherapy. Leitenberg (1973) and Barlow and Herson (1973) also conclude that single-case methodology has proven to be a vital source of strength in the development and evaluation of behavior modification. White (1972) makes the point that in group comparison studies, the use of averaging techniques decreases the probability that a subject's unique characteristics will be analyzed adequately with respect to the experimental outcome. In intensive designs which White calls "process research," daily changes are continually monitored and evaluated with respect to each individual's personal performance. Therefore, changes in any given subject's program may be planned at any time to meet specific and unique situations.

Definition of Research Problem

The previous section indicates the need for external validation of the GAS procedure. Garwick (1975) states that GAS procedures have never been systematically validated by direct behavioral observation. He states that this alone is an important area for investigation. Goal Attainment Scaling is specified by

Garwick to be a means of facilitating goal-oriented approaches to problematic situations. This study will examine the GAS procedure in the context of parent behavior management counseling. This context will be used because of the need for more controlled studies in the area of behavioral counseling with parents (O'Dell, 1974, see Appendix c), and because of the paucity of GAS research in the area of parent counseling.

GAS is a behaviorally oriented treatment technique. Willer (1973) cites the only use of GAS with parent counseling, and her study yielded equivocal results. It is therefore logical to recommend that because of the increasing use of both parent behavior management training and GAS, that GAS be implemented in a behavior management program context.

Statement of the Problem

This study will investigate the following problems:

- A) Are Parental behavioral gains made during treatment, and if so, how do they compare with pre-treatment and post-treatment baseline frequencies?
- B) Are ratings of self-observed parent behaviors correlated with actual frequency counts of the behavior as observed by nonparticipant observers?
- C) Does the progress of the subject affect the progress of her son?

Hypotheses

H₁: Parental gains made during the treatment phases will not diminish significantly during the post-treatment phase. This hypothesis is based on statements made by Garwick (1973), suggesting that GAS changes endure even after the procedure is concluded. The treatment and baseline phases will be compared using a Median Slope Analysis.

H₂: Parent observations of her GAS target behaviors will correlate highly with the behavioral observations made by nonparticipant observers. This hypothesis will determine whether the Subject is accurately assessing her own behavior. This hypothesis will be supplemented by correlating the ratings the Subject gave herself with the ratings given by the observers. The Subject's ratings will be correlated with her target behavior frequencies.

CHAPTER II

METHOD

Overview of the Design

This study employed Goal Attainment Scaling (GAS) as the primary counseling procedure (see Appendix d and e for outline and diagram of the design). Nonparticipant observers collected 18 two-hour sessions of behavioral data over a period of ten weeks (see Appendix f). A Goal Attainment Scaling follow-up grid was constructed following the pre-treatment baseline. The GAS grid was based on experimenter-determined behavioral frequencies indicated by the baseline data. During the treatment phase counseling at Learning House occurred on three occasions. Each counseling session was an hour in duration. Each session dealt with problems in achieving GAS goals and planning behavioral strategies. At the conclusion of this phase a second baseline was taken to determine whether GAS parenting behaviors were maintained or decreased. This phase lasted for three weeks.

Subject

The subject, Ms. M., is a 26-year-old mother of two. Her children are Bobby B., age 8 1/2 and Tina, age 2 1/2. She is currently divorced from Mr. M., although Mr. M. makes frequent

visits. Ms. M. was 17 years old when she gave birth to Bobby B. Because of poor relationships with her own parents she decided to marry Bobby's father, Mr. B. After they were married, Mr. B. allegedly acted irresponsibly and engaged in heavy drug abuse and alcohol intake. He died of a liver disease when Bobby was three years old. His death was partly attributed to drug overdose. Ms. M. indicated that she was working to support the family before the death of Mr. B., and because of this was not at home and could not provide a great deal of attention for Bobby. Bobby was moved from one babysitter to another. Mr. B. would often beat Ms. M. in front of Bobby.

Ms. M. married Mr. M. six months after Mr. B. died. Ms. M. reports that this was to insure that Bobby would have a father. Since Bobby was three years old, she noticed negative acting-out behavior from him. She stated that he became increasingly difficult to handle. Since kindergarten he has had problems at school.

Mr. M. is a strict disciplinarian. He often beat Ms. M. and on several occasions burned Bobby's hand after brutal beatings. A source of contention between Mr. and Ms. M. was Ms. M's feeling that Mr. M. was too harsh in his discipline of the children. Mr. M. is self-employed as a fight promoter in San Francisco.

Ms. M. initially placed Bobby in a large residential treatment center and then moved him to Learning House, which was a more family-oriented treatment center that emphasized self-control.

The other child, Tina M., is a normal 2 1/2-year-old. She has no evidence of emotional or health problems. Ms. M. states that Tina has a very different personality from Bobby.

The main child-management deficiencies observed in Ms. M. (using the data sheet in Appendix f) during the initial baseline phase of this study were lack of consequence of appropriate and inappropriate behaviors in the children and little modeling of alternative responses. These areas were made target behaviors on the GAS follow-up grid. See Appendix k for more information concerning the counseling during the study.

The main problem behavior for Bobby at Learning House is accepting negative consequences as manifested by complaining and arguing. Bobby's progress as indicated by his overall point total on the token economy and control of his complaining and arguing will be discussed in the results and discussion section.

The subject filled out the GAS follow-up grid during the first treatment session. At that time she was asked to record the frequencies with which target behaviors occurred (see Appendix g). This procedure was to be carried out during the two-hour segment when the observers were present. She was asked to rate each behavior on a ten-point scale following the two-hour self-observation (see Appendix h). She was instructed to continue the self-monitoring and rating for three weeks following the treatment phase. See the counselor's summary statement in Appendix k for more details concerning the counseling session.

Bobby was in residence at Learning House from Monday through Friday during the study. He went home Friday evening and stayed until Sunday evening. Counseling occurred when Ms. M. returned Bobby on Sunday evening.

Population

This study was conducted with the parent of a child in residence at Learning House, a behaviorally oriented residential treatment program (see Appendix i for further description). Parents with children at Learning House are routinely involved in the Parent Counseling Program and attend a weekly counseling session with Learning House staff (see Appendix j for more detail).

Counselor

The counselor was the Learning House program coordinator. She is trained in behavioral counseling theory and techniques and has four years of experience in counseling and behavior analysis. The counselor is currently pursuing her doctorate in psychology. The counselor was not informed of the purposes or goals of the study.

Data Collection

Nonparticipant Observers

Nonparticipant observers were Stanford undergraduates who had at least ten weeks prior training and experience in techniques of behavioral observation and data collection. They had successfully completed the first phase of the Learning House Student Involvement

System (Yates 1975). There were two observers for each two-hour session. They observed independently of each other. The observers for each session were selected from a pool of seven observers. No observer observed more than three times with the same partner. Observers were instructed not to discuss the observations between themselves except at observer-training sessions, which were conducted four times during the study. Observers were paid six dollars per complete session. They received a twenty-dollar bonus if they satisfactorily completed six sessions. A satisfactory session was one where the observers began and ended on time, and kept a distance of at least six feet between them. Observers were also required to write a summary of their data as well as anecdotal descriptions of incidents during the observation and to make behavior ratings during the treatment and post-treatment phase of the study. Observers collected data in the subject's home for two-hour segments twice per weekend. Observations were conducted Friday evening, Saturday evening, and Sunday afternoon with the Learning House child present. Data was summed in half-hour segments, yielding four data points per session and eight per week. Observers observed behavior for 25-second intervals and recorded for five seconds. Observers were given no information concerning the study.

Apparatus

A. The Goal Attainment Scaling follow-up grid (see Appendix a) is the sheet upon which the Goal Attainment Scaling procedure was conducted.

B. The Goal Target Behavior Data Collection Sheet (see Appendix f) is the form used by observers to collect data on parent behavior.

C. The Self-Monitoring Behavior Sheet is the form on which the parent monitored her GAS behavior frequencies (see Appendix g).

D. Once the GAS grid was filled out, the parent and observers filled out a Behavior Rating Sheet for each observation.

E. The Subject kept track of her target behavior frequencies with a golf wrist counter.

Procedure

(See Appendix k for counselor's report of procedure).

Baseline I (four weeks)

A. Subject was informed by the counselor at the initial one-hour meeting that observations are routinely done on families of Learning House children. The counselor informed the Subject that observations would occur twice per weekend, two hours per session for ten weeks.

B. The Subject met for an hour with the counselor once per week and discussed aspects of her family background that were relevant to her son's case.

C. The family was observed twice per weekend for four consecutive weekends.

Treatment (three weeks)

A. A GAS follow-up grid was constructed at the fourth session. Subject and counselor agreed on three problem areas. The counselor suggested the problem areas, deriving her suggestions from behavioral deficiencies indicated by the baseline data. The counselor helped the Subject define the problems in behavioral terms. The counselor asked the parent what outcome she expected in three weeks for each of the three target behaviors. A much better than expected and a much worse than expected outcome were defined and entered into the follow-up grid. The Subject weighted the importance of each problem from one to three, with one being the most important and three being the least important.

B. Behavioral goals were set and were to be measured in hourly frequencies.

C. A golf wrist counter was used to monitor self-observed frequencies.

D. Two hour-long counseling sessions were held after the grid was constructed. During these sessions only problems concerning GAS were discussed. Strategies to cope more effectively with the problem areas were offered by the counselor.

E. Observations continued in the same manner as Baseline I.

Baseline II (three weeks)

A. There was no contact between parent and counselors.

B. Observations continued using the same procedure.

Data Analysis

Data were analyzed using the non-parametric, time-series method of Median Slope Analysis. The median slope is the line which will minimize the sum of the unsigned deviations around it. Median Slope Analysis tests for significance in three areas: 1) Did the slope of the line significantly ($p \leq .05$) deviate from zero? 2) Are the step changes between phases of the study significant ($p \leq .05$)? 3) Did the changes in slope between the phases of the study differ significantly ($p \leq .05$) and do they differ in a positive or negative direction? Significance is calculated using Fisher's Exact Probability Test.

This study analyzed pre-treatment, treatment and post-treatment phases by Median Slope Analysis for the three Goal Attainment Scaling Target Behaviors. Total positive and total negative behaviors observed were also analyzed. All phases are analyzed for line of progress, step change, and slope change. This data was obtained by nonparticipant observers.

Subject ratings of her performance on target behaviors were correlated with her self-observed target behavior frequencies. Observer target behavior frequencies were correlated with self-observed frequencies. Observer ratings were correlated with observer frequencies and Subject ratings were correlated with observer ratings. All correlations were calculated using the Pearson Product Moment Correlation Coefficient (Pearson's r).

The Subject's son's behavioral performance at Learning House was analyzed using mean overall point production in the token economy and mean daily progress on the child's target behavior, complaining and arguing.

CHAPTER III

RESULTS

Median Slope Analysis

A Median Slope Analysis was calculated for the GAS target behaviors (see Appendix m for operational definitions of each):

1) consequences appropriate behavior with verbal response which shall be referred to as "praising," 2) consequences inappropriate behavior with verbal response which shall be referred to as "following through," and 3) models appropriate response which shall be referred to as "modeling." The Median Slope Analysis has three tests for significance for time-series data: 1) line of progress, 2) step change, and 3) slope change. Significance for the line of progress was calculated using Fisher's Exact Probability Test. Significance for step change and slope change were calculated using the Binomial Test (Siegel 1956).

The line of progress test showed no significant change for any of the treatment phases in any of the target behaviors. The only slope approaching significance was the treatment phase of the praising behavior ($p \leq .07$).

Insert Table 1 about here.

The Binomial Test for step change in praising showed significance in the comparison between pre-treatment and treatment ($p \leq .008$) and pre-treatment compared to post-treatment ($p \leq .001$). Both step increases were in a positive direction (see Table 2 and Graph 1).

The slope change in praising behavior was significant in the comparison of pre-treatment and treatment ($p \leq .001$) and pre-treatment and post-treatment ($p \leq .001$). Both slopes changed from negatively decelerating slopes to positively accelerating (see Graph 1).

Insert Table 2 about here.

Step change in following through behavior showed increases in all comparisons. Pre-treatment compared with treatment at $p \leq .1004$, treatment compared with post-treatment at $p \leq .006$, and pre-treatment compared with post-treatment at $p \leq .006$. (See Graph 2).

Slope change showed positive significance in the treatment compared to post-treatment ($p \leq .021$) and approached the $p \leq .05$ level of significance in the comparison between pre-treatment and post-treatment ($p \leq .058$). (See Table 2 and Graph 2).

In the modeling category none of the step change phase comparisons showed significance. Slope change comparisons between treatment and post-treatment phases showed significant increase ($p \leq .002$). There was also a significant increase ($p \leq .002$) between

pre-treatment and post-treatment phases. (See Graph 3).

Total positive behavior observed showed a step increase approaching significance ($p \leq .058$) in the comparison between treatment and post-treatment. There was a significant decrease ($p \leq .006$) in the comparison of pre-treatment and post-treatment phases for total positive behaviors. (See Graph 4).

The test for slope change in total positive behaviors showed a significant decrease ($p \leq .001$) in the comparison of pre-treatment and treatment. There was a decrease approaching significance ($p \leq .058$) in the comparison of pre-treatment and post-treatment phases. (See Graph 4).

In comparison phases of total negative behavior there was a generally decreasing trend. Significant step decreases were shown in the comparison of pre-treatment and treatment ($p \leq .008$), and treatment and post-treatment ($p \leq .006$). Step decreases approached significance in the comparison of pre-treatment and post-treatment phases ($p \leq .058$). (See Graph 5).

Slope changes for total negative behavior were shown to be significant ($p \leq .001$) and increasing in the comparison of pre-treatment and treatment phases, significant and decreasing ($p \leq .006$) in the comparison of treatment and post-treatment phases, and approaching significance ($p \leq .005$) and decreasing in the comparison of pre-treatment and post-treatment phases. (See Graph 5.)

Visual inspection of graphs indicates that praising behavior had a decelerating slope in the pre-treatment phase, a

significant ($p \leq .001$) slope change to a positively accelerating slope in treatment, and a continued positively accelerating slope in post-treatment.

Inspection of Graph 2 indicates that following through behavior had a decelerating slope during the pre-treatment phase. A significant ($p \leq .004$) step change occurred between pre-treatment and treatment phases. A continued decelerating slope during treatment, a significant ($p \leq .006$) step change, and a significant ($p \leq .021$) slope change in the post-treatment phase were also present.

Visual inspection of Graph 3 indicates that modeling behavior had no slope or step change in the pre-treatment or treatment phase, and a significantly positively accelerating slope in the post-treatment phase.

Correlations of Behavior Ratings and Frequencies

Pearson Product Moment correlations were calculated for each target behavior between Subject ratings and Subject frequencies, Subject frequencies and observer frequencies, and observer ratings and observer frequencies.

Insert Table 3 about here.

The correlations between the Subject's ratings and Subject frequencies were 0.857 for praising behavior, 0.262 for following through behavior, and 0.707 for modeling behavior.

Observers found the Subject to have a Goal Attainment Score of 28.88 during the last observation of the treatment phase, and a score of 63.65 during the last observation of the post-treatment phase. Goal Attainment Scores based on the Subject's self-observed frequencies were 50.44 at the conclusion of the treatment phase and 41.44 at the conclusion of the post-treatment phase. There was no test for significance.

Inter-Observer Reliability

Nonparticipant observers observed in pairs for 15 of the 18 observation sessions. The mean inter-observer reliability calculated using the Pearson r was .96 with a standard deviation of .06. See Table 5 for per session reliability, and Appendix m for operational definitions of observed categories. The range of reliability was between 1.000 and .84.

Insert Table 4 about here.

Bobby's Behavior

A between-phase comparison of Bobby's (the Subject's son in residential treatment) mean daily overall point total shows he earned an average of 12,534 points during the pre-treatment phase, 13,122 during the treatment phase, and 12,184 points during the post-treatment phase.

A between-phase comparison of Bobby's progress on his target behavior, complaining and arguing, shows a daily mean of 6.24 for the pre-treatment phase, 4.52 for the treatment phase and 7.31 for the post-treatment phase. There was no test for significance.

The correlations between the Subject's self-observed frequencies and observer frequencies were -0.707 for praising, 0.008 for following through, and -0.726 for modeling.

The correlations between observer ratings of target behavior and observer frequency were 0.383 for praising, 0.674 for following through, and -0.068 for modeling.

Goal Attainment Scores

Goal Attainment Scores were calculated using the formula in Appendix 1, from the data generated by the Subject in Appendix a. Scores were calculated from observer data at the conclusion of the treatment and post-treatment phases. Scores were also calculated based on Subject self-observed frequencies. The Goal Attainment Score is based on a mean of 50 and a standard deviation of 10.

Insert Table 5 about here.

CHAPTER IV

DISCUSSION

Interpretation of Median Slope Analysis

The first Hypothesis asks the question: Do changes occurring in the treatment phase maintain in the post-treatment phase? The results based on nonparticipant observation data show significant positive change in either step change or slope change or both in each of the three target behaviors. All comparisons between pre-treatment phases and post-treatment phases show a positive change in slope either at $p \leq .001$ and $p \leq .002$.

Of the three functions of Median Slope Analysis (White 1973), the slope change test for significance is the function with the greatest predictive validity. Visual inspection of target behavior Graphs 1, 2, and 3 indicates a trend of increasing improvement. From this it would be reasonable to infer that Goal Attainment Scaling has the effect of continued positive behavior change following the termination of treatment.

In the praising target behavior (Graph 1) there is evidence that the use of GAS reversed a pre-treatment downward trend during the treatment phase and continued the rate of improvement at a nearly identical slope during the post-treatment phase.

The slope of the praising target behavior showed the greatest improvement during the treatment phase. The slope of the modeling target behavior remained constant during treatment and the following target behavior shows a decreasing slope. An explanation of why the praising behavior improved in the treatment phase is that the subject may have already had that child-management skill at an effective level in her behavioral repertoire. The GAS counseling served the function of having her focus of that skill. The other behaviors may have accelerated only in the post-treatment phases because of the Subject's lack of familiarity with the skills. Thus the skills had to be taught to a greater extent in the modeling and following through categories.

The step change function of Medial Slope Analysis demonstrates immediate jumps in behavioral frequencies due to change in treatment phases. There are two highly significant and positive (both $p \leq .006$) step changes in following through behavior. The step increase between pre-treatment and treatment is an indication of the effect the GAS grid construction has on focusing the client's attention on a problem area.

A Median Slope Analysis graphed on total positive behaviors per session shows a significant ($p \leq .006$) decreasing trend in treatment and post-treatment phases. This finding further emphasizes the effect Goal Attainment Scaling has on improving specific target behaviors. This finding indicates that improvement did not generalize to non-target behaviors.

Total negative behaviors per session increased during the treatment phase. An explanation of this is that Goal Attainment Scaling counseling had the Subject taking a more directive approach in child-management. The increase in the Subject's negative behavior could be due to the children resisting the Subject's newly assertive approach. The increase in negative behavior might also be attributed to increased parent-child interaction. The return to a decreasing trend in negative behavior during the post-treatment phase may be attributable to more effective child-management skills on the part of the parent. It may also be attributable to the termination of counseling which asked for increased involvement.

None of the phases of any of the behaviors were found to be significant by the line-of-progress function of the Median Slope Analysis (see Table 1). This means that the description of the slope did not deviate significantly from a slope of zero. The slopes were characterized by gradual increases and decreases rather than radical changes.

A possible methodological limitation of this study might be seen in the requesting of the observers to rate the Subject on her target behaviors. The question might be raised that knowledge of the target behaviors might have biased their observation on those categories. This probably didn't occur because there was no significant change between pre-treatment and treatment phases in two of the three target behaviors. In future studies conducted using this methodology, this effect could be controlled by having

observers rate each behavior category observed.

Comparisons of Frequencies and Ratings

The Subject was asked to observe her own frequencies of target behavior emission during the period the observers were present. She was given a golf wrist counter and given brief training on self-observation (see Appendix k). The results of the comparison between self-observed frequency and observer frequency were: -0.707 on praising, +0.008 on following through, and -0.726 on modeling. These findings strongly refute the second Hypothesis which states that Subject frequencies will correlate highly with observer frequencies.

This poor performance on the self-observation task has strong support in the literature. Kazdin (1974), Simbins (1971), Jeffrey (1974), Herbert and Baer (1972), Kanfer (1970) and Hendricks (1973) report that self-observation of behavior is an unreliable measure of that behavior. Kazdin (1974) reports large discrepancies between self-monitored classroom behavior and external observation of that behavior. Simbins (1971) states that a subject's self-observation is more a function of social reinforcement provided by the therapist, authority figure, et cetera, than a result of the independent variables.

This study employed the use of a golf wrist counter to self-observe three target behaviors. The hourly totals were recorded on the Self-Monitoring Behavior Sheet (see Appendix g). Simbins (1971) states that: a) golf wrist counters are convenient

and precise, but do not guarantee accuracy; b) behavioral definitions may differ between subject and observer and may drift over time; c) prepotent behaviors incompatible with wrist counting may be present so the subject does not record when the behavior occurs; and d) when monitoring of two behaviors is required of the subject, observing both behaviors and pushing the wrist counter is highly unreliable.

The study deviates slightly from usual Goal Attainment Scaling methodology as set forth by Garwick (1973, 1972) and Smith (1976). In the majority of GAS cases the client is expected to monitor only gross behavior changes such as weight loss or asking someone of the opposite sex for a date. In this study the Subject was asked to self-observe lower intensity but higher frequency behaviors.

The correlation between the Subject's self-rating and self-observed frequency was: 0.857 for praising, 0.262 for following through, and 0.707 for modeling. This indicates that on praising and modeling the Subject's ratings were reflective of her self-observations. From this it may be inferred that her global impressions of her behavioral progress are similar to her erroneous frequency counts. Observer ratings of the Subject on her target behavior performance correlated at: 0.383 for praising, 0.674 for following through, and -0.068 for modeling. This indicates that for two of the three behaviors the Subject's global impressions of her performance reflected her observations more

accurately than the nonparticipant observers' (see Table 3).

Bobby's Behavior

The behavior of the Subject's son was quite stable with regard to daily earnings in the token economy. Learning House children average about 15,000 points per day. Bobby's average variation between phases was less than 1,000. It should be noted that his target behavior, complaining and arguing, decreased from an average 6.24 per day during the pre-treatment phase to 4.52 during the treatment phase and then increased to 7.31 in the post-treatment phase. Because of the highly dissimilar environments between Learning House and the Subject's residence it would be spurious to compare data from Learning House with data from the Subject's home.

Inter-Observer Reliability

The mean inter-observer reliability for the study was .96 which indicates the observations were highly reliable. All observations occurred as scheduled with the exception of three which had only one observer. See Table 5 for a session-by-session account of the observer reliability.

Goal Attainment Scores

Goal Attainment Scores were calculated from Subject-observed behaviors and nonparticipant behavior (see Appendix 1 and Table 4). Estimates of Goal Attainment levels achieved as measured by Goal Attainment Scores calculated from Subject-observed

frequencies bore little relation to observer-derived Goal Attainment. This is further evidence that the Subject's subjective evaluation of her performance bore little resemblance to objective observer data. Observer data indicated GAS improvement. Subject-observed data indicated no improvement.

Recommendations

As mentioned in the counselor's summary (see Appendix k), it is important to note the need for the Subject to have access to normative data in this type of methodology. The Subject would be better able to realistically set her goals if normative data were available prior to the construction of the Goal Attainment Scaling grid.

To improve the correlation between the Subject's perception of her performance and the objective reality of her performance, it would have been helpful to have the Subject undergo more intensive self-observation training. If the Subject has demonstrated proficiency in self-observation prior to the construction of the GAS grid, her perception might have more closely aligned with the nonparticipants observations.

In future research it is recommended that the interaction between the Subject and her children be more closely scrutinized. There should be more data obtained on the child's behavioral performance.

Conclusion

This study has shown that Goal Attainment Scaling, when used as an adjunct to counseling, significantly improved the Subject's actual behavioral performance in the areas of reinforcing appropriate behavior, following through with consequences and modeling alternative responses.

It was found that there was little relationship between the Subject's self-observation and behavioral observations made by nonparticipant observers. Global ratings made by observers did not reliably reflect their observations. Subject ratings did correlate highly with Subject's self-observations.

The Subject's son showed an increased frequency of response during the treatment phase. This is probably attributable to a more directive child-management approach taken by the Subject.

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Appendix a

GOAL ATTAINMENT FOLLOW-UP GUIDE

Appendix a
GOAL ATTAINMENT FOLLOW-UP GUIDE¹

	Concern 1. Following Through Number 1.	Concern 2. Praising Number 2.	Concern 3. Modeling Number 3.
Much worse than expected results	2	2	0
Somewhat less than expected results			
Expected or most likely results	6	6	3
Somewhat better than expected results			
Much better than expected results	10	8	6

1. Numbers are expected behavioral frequencies for a two-hour period.

Appendix b

PROCEDURE FOR CALCULATING MEDIAN SLOPE

Appendix b

Procedure for Calculating Median Slope¹

Using the Split Middle Technique to estimate the Median Slope and ask about the trend of the line-of-progress, and step and slope changes between phases.

1. Plot the data on semi-log chart paper.
2. Draw a line vertically down the paper to divide the various treatment phases. Connect the data points with straight lines.
3. Each phase will be analyzed separately.
4. Estimating the line-of-progress:
 - a. divide the data into two equal parts.
 - b. divide each half into two parts again. By this time, there should be four quarters and each quarter should have an equal number of data points, discounting any data points which fall on one of the vertical lines.
 - c. find the median for each half of the data. Draw a horizontal line from the median of the first half so that it crosses the vertical line dividing the first half of the data.
 - d. find the median for the second half of the data. Draw a horizontal line from the median of the second half so that it crosses the vertical line dividing the second half of the data.
 - e. draw a line to connect the two intersections. Count the number of data points falling above and below the line. If there are the same number above and below (discounting any points falling on the line), you are finished. If the number of points is unequal above and below the line, then move the

line up or down until there are. Note that sometimes it is impossible to get a perfect split because of points falling on the line. Do the best you can.

5. Estimating the value of the line-of-progress:
 - a. pick a point on the chart where the acceleration line crosses one of the rate lines on a day. Note that rate and call it the starting rate.
 - b. count up one week on the chart.
 - c. estimate the rate of the line-of-progress on the last day in that week. This is called the finishing rate.
 - d. divide the largest rate by the smaller rate.
 - e. decide whether the line is going up or down. If it is going up, label it "X" and if it is going down, label it "÷".
6. To estimate its statistical significance, draw a line across the entire data set at the median for the entire data set.
 - a. using the line that divided the data in half and the line for the median, you now have four quadrants.
 - b. construct a four-cell table, and count up the number of data points in each cell.
 - c. using the Fisher's Exact Probability Test and Table I from Siegel (Siegel 1956), determine if the line is ascending, descending, or stable.
7. Repeat this process for each adjoining phase.
8. To determine the step change between phases:
 - a. determine the intersection rates for each adjoining phase.The intersection rate is the rate at which each line-of-

progress crosses the change line.

- b. the step change is computed by dividing the largest of the two intersection rates by the smaller of the two intersection rates.
 - c. label the step change "X" if it was a change up, and label the step change "÷" if it went down.
 - d. to determine the statistical significance of the step change, move the line-of-progress up so that the two intersections are equal. If no step change occurred, then the line-of-progress in its new position should still divide the data in half.
 - e. count the number of data points above and below the line-of-progress in its new position. Using the Binomial Test (Siegel 1956), determine if the step change was significant.
9. To determine the slope change between phases:
- a. divide the largest slope by the smallest slope, and again use the labels "X" if the slope changed upward and "÷" if the slope changed downward. An exception occurs when the two slopes differ in direction. In that case, the two should be multiplied rather than divided.
 - b. to determine the significance of the slope change, move the line-of-progress from the first phase so that the intersections for the two phases are equal. Extend the slope from the first phase into the second phase.
 - c. if no slope change occurred, this line should logically divide the data in half.

d. count the number of data points above and below the line-of-progress. Use the Binomial Test (Siegel 1956) to determine if the slope change is significant.

¹Abridged from Owen White (1972).

Appendix c

RELATED LITERATURE

Appendix c

Related Literature: Behavior Modification Training for Parents

O'Dell (1974) reports that since 1965 approximately 70 studies have been published concerning the training of parents in behavior modification. Experimental studies, case study reports, and reports of broad research and development programs make up the majority of the literature in this area. In most of the studies reported, parents are taught to apply behavioral principles learned during counseling sessions.

The Learning House Parent Counseling Program is aimed primarily at training parents in behavior modification techniques and theory. The Parent Counseling Program utilizes the didactic and applied procedures similar to those reported by Patterson, Conger, Jones, and Reid (1975) at the Oregon Research Institute.

Paul (1969), Tharp and Wetzel (1969), and Tramontana (1971) present evidence that persons who wish to effect behavior change must move into the natural environment of the child. Patterson, Littman and Hinsey (1964) state that contingencies in the child's social environment are most responsible for the child's adjustment. Parents are the most significant people in a child's natural environment; therefore, they should be the target of therapeutic intervention programs. Patterson et al (1964) suggests that retraining the child's parents is the optimal solution for restructuring the child's environment.

At Learning House, parents are instructed in the methods of behavioral

management used in the treatment program. Attempts are made to have them abstract techniques from the Learning House approach and apply them in the home environment. There is an emphasis in the approach on self-control training. Self-management skills are taught to both parents and children.

According to Hartman (1970), Tramontana (1971), and Ullman and Krasner (1965), the following are advantages of behavior modification in parent training over other approaches: a) the ability for persons unskilled in sophisticated therapy techniques to learn behavior modification principles and carry out treatment techniques; b) the fact that behavior modification is derived from an empirically based theory; c) only a short training period is required; d) many parents like a treatment model that does not assume sick behavior based on the medical model; e) many childhood problems consist of rather well-defined behaviors that are conducive to behavioral treatment; f) the applicability of behavior modification in dealing with problems in the natural environment. O'Dell states that the most important evidence for parent training in behavior modification is derived from research demonstrating parents' ability to successfully carry out behavior modification programs with children.

Patterson, Cobb, and Ray (1972) found that working with parents without spouses, parents lacking in even the most rudimentary child management skills, and parents with low motivation to work in the program yields a poor prognosis for success. On this basis, Learning House usually selects children from homes where the parents show a willingness to work on family problems. There must be at least one parent present in the home, and that parent may be either a natural or foster parent. The child must not have

serious neurological problems or a psychotic diagnosis to be admitted to Learning House. The child must be able to function at public school. The Learning House program is designed mainly for children who have gone beyond the bounds of resources within the family.

Gelfand and Hartmand (1968) report that wide parent variability is a major training problem. They concluded that individually tailored training programs are needed to deal with this variability. Learning House tailors each parent counseling program to the specific needs of the family.

At Learning House, parents are taught to define behaviors, to count and graph their frequency, and to apply consequences that will accelerate or decelerate the frequency of their occurrence. This is coupled with Patterson's (1968) method of training parents to understand operant learning principles and knowledge to the way undesirable behavior is produced and maintained in the child's social learning environment. Modeling techniques similar to those reported by Patterson and Brodsky (1966) are used at Learning House. Some of these techniques involve the counselor demonstrating the behaviors the parent is to acquire. This role playing technique is called "behavioral rehearsal". In this technique, the parent practices the behaviors to be used under the supervision of the counselor before applying them to the family.

O'Dell (1974) concludes that experimenters working in this area of training parents in behavior modification have begun to develop a technology to help parents deal with their children's problem behaviors. This technology has been applied within a wide variety of parent and child problems.

Regarding research designs in this area, individual case studies using single-subject designs are the most common. Hall and Broden (1967) employed a multiple baseline design where several behaviors were measured simultaneously in order to determine the effects of a contingency on several types of behavior at once. Wahler (1969) presented a series of reversal studies to find methods to control "oppositional children". In this study, parents were asked to attend to desirable behaviors and to remove the child to a boring place when he exhibited oppositional behaviors. Wahler's graphs show that oppositional behavior dropped to low levels. When parents returned to their old methods of dealing with oppositional behaviors, the frequency increased to near previous levels. Finally the parents were asked to reinstate their use of differential attention and removal of the child when he misbehaved. Again the child's oppositional behavior returned to the lower frequency levels previously achieved. There were pre- and post-treatment frequency baselines taken in this study. The present study used a reversal technique similar to Wahler's.

According to Patterson et al (1972), a variety of measurement techniques have been used in this area of research. The least valid and reliable have been found to be paper-and-pencil tests and attitude surveys. Patterson et al (1975) employs a daily parent report system in his parent counseling program. This report provides a daily account of major incidents in the home. The most valid and reliable measurement technique, according to Gardner, Pearson, Bercovici and Bricker (1968), Zeilberger, Dampen, and Sloane (1968), and Patterson et al (1972), has been to have two or more trained observers

count behavioral frequencies and consider observations where over 80% inter-rater reliability was obtained. Yates' (1975) procedure is used routinely to observe child residents at Learning House, and was used with slight variations in this study. Follow-up measurements similar to those employed by Patterson et al (1972) were used for three weeks after the final treatment phase.

O'Dell concludes that there is a need for more controlled studies dealing with the effectiveness of behavior modification training with a parent. This study used Goal Attainment Scaling as a focal point for parental implementation of behavior modification techniques. The outcome was assessed both in terms of the parent's achievement on the GAS follow-up grid, and direct behavioral observation.

Appendix d

OUTLINE OF EXPERIMENTAL PROCEDURE

Appendix d

Outline of Experimental Procedure

Baseline I (four weeks)

- A. Parent and counselor met once per week to establish rapport
- B. Subject was observed twice per weekend for four consecutive weekends

Treatment (three weeks)

- A. Counselor constructs GAS follow-up grid
- B. Two weekly counseling sessions were held to discuss strategies for improvement on GAS target behaviors
- C. Observations continued in the same manner as Baseline I

Baseline II (three weeks)

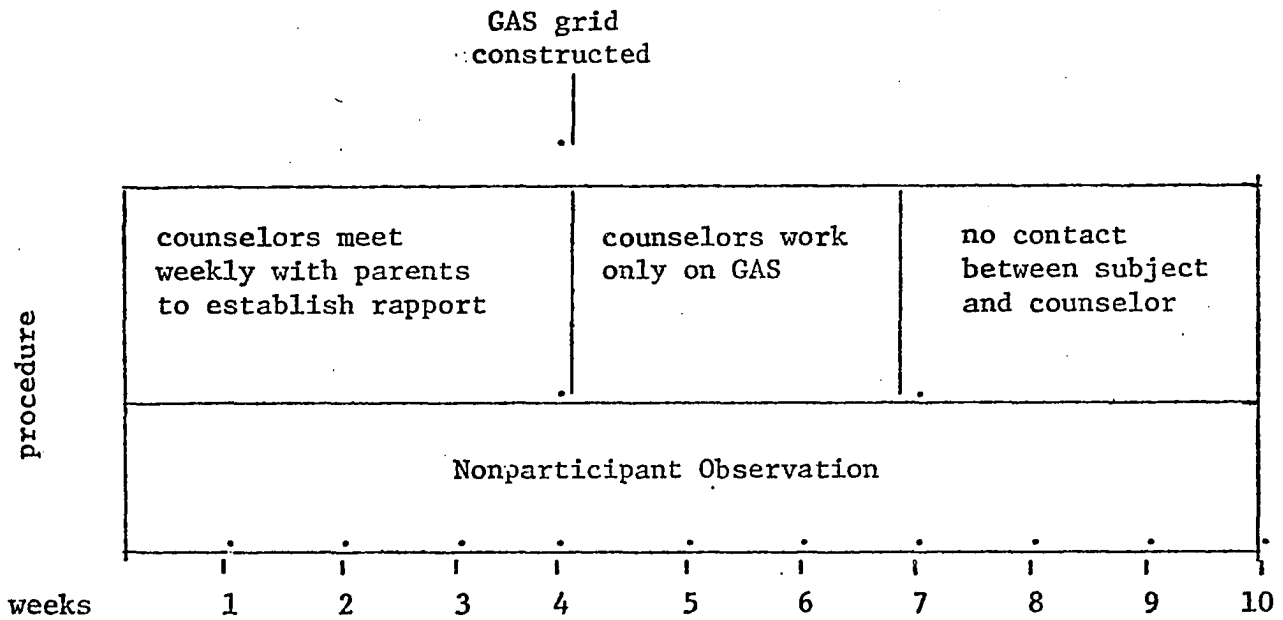
- A. There was no contact between parent and counselor
- B. Observations continued using the same procedure

Appendix e

DIAGRAM OF EXPERIMENTAL PROCEDURE

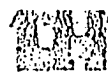
Appendix e

Diagram of Experimental Procedure



Appendix f

OBSERVER DATA COLLECTION SHEET



Learning House

Subject: _____, Date Observed: ____/____/____, Observation Site: _____

Data Systems, Nonparticipant Observation, Goal Target Behavior Data Collection Sheet

1/2 hour:

Time Windows (units=30 sec.)		0	5	10	15	20	25	30	35	40	45	50	55	60 s.
Negative Goal Target Behaviors	1 argues w/ children													
	2 yells at children													
	3 * does not consqt. ap. beh. w/VR													
	4 does not consqt.inap.beh.w/VR													
	5 no cont. nonV praise for ap.beh.													
	6 does not model alt. R													
	7 does not provide expl.of consq.													
	8 Par. not w/in earshot of child.													
	9 Par.do not back each other up													
	10 Models appropriate response													
Tally for Time Window viewed:														
Positive Goal Target Behaviors	1 does not argue w/ children													
	2 does not yell at children													
	3 consqt. ap. beh. w/ V R													
	4 consqt. inap. beh. w/ V R													
	5 cont. non-V praise for ap. beh.													
	6 models proper alt. R													
	7 provides expl. of consq.													
	8 Par. w/in earshot of children													
	9 Par. back each other up													
	10 Does not model approp. response													
Time Windows (units=30 sec.)		0	5	10	15	20	25	30	35	40	45	50	55	60
Inter-Observer Agree/Disagree														

Appendix g

SELF-MONITORING BEHAVIOR SHEET

Appendix g

Self-Monitoring Behavior Sheet

Day _____

Date _____

Behavior 1

Behavior 2

Behavior 3

Time	8		8		8	
	9		9		9	
	10		10		10	
	11		11		11	
	12		12		12	
	1		1		1	
	2		2		2	
	3		3		3	
	4		4		4	
	5		5		5	
	6		6		6	
	7		7		7	
	8		8		8	
	9		9		9	

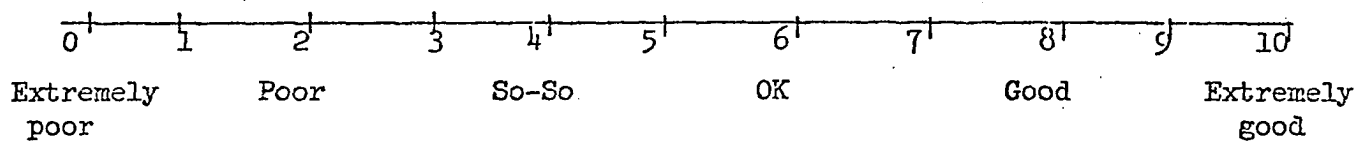
Appendix h

BEHAVIOR RATING SHEET

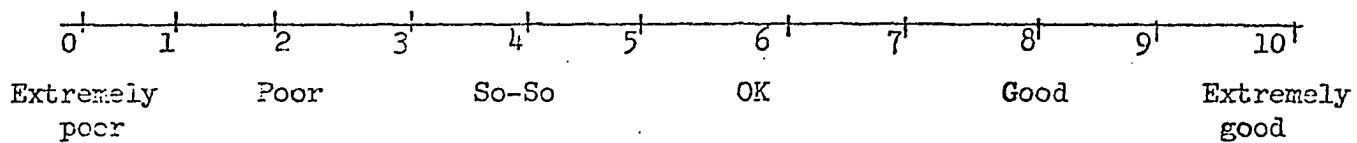
Appendix h

Behavior Rating Sheet

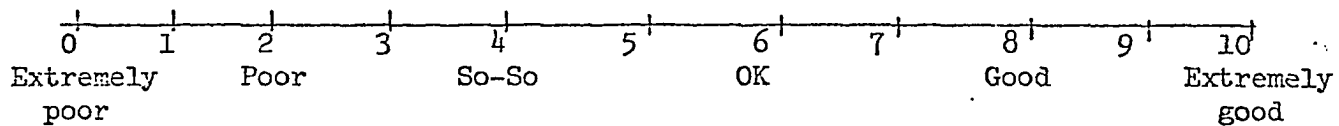
Behavior 1



Behavior 2



Behavior 3



Appendix 1

LEARNING HOUSE

Appendix i

Learning House

Learning House, according to a report by Becker-Haven, Thoreson, Haven, Wilbur, and Yates (1975), was established in 1972 by Stanford faculty members Carl Thoreson, Steve Zifferblatt, and Mike Mahoney. It is designed to be a structural family environment where parental discipline is predictable and consistent. Two teaching parent couples alternate weeks and serve as treatment administrators for six children (both boys and girls), as well as being surrogate mother and father. The token economy system employed defines limits, rules, and consequences for the children. Points are awarded by the teaching parents for various social, academic, and maintenance activities, and points are subtracted for inappropriate behaviors. The giving and taking away of points is paired with social feedback from the teaching parents in the form of praise, physical affection, and compliments. Criticism is presented in an unemotional, non-punitive way. The system of close monitoring enables teaching parents to reinforce behaviors immediately. Points are tallied on point cards by the teaching parents, and they may be exchanged for privileges on a reinforcements menu designed to appeal to the children's wants. Examples of privileges are: TV, bikes, allowance, trips, movies, et cetera. The point system also facilitates the child's understanding of the causal relationship between his behavior and reward and punishment. For example, if he has a good day in school, then he will earn 5,000 points. If he is caught smoking, then he will lose 10,000 points. If he has over 15,000 points accumulated by the end of the day, then he has full privileges for the following day. The two themes emerging from this social learning based approach are: 1) I am responsible for my own behavior, and 2) a pleasantly running household has pleasant consequences for me.

Progress through the treatment program depends on changes in social behavior as determined by the frequencies of individualized target behaviors as observed and charted by the teaching parents. Target behaviors derived from the child's behavior at Learning House as well as his case history include such areas as positive peer interaction, cooperation, positive self-statements, procrastination, lying, and negative peer interaction. The goal

for the child is consistent display over time of appropriate behaviors, and decreasing display over time of negative behaviors.

In order to progress through the program, a child must maintain a set of social behaviors at or better than a criterion level over set periods of consecutive days. When this happens, the child moves through one of the levels entitled "the Daily System", "the Weekly System", or "the Merit System" (where points are no longer used). For example, in order to move from Weekly One to Weekly Two, a child must complete ten out of fourteen days with acceptable frequency of each charted target behavior. Behaviors are shaped by charting daily performance as either acceptable or unacceptable (above or below criterion), by decreasing the number of allowable unacceptable days within the time framework, and by tightening up criterion levels. The charting of target behavior frequency is displayed publicly on each child's portion of a bulletin board. Thus a record of the child's progress is readily accessible to all supporting staff, as well as to the child himself.

When the child completes the criteria level for Weekly Three (thirteen out of fourteen acceptable days), the child enters the last stage of the program, the Merit System. The Merit System is designed to wean the child from the structured external reinforcement program of the point system to a more internally-based reinforcement. Here the child learns to maintain acceptable levels of appropriate behaviors through self-evaluation, self-observation, and self-reward. When the child completes these last stages, he returns to the family.

Throughout the child's stay at Learning House, the staff keeps in close contact with the child's family. Parents of each child come to Learning House once a week and engage in behavioral family counseling. The goals are set contractually to improve the environment the child will return to when he concludes treatment. To maintain continuity in the program, the teaching parents also serve as family counselors.

Appendix j

PARENT COUNSELING PROGRAM

Parent Counseling Program

An important aspect of the Learning House treatment program is the Parent Counseling Program. In this program, the natural or foster parents of the children residents are involved in a weekly counseling session with Learning House staff. This program is designed to develop in the parents many of the same competencies and expectations that their children are working on in the residential program. Return home for each child takes into consideration the progress of the parents as well as that of the child.

The Parent Counseling Program utilizes a behavioral, skills-oriented approach. In the session, parental problems areas are identified, goals are determined, parenting skill deficiencies are assessed, and programs are developed to promote more efficient problem-solving methods in the family. There is also a didactic aspect of the Parent Counseling Program in which parents become familiar with social learning principles and theory.

The counselors, who are teaching parents, utilize such techniques as behavioral contracts and role-playing during the sessions. The parents are taught to be more aware of their behavior and their family's behavior by self-observing, and charting the frequencies of targeted behavioral occurrences.

Appendix k

COUNSELOR'S SUMMARY STATEMENT

Appendix k

Counselor's Summary Statement

During the baseline phase, the counselor delineated the Learning House residential treatment program for Ms. M. The first three sessions were designed as a time for the counselor and Ms. M. to explore many aspects of her family background and the current situation that was relevant to her son's case. The counselor said to Ms. M. that she was a strong person who had been able to overcome extraordinary personal difficulties and who continued to be an active agent in changing her own life.

Discussion during the treatment phase centered upon child-management skills. The completion of the Goal Attainment Scaling grid was self-formulated, and the self-observation and self-rating homework assignments were implemented. The self-observation homework called for the measurement of the three target behaviors in frequency per hour. To illustrate keeping frequency counts, the counselor showed Ms. M. a nonparticipant observation report of her son at school. From the observation data and anecdotal information supplied by the mother, the counselor and Ms. M. readily pinpointed complaining/whining, helplessness, and physical pestering (especially picking on smaller children) as areas in need of improvement in her son's behavior. Child-management skills were presented as techniques that a mother could use to help her son learn new social skills. Ms. M. was led to designate "following through with consequences" to inappropriate behavior, praising appropriate behavior and modeling alternate responses as three areas needing strengthening. In order

to 1) give a more cognitive scheme through which she could more easily recall and utilize the skills taught, and 2) give a sense of universality in problems faced by parents and thereby remove feelings of personal inadequacy, these three behaviors were described to Ms. M. as broad classifications into which child-management techniques fall.

Ms. M. had difficulty in filling out the GAS grid because of difficulty in conceptualizing her behavior in terms of frequencies. This was complicated by the lack of normative data to base her self-expectations on. Ms. M. wanted to know the answers to such questions as: How many times per hour does the average mother praise her child when he is acting appropriately? Ms. M. was also interested in a ceiling effect: What is the maximum number of opportunities to praise a child before it becomes excessive?

Initially, the investigator proposed that Ms. M. keep a frequency tally of the three target behaviors in hour time blocks from eight AM until eleven PM, Friday through Sunday. As she outlined it, Ms. M.'s weekday schedule is a highly structured one, including regular college class attendance, part-time work, and normal family routines. Most of her weekend consisted of catching up on domestic chores, running errands, and socializing. This lack of routine on the weekends made it too difficult, in her opinion, to chart her behaviors throughout the weekend. After reporting that she was unable to complete this homework assignment, the task was pared down to charting the frequency of her three target behaviors during scheduled home observations, when Ms. M. conceded she and her children would be together in the house.

The counselor reviewed with Ms. M. the three target behaviors during

treatment sessions. After stating the principles of positive reinforcement, the counselor helped Ms. M. generate a variety of praising phrases to use with her children. The effectiveness of public praising in having her son overhear her telling his stepfather, aunt, or neighbor about a job well done was related. Ms. M. felt that following through with consequences was an area in which she had already made gains. Timing of both reinforcement and punishment was reviewed. Also, the notion of consequences logical and commensurate to the situation was emphasized by the counselor. In discussing modeling, the counselor stressed that 1) children learn through imitation whether the model's teaching is deliberate or unintentional; 2) modeling provides a criterion by which the child can evaluate his behavior; and 3) knowing performance standard helps a child become independent. Practice was given in using a golf wrist counter to tally frequencies of such behaviors as the client lighting a cigarette and the counselor touching her nose during the session. As reminders to follow through, to praise, and to model, "sticky seals" (adhesive flower stickers) were employed by Ms. M. To cue these target behaviors, Ms. M. attached the flower sticker around her apartment on mirrors, the refrigerator, cupboards, TV and radio, lamp shades, and windows. Ms. M. appreciated the discretion provided by the use of the flower cues since they could be passed off as decorative objects rather than a public proclamation of her treatment project.

Besides the similarity of sex and age, similar views on the role of wife and mother balanced with personal achievement made establishing a genuine rapport between the counselor and the client easy. Ms. M. readily understood

the utility of parent counseling in a residential treatment program for children. Although the specific mechanics of the project proved difficult for her, Ms. M. grasped the underlying notions without difficulty.

Appendix 1

GAS SCORE CALCULATION

Appendix 1

Goal-Attainment Score Calculation

- A. Determine the outcome level achieved on the Goal-Attainment Scale.
Follow-up Guide for each scale.
- B. Assign a value of plus 2 for the most favorable outcome, plus 1 for more than expected outcome, 0 for expected outcome, minus 1 for less than expected outcome and minus 2 for most unfavorable outcome.
- C. Calculate Goal-Attainment Score using the formula below with x referring to outcome level and w referring to weight:

Goal-Attainment Score =

$$50 + \frac{10 \sum w_i x_i}{\sqrt{.7 \sum w_i^2 + .3(\sum x_i w_i)^2}}$$

Appendix m

DEFINITIONS OF PARENT GOAL TARGET BEHAVIOR

Appendix m

Definitions of Parent Goal Target Behavior

1N Argues with Children

This category consists of a chain of responses, having at least four separate parts:

First-- the subject asks a question of an adult. Questioning behavior may take one of two forms, but the ultimate goal remains constant-- it is an attempt to secure some tangible reinforcement. This qualification is important. It serves to distinguish this form of questioning from discussions, a category which may also contain questioning components. For example, arguing about who the author of Great Expectations was, would be a discussion. This category is not to be recorded.

The two type of questioning responses we are interested in are: 1) A request for an object or an event, for example, "May I have a candy bar?", or, "Can I go to John's house?"; 2) A request for information concerning consequences, for example, "How late may I stay up?", "What happens if I don't do my homework?".

Second-- The adult responds verbally or nonverbally to the child's question. This response may take several forms. What is essential is that the child receive a refusal of his request (a shake of the head would be a 'nonverbal' response falling into this category). Accompanying the refusal may be a "because" statement explaining the reasons behind the refusal.

Third-- The child, upon receiving a denial of his request, continues to pursue the subject. If he has not received any explanation for the refusal, he may now request one (a "why not?" question). If, however, an explanation has been provided in stage two, then he will pursue the topic with such responses as "Oh, come on," and "Can't I please go?" etc.

Fourth-- The adult responds to the child by either restating his original answer, or by making a "because you can't" statement. The occurrence of either of these two forms of responses results in a 1N being scored. 1N will continue to be scored as long as this topic continues to be pursued. Score one 1N every thirty-second interval, even though more than one may occur in each interval.

If the adult had failed to provide an explanation for his refusal at stage two, he may now provide one. This would not be scored as a 1N. If

upon receiving an explanation the child continues to nag (stage #3), and the adult restates his answer or makes a "because you can't" statement (stage #4), a 1N is scored.

1P Does Not Argue with Children

The first three stages of 1N also serve as the first three components of 1P. If the adult had provided the child with an explanation, and the child pursued the topic, a 1P would be scored if the adult now: 1) Ignored the child's continued questioning along these lines, or 2) Informed the child that such arguing was inappropriate and would be:

i) Pursued no further-- after which the adult ignores continued questioning, or

ii) Met with certain consequences

1P is scored only once if an adult follows through with stated consequences if the child persists.

As in 1N, if the adult fails to follow through in stage three, the child may request one in stage four. 1P.

2N Yells at Children

Adult talks to child in raised voice. Although not necessarily, there will be facial expressions of anger or upset. The basic guideline is that "the adult talks to the child with a voice louder than would be necessary for the child to hear his messages, given the current distance and environmental competition" (for example, child and adult being thirty feet apart would necessitate a louder voice than if they were four feet apart. Loud radio may also force a raised voice).

One 2N is scored each thirty-second interval the adult talks with a loud or raised voice.

Note-- 2N is not scored if a loud voice is required for reasons of personal safety. That is, a 2N would not be scored if the adult shouted at the child to "watch out for the car".

2P Does Not Yell at Children

Adult talks to children without raising voice (given current distance and environmental competition). Maintains calm, even voice level. 2P is

upon receiving an explanation the child continues to nag (stage #3), and the adult restates his answer or makes a "because you can't" statement (stage #4), a 1N is scored.

1P Does Not Argue with Children

The first three stages of 1N also serve as the first three components of 1P. If the adult had provided the child with an explanation, and the child pursued the topic, a 1P would be scored if the adult now: 1) Ignored the child's continued questioning along these lines, or 2) Informed the child that such arguing was inappropriate and would be:

i) Pursued no further-- after which the adult ignores continued questioning, or

ii) Met with certain consequences if continued.

1P is scored only once if an adult ignores the questioning, or follows through with stated consequences if the child continues to question.

As in 1N, if the adult failed to provide an explanation in stage three, the child may request one in stage four. This would not be a 1P.

2N Yells at Children

Adult talks to child in raised voice. Often, though not necessarily, there will be facial expressions of anger or upset. The basic guideline is that "the adult talks to the child with a voice louder than would be necessary for the child to hear his messages, given the current distance and environmental competition" (for example, child and adult being thirty feet apart would necessitate a louder voice than if they were four feet apart. Loud radio may also force a raised voice).

One 2N is scored each thirty-second interval the adult talks with a loud or raised voice.

Note-- 2N is not scored if a loud voice is required for reasons of personal safety. That is, a 2N would not be scored if the adult shouted at the child to "watch out for the car".

2P Does Not Yell at Children

Adult talks to children without raising voice (given current distance and environmental competition). Maintains calm, even voice level. 2P is

scored once every thirty-second interval.

Shouting for reasons of personal safety is not scored a 2P.

2P is only scored if an adult is talking to a child. It is not a continuous category. That is, it is not scored if no one is talking at all. It is only scored when there is an opportunity to shout-- when there is verbal interaction.

3P Consequence Appropriate Behavior with Verbal Response

Appropriate behavior is defined according to the Learning House Goal Target Behavior categories. Appropriate behaviors, according to Becker-Haven, Bradley, Hansen, Hansen, Haven, and Yates (1974) have been operationally defined as: Honesty, Cooperative Verbal Response to Request, Cooperative Non-verbal Response to Request, On-time/On-task, Taking "No" for an Answer, Compliment/Thank/Smile to Adult, Positive Verbal Interaction, Playing with Others, and Proper Manners. Since verbal consequence, if expected to come every thirty-second interval, would be disruptive, two forms of verbal consequence are to be acknowledged: 1) For behaviors of short duration verbal response must occur within thirty seconds. For example, the verbal report by the child, "I got an A in school today," should be followed by some verbal acknowledgement of a job well done within thirty seconds. 2) For behaviors involving long chains (doing the dishes, playing nicely with peers), consequence must occur within thirty seconds of the termination of the behavior. Thus, if John is playing nicely with his sister, the remark, "That's nice of you to play so nicely", would be a 3P, while the noncontingent statement "I hope it doesn't rain" would not.

3N Does Not Consequence Appropriate Behavior with Verbal Response

Appropriate behavior is defined according to the Goal Target Behavior categories. Upon performance of appropriate behavior, no verbal consequence is forthcoming. Temporal placement requirements of the verbal response are noted under 3P.

In order for a 3N to be scored, adult must either have seen or heard the child's response and not have provided any contingent statements of praise

or positive recognition. 3N is scored only once per behavior.

4P Consequates Inappropriate Behavior with Verbal Response

Inappropriate behavior is defined according to the Goal Target Behavior categories. Becker-Haven et al (1974) specify as inappropriate behaviors the following: Lying/Cheating/Stealing, Noncooperative Verbal Response to Request, Noncooperative Nonverbal response to Request, Late/Off task, Pestering Following Denial, Complain/Bitch/Cry to Adults, Negative Verbal Interaction, Negative Nonverbal Interaction, and Improper Manners. Within thirty seconds after the performance of an inappropriate behavior, the adult provides some contingent verbal request that the child terminate the activity (if the behavior is ongoing, such as fighting), or (if the behavior was of short duration, such as telling a lie) tells the child that he will be responsible in "X" manner and/or that such response was not appreciated. (See 3P for explanation of the use of the word "contingent"),

4N Does Not Consequence Inappropriate Behavior with Verbal Response

Upon performance of an inappropriate behavior by the child, no verbal adult consequence is forthcoming. As with 3N, it is necessary that the adult see or hear the behavior in order to receive a 4N. One 4N is scored every thirty seconds the adult fails to respond verbally to an ongoing activity, or once within thirty seconds of a short duration behavior. As with 4P, verbal consequence consists of a request to terminate the activity, in the case of long duration behaviors, and verbal reprimand and/or verbally holding the child responsible for his actions (for example, "No snack tonight!", or "That's not true, Pete!") in the case of short duration behaviors.

5P Contingent Nonverbal Praise for Appropriate Behavior

Appropriate behavior is defined according to the Goal Target Behavior categories. Nonverbal praise consists of contingent physical demonstration of affection or approval, such as hugs, pats on the head, etc. (note-- it does not include hits, slaps, etc.); upon performance by the child of an appropriate behavior. This category is scored either during the performance of a behavior, or within thirty seconds after the termination of an appropriate behavior.

5N No Contingent Nonverbal Praise for Appropriate Behavior

This category will be omitted because of poor reliability. This was due to observer difficulty in discriminating contingent nonverbal praise.

6P Models Proper Alternative Response

This category is concerned with instructional modeling. When providing the child with instructions in order to improve his performance, the adult accompanies verbal instructions with a modeling response. Note, this category is concerned with any instructional statements. It is not necessary that they be associated with verbal consequence for inappropriate behavior, although they often may be. So, for example, telling a child to swing his bat in a particular manner and then providing a physical demonstration of the response is classified in the same category as asking a child to stop inappropriate running on the steps and then modeling an acceptable walking speed.

If the modeling component is initiated within thirty seconds of the verbal directive, a 6P is scored. One 6P is scored per physical demonstration, even if the actual modeling activity takes longer than thirty seconds.

6N Does Not Model Proper Alternative Response

Within thirty seconds from the verbal instructions to perform a response in a particular way, the adult fails to demonstrate the desired behavior(s). Note-- this category must involve instructions about motor responses. A 6N would not be scored if the adult gave the instruction "Next time think more carefully," and did not provide any modeling.

7P Provides Explanation of Consequences

Upon receiving consequence from adult, child requests reasons for the consequences. Adult explains why he was consequence. For example, if adult orders child to go to bed early and child asks why, a 7P would be scored if the adult responded with an explanation-- "So you can get up for school on time," or, "Because you didn't take out the garbage when I asked you to," etc. Responses of the "Because I said so, that's why" type are not scored 7P.

Note, this category will always be found in a 1N or 1P sequence. It should only be scored once in the case of a string of 1N's in which the adult

is restating the consequences over and over in response to the child's barrage of questions. A 7P is scored if an explanation come within thirty seconds of the child's first request.

7N Does Not Provide Explanation of Consequences

After being consequated, the child requests reasons for the consequence. A 7N is scored if: 1) The adult answers with a "Because I said so, that's why" type of statement, or 2) Fails to provide an explanation within thirty seconds of the child's first request.

8P Parent within Earshot of the Child

Parent must be within hearing distance of the child. This does not require that he be able to see the child. Environmental competition, such as loud noises from TV, etc., must be taken into account when scoring 8P. One 8P is scored every thirty seconds the adult is within earshot.

8N Parent Not within Earshot of the Child

An 8N is scored if the parent is not able to hear the children. This may be the result of several consequences: 1) Parent intentionally removes herself from the child's presence. For example, goes into her room and closes the door; 2) Arranges environmental competition in manner designed to eliminate auditory contact with child. For example, turns up radio so loud that it is impossible to hear.

Note, hearing range does not mean being able to hear every word. As long as the adult is able to hear enough to be able to intervene in a situation if need be, an 8P is scored. Otherwise, an 8N will be scored.

This is a continuous category. There will be no thirty-second interval in which neither an 8N nor 8P will not be scored.

9P Parents Back Each Other Up

Adults support each other in their stated consequences for the child. They do not bicker among themselves, nor does the child turn one against the other. For example, if mom tells Jim to go to bed at seven, dad doesn't:
1) Tell mom she's being unfair, or 2) Side with Jim against mom. This category

is scored once after either: 1) Parents actively reinforce each other and present a unified front in carrying through on consequences stated by one or both parents, or 2) One parent, present while the other is consequenceing the child, doesn't side with the child.

Note, you will not be able to score this category if your only source as to the position of one of the parents is the child. It will be impossible to know if he is honestly representing the parent's true sentiments. However, if the child continues to argue that the parent felt such-and-such a way, he will get scored a 1N.

9N Parents Fail to Back Each Other Up

Upon consequenceing child, one parent does not back up the other. This may take either of two forms: 1) One parent sides with child, or, 2) Parents argues with one another over the consequence.

One 9N is scored per argument, regardless of its duration.

10P Models Appropriate Behavior

Appropriate behavior is defined according to the Goal Target Behavior categories. Parents behave in a manner reflective of positive GTB's in their interactions with children and other adults. That is, they don't tease, complain, yell, behave uncooperatively to reasonable requests, etc.

10N Does Not Model Appropriate Behavior

Parents engage in negative Goal Target Behavior. They have poor table manners, curse, pester, off task, yell, etc.

Appendix n

INSTRUCTIONS TO COUNSELOR

Appendix n

Instructions to Counselor— Baseline I Phase

The following general areas will be discussed during the first three sessions of counseling:

1. A. Question subject regarding childhood and adolescent development.
B. Inquire about past trauma.
C. Have subject describe relationship with parents.
2. Ask subject about hobbies and how leisure time is spent.
3. Ask subject about plans and aspirations for the future, both personal and vocational.
4. A. Ask subject about content of dreams and what they mean to her.
B. Have subject discuss her fantasy life.
5. Inquire about past and present relationships with the opposite sex.
6. A. Do not discuss subject's relationship to children, or child-management techniques.
B. Do not offer any specific strategies for coping with everyday problems.
C. Tell subject it is important to get a feel for her background before dealing with present problems.
D. Be nondirective, reflective, supportive, and empathic.

TABLES

Table 1

Line of Progress

Fisher Exact Test Probability Calculation

Expressed in p Values

	Pre- treatment	Treatment	Post- treatment
Praising	.10	.07	.19
Following Through	.21	.34	.24
Modeling	1.0	1.0	1.0
Total Positive	.27	.22	.15
Total Negative	.10	.15	.24

Table 2

Binomial Test for
Step Change and Slope Change
Expressed in p Values

	Pre-treatment vs. Treatment		Treatment vs. Post-treatment		Pre-treatment vs. Post-treatment	
	Step	Slope	Step	Slope	Step	Slope
Praising	.008↑	.001↑	N.S.	N.S.	.001↑	.001↑
Following Through	.004↑	N.S.	.006↑	.021↑	.006↑	.058↑
Modeling	N.S.	N.S.	N.S.	N.S.	N.S.	.002↑
Total Positive	N.S.	.001↓	.058↑	N.S.	.006↓	.058↓
Total Negative	.008↓	.001↑	.006↓	.006↓	.058↓	.058↓

↑ = Increase

↓ = Decrease

N.S.= Not Significant

Table 3

Ratings vs. Frequency Correlations

	Praising	Following Through	Modeling
Subject Rating vs. Subject Frequency	0.857	0.262	0.707
Subject Frequency vs. Observer Frequency	-0.707	0.08	-0.726
Observer Rating vs. Observer Frequency	0.383	0.674	-0.068

Table 4

Observer Reliability

<u>SESSION</u>	<u>PEARSON r</u>
1	0.998
2	0.992
3	0.905
4	0.999
5	0.999
6	0.859
7	0.999
8	1.000
9	0.998
10	NA
11	0.835
12	0.904
13	0.998
14	0.983
15	NA
16	1.00
17	0.983
18	NA

Mean= 0.960

Standard Deviation= 0.06

Table 5

Goal Attainment Scores

	Treatment	Post treatment
Observer	28.88	63.65
Subject	50.44	41.44

*Table 6

Parent Goal Target Behavior Observations

*on following six pages

Table 6
Parent Goal Target Behavior Observations
Pre-treatment

Positive																														
1			2			3			4			5			6			7			8			9			10			
x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	
4	0	2	21	20	20.5	1	2	1.5	1	1	1	0	0	0	0	0	0	0	0	0	60	60	60	0	0	0	0	0	0	(1-24)
0	0	0	33	35	34	0	1	.5	0	1	.5	0	0	0	0	0	0	0	4	2	60	60	60	0	0	0	0	0	0	
5	0	2.5	28	30	29	1	0	.5	2	0	1	0	0	0	0	0	0	0	3	1.5	60	60	60	0	0	0	0	0	0	
1	0	.5	36	45	39.5	0	1	.5	10	7	8.5	0	0	0	0	0	0	0	0	0	60	60	60	0	0	0	1	1	1	
6	0	3	60	59	59.5	0	1	.5	1	0	.5	0	0	0	0	0	0	4	0	2	60	35	47.5	0	0	0	0	1	.5	(1-25)
3	3	3	60	56	58	0	3	1.5	4	6	5	0	1	.5	0	5	2.5	1	6	3.5	60	60	60	0	0	0	0	6	3	
0	15	3.5	60	58	59	1	1	1	1	10	6	0	0	0	0	7	3.5	1	0	.5	60	55	57.5	0	14	7	0	4	2	
0	6	3	60	60	60	0	0	0	0	2	1	0	0	0	1	7	4	0	0	0	60	60	60	0	0	0	0	2	1	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	(1-31)	
0	0	0	47	27	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	46	46.5	0	0	0	0	1		.5
3	4	3.5	60	30	45	0	0	0	6	0	3	0	0	0	0	0	0	2	2	2	60	60	60	0	2	1	4	4		4
1	0	.5	60	9	44.5	1	0	.5	3	0	1.5	0	0	0	2	0	1	0	1	.5	59	58	58.5	0	0	0	0	2		1
0	0	0	59	60	59.5	0	1	.5	0	2	1	0	0	0	0	0	0	1	2	1.5	60	60	60	0	0	0	0	0	0	(2-1)
1	0	.5	60	60	60	0	0	0	1	1	1	0	0	0	0	0	0	1	0	.5	53	52	53.5	0	0	0	0	0	0	
0	0	0	60	60	60	0	0	0	1	0	.5	0	0	0	0	0	0	0	0	0	7	9	8	0	0	0	0	1	.5	
0	0	0	60	60	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60	0	0	0	0	0	0	
1	0	.5	60	60	60	0	1	.5	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60	0	0	0	0	0	0	(2-7)
0	1	.5	60	60	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60	0	0	0	0	0	0	
1	0	.5	60	60	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60	1	0	.5	27	18	22.5	
0	0	0	60	60	60	0	0	0	1	1	1	0	0	0	0	0	0	2	3	2.5	55	60	57.5	1	2	1.5	0	0	0	
0	0	0	60	9	60	1	0	.5	0	0	0	0	0	0	0	0	0	0	0	0	58	60	59	0	0	0	0	2	1	(2-8)
0	0	0	60	13	60	1	2	1.5	0	1	.5	0	0	0	0	0	0	0	0	0	60	60	60	2	0	1	0	0	0	
0	0	0	59	13	59	4	2	3	0	2	1	0	0	0	1	0	.5	0	0	0	60	60	60	0	0	0	3	0	1.5	
0	1	.5	59	33	59	8	3	5.5	7	8	7.5	0	0	0	2	1	1.5	0	3	1.5	60	60	60	0	0	0	0	1	.5	
0	0	0	60	60	60	0	0	0	2	2	2	0	0	0	0	0	0	1	0	.5	58	58	58	0	0	0	0	0	0	(2-15)
0	1	.5	60	60	60	0	0	0	1	0	.5	0	0	0	0	0	0	0	1	.5	42	42	42	0	0	0	0	1	.5	
1	0	.5	60	60	60	0	0	0	0	3	1.5	0	0	0	0	0	0	0	1	.5	48	48	48	0	0	0	0	0	0	
1	0	.5	60	60	60	0	0	0	8	3	5.5	0	2	1	0	0	0	0	2	1	58	58	58	0	0	0	0	0	0	

Treatment
Positive

1			2			3			4			5			6			7			8			9			10			
x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	
0	0	0	18	17	17.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	17	17.5	0	0	0	0	0	0	(2-20)
0	0	0	60	60	60	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	60	60	60	0	0	0	0	0	0	
0	2	1	60	60	60	0	0	0	0	0	0	0	1	.5	0	0	0	0	1	.5	60	60	60	0	0	0	0	0	0	(2-21)
0	3	1.5	58	60	60	1	0	.5	1	5	3	0	0	0	0	0	0	1	4	2.5	57	60	58.5	0	0	0	0	0	0	
0	0	0	60	60	60	2	0	1	2	2	2	0	0	0	0	0	0	0	1	.5	51	60	55.5	0	0	0	0	0	0	
0	0	0	60	60	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60	0	0	0	0	0	0	
0	0		58	58		0	0		0	0		0	0		0	0		0	0		58	58		0	0		0	0		(2-27)
0	0		60	60		0	0		1	1		0	0		1	1		0	0		60	60		0	0		0	0		
0	0		60	60		2	2		4	2		1	.5		0	0		0	0		60	60		0	0		0	0		
0	0		60	60		4	4		7	7		0	0		0	0		1	.5		60	60		1	.5		0	0		
1	0	.5	20	8	14	1	0	.5	1	1	1	0	0	0	0	0	0	1	0	.5	16	11	13.5	0	0	0	0	0	0	(2-28)
1	0	.5	31	8	19.5	0	0	0	1	0	.5	0	0	0	0	0	0	0	1	.5	31	25	28	0	0	0	1	0	.5	
0	0	0	60	15	37.5	1	0	.5	1	0	.5	0	1	.5	0	0	0	1	0	.5	55	54	54.5	2	0	1	5	2	3.5	
1	0	.5	60	12	36	1	1	1	1	0	.5	0	0	0	0	0	0	1	0	.5	59	59	59	0	1	.5	2	3	2.5	
1	2	1.5	12	60	36	1	0	.5	1	1	1	0	0	0	0	0	0	1	0	.5	27	29	28	0	0	0	0	0	0	(3-5)
1	3	2	42	60	51	4	2	3	3	3	3	0	0	0	0	0	0	0	0	0	53	53	53	0	0	0	1	0	.5	
1	1	1	21	60	40.5	1	0	.5	0	1	.5	0	0	0	0	0	0	1	0	.5	30	29	29.5	0	0	0	0	0	0	
0	0	0	28	60	44	1	1	1	0	0	0	1	1	1	0	0	0	0	0	0	54	54	54	0	0	0	0	0	0	
0	0	0	60	60	60	0	0	0	7	4	5.5	0	0	0	0	0	0	0	0	0	60	60	60	0	0	0	1	0	.5	(3-7)
0	0	0	60	60	60	0	0	0	3	0	1.5	0	0	0	0	0	0	0	0	0	60	60	60	0	0	0	0	0	0	
0	0	0	60	60	60	0	0	0	2	2	2	0	0	0	0	0	0	0	0	0	60	60	60	0	0	0	0	0	0	
0	0	0	60	60	60	0	1	.5	0	1	.5	0	0	0	0	0	0	0	0	0	60	60	60	0	0	0	0	0	0	

Post-treatment

Positive

1			2			3			4			5			6			7			8			9			10		
x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$	x	y	$\bar{x}$
0	0	0	60	60	60	0	2	1	6	2	4	0	0	0	0	0	0	4	0	2	40	40	40	0	0	0	0	0	0
1	0	.5	60	60	60	0	3	1.5	3	6	4.5	0	0	0	0	1	.5	2	0	1	25	20	22.5	0	8	4	0	2	1
0	0	0	60	45	52.5	0	7	3.5	3	2	2.5	2	2	2	0	0	0	2	0	1	18	15	16.5	0	2	1	0	1	.5
0	0	0	60	20	40	0	7	3.5	4	2	3	0	0	0	0	2	1	0	0	0	60	60	60	0	0	0	0	0	0
(3-12)																													
2	2		24	24		2	2		1	1		0	0		1	1		0	0		57	57		0	0		2	2	
3	3		18	18		1	1		4	4		0	0		0	0		0	0		60	60		3	3		6	6	
0	0		10	10		3	3		0	0		0	0		0	0		1	1		16	16		0	0		1	1	
1	1		16	16		2	2		0	0		0	0		1	1		0	0		23	23		0	0		0	0	
(3-14)																													
0	0	0	60	60	60	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	60	60	60	0	0	0	0	0	0
0	0	0	60	60	60	1	0	.5	1	2	1.5	0	0	0	0	0	0	0	0	0	60	60	60	1	0	.5	0	2	1
0	0	0	60	60	60	1	3	2	1	0	.5	0	0	0	0	0	0	0	0	0	60	60	60	0	0	0	0	0	0
0	0	0	60	60	60	1	0	.5	1	1	1	1	0	.5	0	0	0	0	1	.5	60	60	60	0	0	0	0	7	3.5
(3-19)																													
0	0	0	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	58	58.5	0	0	0	0	0	0
0	0	0	27	30	28.5	13	0	6.5	2	0	1	2	0	1	1	0	.5	2	0	1	53	59	56	0	0	0	0	0	0
0	0	0	19	33	27.5	9	1	5	4	4	4	2	1	1.5	0	1	.5	2	1	1.5	54	60	57	0	0	0	0	2	1
0	0	0	10	12	11	1	0	.5	5	1	3	0	0	0	0	0	0	1	1	1	32	32	32	1	0	.5	0	2	1
(3-21)																													
0	0		5	5		3	3		3	3		0	0		2	2		0	0		60	60		0	0		0	0	
5	5		3	3		3	3		12	12		0	0		0	0		0	0		60	60		0	0		0	0	
1	1		2	2		5	5		5	5		0	0		1	1		0	0		60	60		2	2		2	2	
0	0		9	9		3	3		11	11		0	0		2	2		2	2		60	60		0	0		0	0	
(3-26)																													

0	0	0	0	0	0	1	4	2.5	0	1	.5	0	0	0	0	0	0	5	6	5.5	1	0	.5	25	7	16
0	0	0	0	0	0	2	1	1.5	2	1	1.5	0	0	0	0	0	0	1	1	1	1	0	.5	6	2	4
0	0	0	1	0	.5	1	0	.5	0	0	0	0	0	0	0	0	0	33	31	32	0	0	0	0	0	0
8	6	7	3	0	1.5	0	0	0	0	2	1	0	0	0	0	0	0	7	7	7	0	0	0	1	0	.5
1	2	1.5	0	0	0	0	0	0	4	4	4	0	0	0	0	0	0	30	31	30.5	0	0	0	0	0	0
1	1	1	0	0	0	1	0	.5	1	1	1	0	0	0	0	0	0	6	6	6	0	0	0	0	0	0
0	0	0	3	1	2	0	0	0	6	15	10.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	1	0	0	0	0	0	0	1	4	2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(3-5)

(3-7)

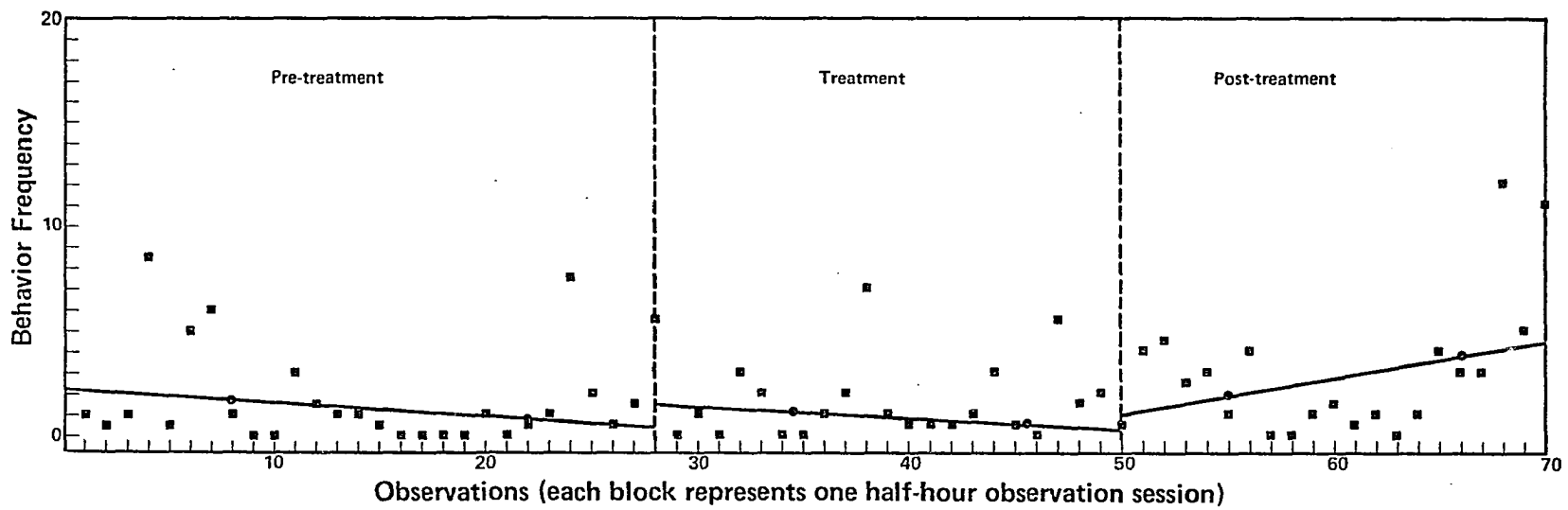
WDX

Parent Goal Target Behavior Observations
Pre-treatment
Negative

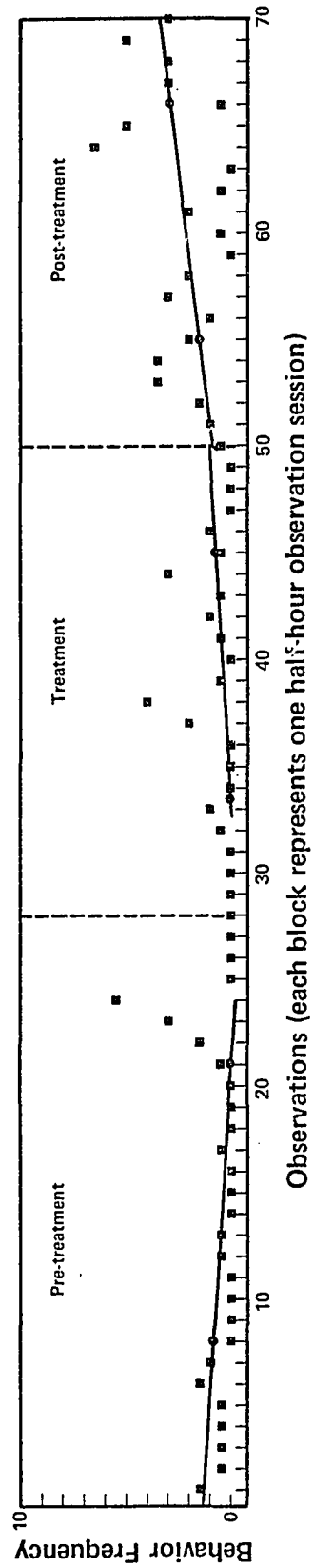
1	2	3	4	5	6	7	8	9	10	
x y $\bar{x}$	x y $\bar{x}$	x y $\bar{x}$	x y $\bar{x}$	x y $\bar{x}$	x y $\bar{x}$	x y $\bar{x}$	x y $\bar{x}$	x y $\bar{x}$	x y $\bar{x}$	
0 0 0	0 2 1	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	(1-24)
0 0 0	0 0 0	0 0 0	4 5 4.5	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
0 0 0	0 0 0	0 1 .5	5 2 3.5	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
1 0 .5	0 0 0	1 0 .5	9 9 9	0 0 0	1 0 .5	0 0 0	0 0 0	0 0 0	0 0 0	
1 0 .5	0 0 0	0 4 2	0 6 3	0 0 0	0 14 7	0 3 1.5	0 2 1	0 0 0	0 0 0	(1-25)
2 0 1	0 0 0	0 2 1	1 5 3	0 0 0	0 3 1.5	1 1 1	0 0 0	0 0 0	0 0 0	
2 0 1	0 0 0	0 0 0	0 12 6	0 0 0	0 0 0	0 0 0	0 4 2	0 0 0	0 0 0	
0 0 0	0 0 0	2 0 1	4 0 2	0 0 0	0 0 0	0 0 0	2 0 1	0 0 0	0 0 0	
0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	60 60 60	0 0 0	0 0 0	(1-31)
0 0 0	0 0 0	1 3 1.5	0 1 .5	0 0 0	0 0 0	0 0 0	13 14 13.5	0 0 0	0 0 0	
1 3 2	0 0 0	1 4 2.5	12 4 8	0 0 0	1 0 .5	0 3 1.5	0 0 0	2 0 1	4 2 3	
0 0 0	0 0 0	2 4 3	4 2 3	0 0 0	0 0 0	0 0 0	1 2 1.5	2 0 1	0 1 .5	
0 0 0	1 1 1	0 0 0	0 3 1.5	0 0 0	0 0 0	0 1 .5	0 0 0	0 0 0	0 0 0	(2-1)
0 0 0	0 0 0	0 0 0	11 6 8.5	1 0 .5	0 0 0	0 0 0	0 8 9	0 0 0	0 0 0	
0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	53 52 52	0 0 0	0 0 0	
0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
0 0 0	0 0 0	1 0 .5	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	1 0 .5	0 1 .5	(2-7)
0 0 0	0 0 0	3 0 1.5	2 3 2.5	0 0 0	0 0 0	0 0 0	0 0 0	1 0 .5	4 8 6	
0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	5 0 2.5	0 0 0	0 0 0	
0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	2 0 1	0 0 0	0 0 0	(2-8)
0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
1 0 .5	1 2 1.5	0 0 0	0 0 0	0 0 0	1 0 .5	0 0 0	0 0 0	0 0 0	0 0 0	
0 1 .5	0 0 0	1 3 1.5	0 0 0	1 0 .5	0 0 0	1 0 .5	0 0 0	0 0 0	2 0 1	
2 1 1.5	0 0 0	0 0 0	2 1 1.5	0 0 0	0 0 0	0 0 0	2 4 3	0 0 0	0 0 0	(2-15)
0 0 0	0 0 0	1 0 .5	1 2 1.5	0 0 0	0 0 0	0 0 0	19 19 19	0 0 0	0 0 0	
0 0 0	0 0 0	0 0 0	4 8 6	0 0 0	0 0 0	0 0 0	14 15 14.5	0 1 .5	0 0 0	
1 1 1	0 1 .5	0 1 .5	2 13 7.5	3 0 1.5	0 0 0	0 0 0	2 2 2	0 0 0	0 0 0	

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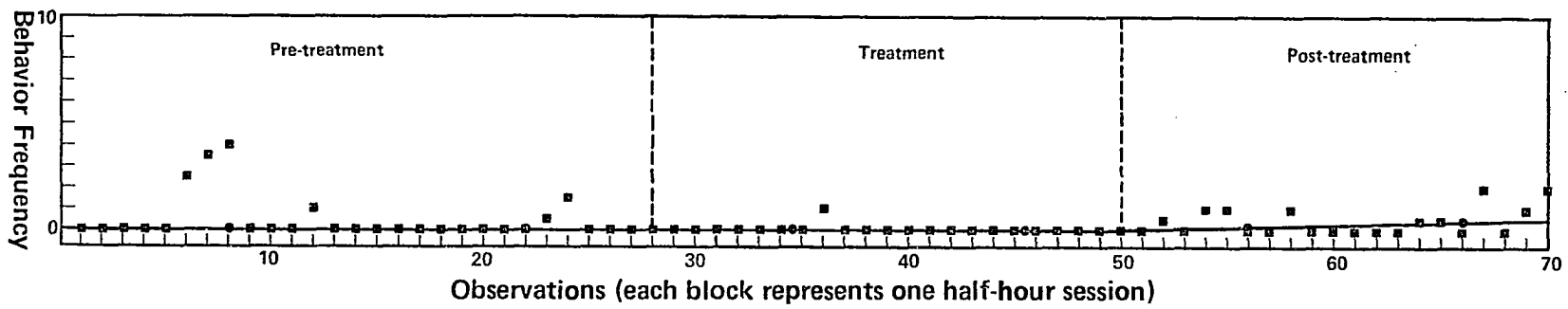
GRAPH 1 — CONSEQUATES APPROPRIATE BEHAVIOR WITH VERBAL RESPONSE
(PRAISING)



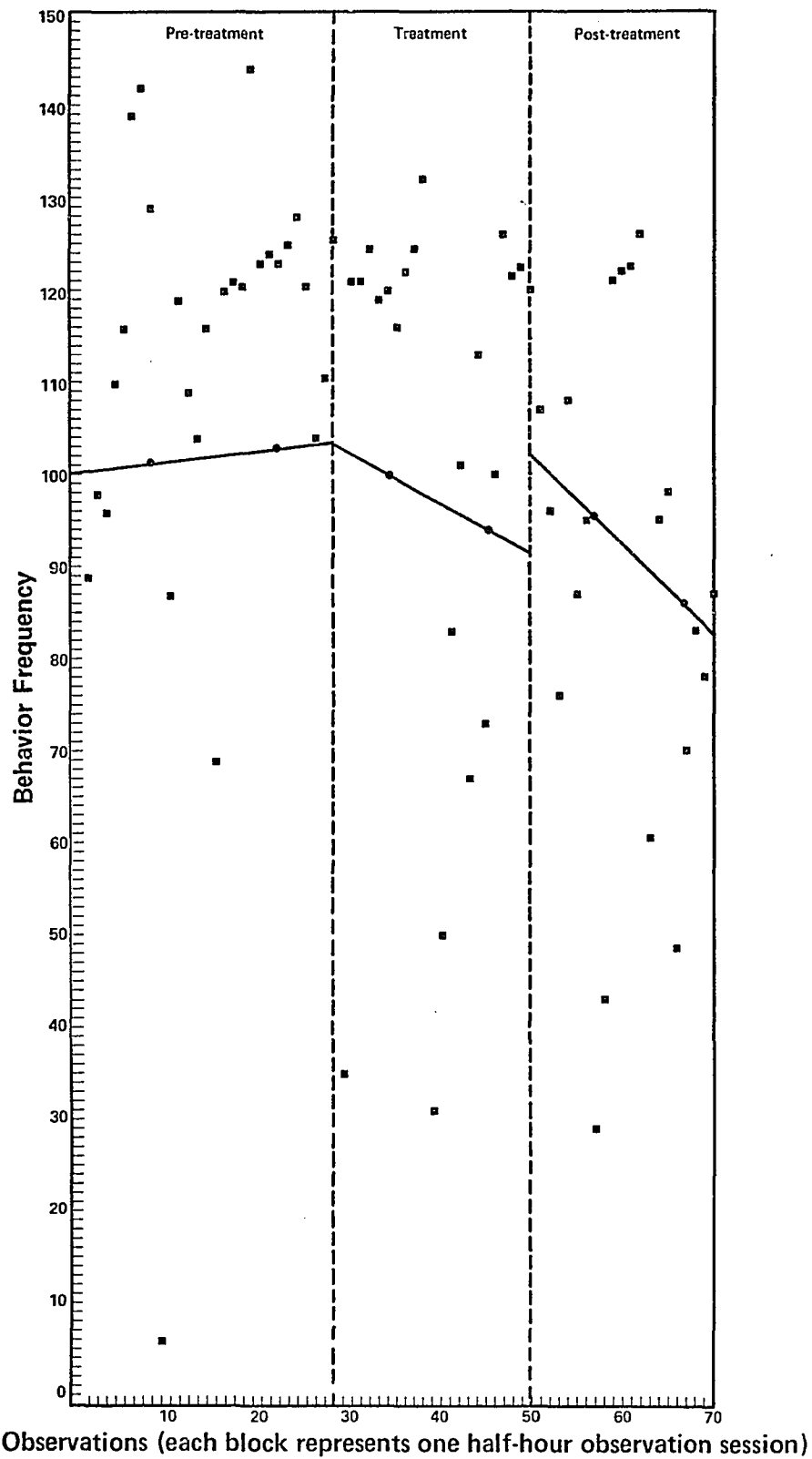
GRAPH 2 – CONSEQUATES INAPPROPRIATE BEHAVIOR WITH VERBAL RESPONSE
(FOLLOWING THROUGH)

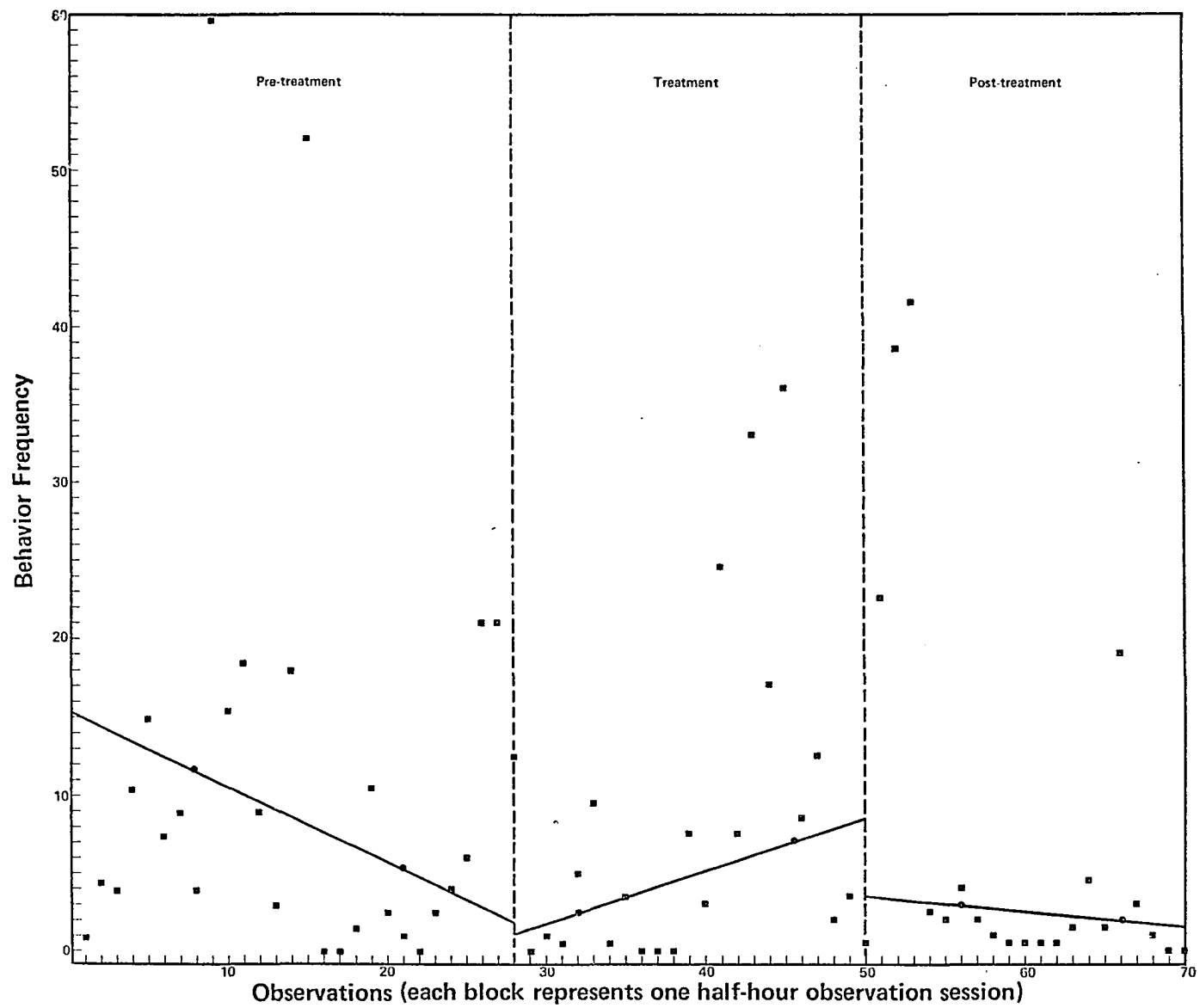


GRAPH 3 -- MODELS ALTERNATIVE BEHAVIOR (MODELING)



GRAPH 4- TOTAL POSITIVE RESPONSE PER SESSION





GRAPH 5- TOTAL NEGATIVE RESPONSE PER SESSION