

MODIFICATION OF
BEHAVIORS OF DEVIANT
BOYS THROUGH....

N. Wiltz, Jr., 1969

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VITA

NAME OF AUTHOR: Nicholas Anthony Wiltz, Jr.

PLACE OF BIRTH: The Dalles, Oregon

DATE OF BIRTH: September 16, 1936

UNDERGRADUATE AND GRADUATE SCHOOLS ATTENDED:

Oregon State University
University of Oregon

DEGREES AWARDED:

Bachelor of Science, 1958, Oregon State University
Master of Education, 1963, University of Oregon

AREAS OF SPECIAL INTEREST:

Emotionally Disturbed Child
Counseling

PROFESSIONAL EXPERIENCE:

Social Studies Teacher, North Eugene High School, Eugene, Oregon,
1960-1962

Secondary School Counselor, David Douglas Public Schools, Portland,
Oregon, 1963-1964

Elementary School Counselor, David Douglas Public Schools, Portland,
Oregon, 1964-1967

Instructor, Division of Continuing Education, Oregon State System
of Higher Education, 1964-1968

Co-Counselor and Co-ordinator, Parkrose Community Parent-Teacher
Education Center, Portland, Oregon, 1966-1967

Clinical Trainee, Dr. G. R. Patterson, Oregon Research Institute,
Eugene, Oregon, 1968-1969

AWARDS AND HONORS:

National Defense Education Act Fellow in Counseling, University
of Oregon, 1962-1963

United States Office of Education Fellow in Special Education,
University of Oregon, Eugene, 1967-1969

MODIFICATION OF BEHAVIORS OF DEVIANT BOYS
THROUGH PARENT PARTICIPATION
IN A GROUP TECHNIQUE

by

NICHOLAS ANTHONY WILTZ, JR.

A DISSERTATION

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G. R. Patterson, Ph.D.

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CHAPTER I
THE USE OF THE NON-PROFESSIONAL AS THERAPIST
WITH CHILDREN: A RESEARCH REVIEW

The manpower needs in the area of mental health are staggering. Albee (1963) has estimated that even if all graduating physicians entered psychiatry, demand would still exceed supply. He reports similar shortages for psychologists and social workers and suggests that if his estimates are correct, a major crisis exists in the mental health profession. Lindsley (1966) has argued that the problem of manpower shortage will never be solved until parents, teachers, and other "lay personnel" are utilized to work with children.

It may be argued that the use of such untrained individuals is an important and viable new frontier to explore in order to meet the increasing manpower demands in the mental health field. A number of writers have pointed out that the lay therapist functions as well (Appleby, 1963), or better (Poser, 1966) than trained specialists. Carkuff (1968) has recently discussed the efficacy of treatment of patients by lay personnel. He concluded that with or without training, they perform as well or better than conventionally trained individuals with a variety of levels of disturbance for both children and adults.

It is the aim of this paper to review the research studies where previously untrained individuals serve as principal change agents to treat a wide range of children's clinical and educational problems.

Both behavior modification and traditional approaches will be presented, with regard to dependent variables used, treatment program, and outcome obtained. Dependent variable is stressed in this paper, in light of the recent work by Radke-Yarrow (1963). She found major discrepancies between parent report recall and original data presented by the same parents. In addition, Clement and Milne (1960) have found that when observation of behavior indicated no change in untreated control children, the parents still reported improvement. It would seem that the reports of individuals directly involved with outcome may be suspect. For this reason, those studies that use observational data as the criterion measures are given special emphasis.

Behavior modification studies will be presented first, since that approach has emphasized both observation criterion and work with lay therapists. Following this section, the research by traditional approach will be presented, followed by some general conclusions.

Behavior Modification Approaches and the Use of Lay Therapists

The approach most often associated with lay therapists in the literature is that of learning theory or behavior modification. Teachers and parents have been involved most frequently in this approach.

Teachers as Therapists

Most of the early work in behavior modification was with teachers. It was properly reasoned that these individuals spend a great deal of time with children and are therefore a natural treatment agent. Teachers have been successful in manipulating a range of problems from attending behavior to autism. The most valid studies to support the efficacy

of lay therapists involve the use of observational data.

Studies using observation procedures as measures of outcome. There is evidence, using observational data, that the contingent use of social approval for appropriate behaviors and withholding of teacher attention can effect change. Allen, Henke, Harris, Baer, and Reynolds (1967) used social reinforcement alone to work with a four-and-one-half-year-old boy who had a "short attention span." The treatment plan called for the teachers to pay no attention to the boy until he attended to one activity and then attend to him as long as he did not change activities. The dependent variable was number of switches in activities as recorded by trained observers. The next step in the procedure involved having the teacher withhold attention and approval until the boy had attended for one minute. After seven days the boy was switching activities at a frequency one-third of his prior rate.

Allen, Hart, Buell, Harris, and Wolf (1966) used systematic presentation of positive social reinforcement of a teacher to change isolate behavior of a four-year-old girl. Teachers attended only when she was playing with other children. Observers recorded ten-second intervals of interaction and proximity with other children and adults. Shaping of proximity and interaction was successful and by the end of 25 days, the girl was interacting 80 percent with peers and 20 percent with adults. A reversal condition showed that affect was due primarily to the teachers' social reinforcement.

Harris, Wolf, and Baer (1966) in a series of four studies on nursery school children showed 50 percent changes in programs for increasing social play of isolated children, increasing activity for an

excessively passive boys, and a decreasing of crying and whining. Trained observers recorded samples of the target behaviors periodically throughout the study.

Hall and Broden (1967) worked with three brain-injured children and their teachers. Observation of the children's behaviors interfering with their studies was used to assess effect of the program. One girl increased per cent manipulative play from less than one percent in base operant period to above 50 percent when teachers made proximity and verbal attention contingent on her manipulative play. A second child was helped through similar procedures to climb on apparatus and use play equipment to help her with motor co-ordination problems. In both cases, the improvement was marked.

While these studies demonstrate the effectiveness of social reinforcement, Becker, Madsen, Arnold and Thomas (1967) have argued that in some instances the social reinforcement procedures will not always work and the teacher must use other procedures. They report a well-implemented design in the primary grades with ten children in five classes. For most cases, teachers employed differential use of ignoring and verbal approval to control a variety of disruptive behaviors. In one class where there were many severe behavior problems, ignoring and social approval were not productive. In this case a token system was used effectively. The authors also point out that in one classroom, ignoring a deviant behavior actually increased the frequency of the behavior, and that the use of ignoring plus social approval of behaviors incompatible with deviancy is critical.

Wolf, Risley, Johnson, Harris, and Allen (1967) describe teachers' roles in changing the behavior of an autistic child; the behaviors included temper tantrums, self-abuse, toilet training, and pinching others. The boy was originally thought to be "hopeless" and was considered ready for public school at the conclusion of the study. The teachers involved in the study used a brief isolation procedure ("time out") and they reinforced successive approximations to the desired response (shaping) to effect change.

Sibley, Abbott and Cooper (1969) used social reinforcement for appropriate play behavior, coupled with ten minutes of time out for disruptive, resistant, and assaultive behaviors of a kindergarten boy. As in the above cases, observation before, during, and after the treatment revealed successful effect. In this case mean per cent appropriate behavior in school increased from about 65 percent to 90 percent.

Patterson, Shaw, and Ebner (1969) show cases of successful use of teachers, peers, and parents to help change deviant behaviors of boys in both regular and special education classes. Again, observation of deviant behaviors was used to record effect. The use of a highly effective mechanical device called a "work box" is discussed for use in shaping attending behaviors in the classrooms.

Hewett, Taylor, and Artuso (1968) used a series of experimental and control groups to show the effect of classes for emotionally disturbed children through use of a structured program utilizing a token system by the teachers. Experimental children showed significantly greater task attention as recorded by trained observers, and gained

significantly in arithmetic achievement. Reading achievement over the year was not significantly different, however. This study using behavior modification on a class level for attending to task is the only reported control group design study in the literature.

These studies support the thesis that teachers as one class of lay therapists are effective and efficient. The next series of studies used the more questionable criterion of teacher report to show effect.

Studies using teacher report as outcome criterion measure. Knowles, Prutsman, and Raduege (1968) report teacher success with a seven-year-old hyperactive boy. The teacher was able to eliminate both running in the halls and letter reversals in five weekly sessions. Shaping and candy were used to establish the new behaviors; the use of candy was gradually eliminated, but the effects maintained through six weeks of follow-up. The mother used the same procedures at home and reported success.

McAllister (1968) has shown use of differential social consequences to the reduction of talkouts and turning around with high school low track English classes. In this study the teacher was trained to record frequency of deviant behaviors. The teacher applied verbal reprimand and approval and effected a change in terms of number of those deviant behaviors during a class session to a point considered by teachers as acceptable. No such changes were reported in a control group class.

Holmes (1966) used the parents and teacher to control a boy who had achievement problems and was disruptive in school. The parents and teacher were each seen once and thereafter were telephoned. If the boy became disruptive, he was held after school; if he did not attend to work,

he was isolated. At the level of only one or two disruptions per day, it was discovered that if he missed the bus as a result of his behavior, he was picked up by the mother, who did not want him to have to take a later bus. In effect, she was reinforcing him for being deviant. The mother's behavior was stopped and disruptions dropped to zero. It was also found that the boy would work hard in school if given the opportunity to earn special responsibilities in the class. The teacher kept track of daily progress in this study and reported to the psychologist.

In addition to the above research studies there is a group of researchers under O. R. Lindsley (1966) that is doing extensive work with both teachers and parents, but to date has published very little.

There is both growing attention to the use of lay personnel to treat in behavior modification programs in schools and mounting evidence that it can be effective. It is interesting to note that none of these studies is dated earlier than 1966, so the emphasis is rather recent.

The next series of studies deals with the work of the parent.

Parents as Therapists

In the area of behavior modification, the parents are the most often-used untrained therapist. This is not surprising when one considers that the parents are in most immediate contact with the child and his misbehavior affects them over a longer period of time.

Studies using observational outcome procedures. Of the work with parents, the mothers have been most often used in recent research studies. Bernal, Duryee, Pruett, and Burns (1968) worked with an eight-and-one-half-year-old "brat." The boy was a severe disciplinary problem.

Television was used in a laboratory situation as feedback to the mother on her high rate of avoidance responses to the "brat's" manding, aggression and threatening behavior. The mother was successfully taught through review of tapes to ignore abusive comments, tell him to stop, and if he failed to respond, spank him rather than accept his tyrannical behavior. Two observers recorded incidence of behaviors from the tapes for both the pre- and post-treatment sessions. The mother learned also to control one of her son's friends through similar procedures.

Hastings (1967) worked with five mothers who first read a short paper outlining operant principles and then designed their own programs for control of learning problems, crying, screaming, and non-compliance in their children. A reversal design was used in this study, involving observation of target behavior under four conditions: baseline, intervention, removal of intervention procedures, and reinstatement of intervention. The design allows the researcher to gauge treatment effect. In the case of the study by Hastings, all five mothers changed behaviors in the desired direction.

Bijou (1965) reports on his research with mothers and their giving attention contingent upon appropriate or cooperative behavior. In the case of one pre-school boy and his mother, it was found in the baseline observation that the mother paid a great deal of attention to manding behavior of the boy. Observations in five-second intervals of deviant or acceptable behavior were taken, and the mother was signaled by hand when to respond and how to respond. Manding behavior decreased and cooperative behavior increased during intervention.

O'Leary, O'Leary, and Becker (1967) presented two procedures, one run by the experimenter and the second by the mother, to control an assaultive and destructive six-year-old boy. Observation of cooperative play was used to gauge treatment effect. In the first procedure the experimenter established control of cooperative play with a sibling by use of food, then tokens, and finally fading out the tokens to a high ratio schedule. The cooperative play increased from 46 to 85 percent. At this point the mother was brought in to work with the boy and a "time out" procedure for kicking, hitting, pushing, and name-calling was instituted. The mother used one time out in each 30-minute daily session for the first three sessions. During the last four daily sessions, she used one time out. The cooperative behavior by this time was about 90 percent. Follow-up parent reports showed that while not all disruptive behavior was gone, the boy was making progress in school and destructive behaviors remained low.

Wahler, Winkel, Peterson, and Morrison (1965) presented a case for the effect of the child's environment on solution of behavior problems. They stated that changes produced in psychologists' offices may be short-lived if the parent is not involved in the activity. They used a laboratory technique with observers touching switches to record deviant behavior, behaviors incompatible to deviancy, and mother's responses, in three mother-child dyads. The mothers used extinction and counter conditioning to modify demanding, dependency and extreme stubbornness in the children. Marked changes for those children were reported. One child required the use of time out in addition to the extinction and

counter conditioning procedures.

Hawkins, Peterson, Schweid, and Bijou (1966) extend the work of Wahler et al. (1965) into the natural setting of the home. A four-year-old unmanageable boy was observed in the home and a code for him was developed involving nine "objectionable behaviors." Three signals by the experimenter were used in the training of the mother; one to tell the child to stop; one to have mother place him in time out; and one to have mother show approval and affection. Two one-hour sessions per week were held for two weeks. Data showed replication of the earlier study with regard to extinction of objectionable behavior and counter conditioning of appropriate behavior.

Wahler (1967) reports the use of a radio transmitter to alert mothers in laboratory settings to reinforce their oppositional children for cooperative behaviors. Observers recorded two responses--cooperative and oppositional. Wahler was able to show that approval alone did not increase cooperative behavior, but that tokens for toys did. The effects were maintained as social approval slowly replaced the tokens. The reversal used in the study was not extinction, but rather parental approval; the result was that cooperative behavior decreased.

Risley and Wolf (1966) used bites of ice cream and food to shape speech training in a severely autistic child. The child's mother had observed training sessions, and she was gradually taught similar procedures and principles of reinforcement, which she used in the home to maintain the gains made in the clinic in speech. Time out was used to effectively control screaming and shrieking and through extinction,

stereotyped chanting was eliminated. The observation and interventions were done in the laboratory with observers recording frequency of responses.

All the above studies have shown that behavior modification can be effectively used by mothers to change behavior. There are also a number of studies in which both of the parents have been successfully involved in the treatment program. These programs involve no practical difference from the work with mothers, save for the fact that the more agents of the environment who work with the child, the better are the chances for success.

Zeilberger, Sampen, and Sloane (1968) developed a code of behaviors for a disturbing four-year-old boy, including physical aggression, yelling, bossing, and instructions given to the boy from the mother. Ninety percent reliability with two observers was maintained with this special coding system. Detailed instructions for a time out procedure, plus social approval for desirable cooperative play were given to the parents; when they followed the instructions, they were given social reinforcement by the experimentors. Any variation from the instructions received negative comment. It was found that per cent compliance by the boy during intervention increased, and per cent intervals of aggressive behaviors decreased to near zero at the end of procedures. Yelling and bossing were not manipulated, but decreased to the same level.

Allen and Harris (1966) taught parents how to modify their attending behavior so that they might help their child eliminate self-scratching behavior. It was hypothesized that self-scratching behavior

was under the control of parental reinforcement. The child was five years old and had large scabs and sores on both arms and legs. Observers recorded the behaviors of parents with their child and an extinction, counter conditioning program was worked out so that appropriate behaviors were reinforced and scratching ignored. By the end of seven sessions of training nearly all the child's scabs had healed. Follow-up indicated no further scratching.

Wolf, Risley and Mees (1964) used time out, extinction, and shaping to successfully reduce tantrums, severe self-destruction episodes, and bed time problems with a pre-school autistic boy. Wearing of glasses was also handled in the procedures, which lasted seven months. The experimenter began working with the boy on the ward, then the parents worked on the ward until the behaviors subsided; the study concluded with the parents continuing the conditioning at home. Observations of either frequency or time interval of each of the deviant behaviors were used to check progress.

Wahler (1968), in agreement with the earlier study by Becker et al. (1967), suggests that for oppositional children, parent attention to appropriate behavior will not change behavior. In this study the observation procedures used were similar to his earlier studies (Wahler et al. 1965). He was able to show two cases where oppositional behavior was ignored and remained at the same frequency, two where it actually increased, and only one where it decreased. All five boys came under control through addition to the procedure of a time out condition of five minutes contingent on oppositional behavior.

Wetzel, Baker, Roney, and Martin (1966) report the first study with parents treating an autistic child on an outpatient basis. The child was six years old, had no communicative speech, was not toilet trained, and had severe temper tantrums. The mother came to the sessions where experimenters determined that parental attention was reinforcing to the child. The total withdrawal of parental attention reduced tantrums and aggressive behaviors. Time out was also used in the home for tantrums. Graduate students observed through a one-way glass mirror, per cent approach to experimenters in the room and contact with an inflatable toy clown. A reversal design was employed, which showed that it was the presentation and removal of attention by the experimenters that controlled the deviant behavior.

Fatterson, McNeil, Hawkins, and Phelps (1967) used narrative description of parent-child interactions in the home to provide a gauge of treatment of a six-year-old boy characterized by extreme isolation, negativism, self-mutilation, and violent temper tantrums, among other disturbing behaviors. Treatment procedures included change of the schedule of parent reinforcement to alter non-responsiveness, negativism and extreme withdrawal.

Breiter's (1969) study is a convincing demonstration of the parent's effectiveness as therapist. Breiter worked with the rocking behavior of one child in a family and the parents worked with the other child. Parents significantly reduced destructive behaviors in the home, repetitive requests, self-aggression, and non-English vocalizations. Breiter trained the parents in operant techniques, served as observer in the home

periodically, and informed the parents of their success in using particular procedures. Extinction, counter conditioning, and a time out procedure were used.

A few studies have sought to work with both school and home simultaneously. Patterson and Brodsky (1966) developed modification programs with multiple problems of a five-year-old boy. The parents observed the experimenter, then imitated similar procedures such as time out and counter conditioning. The mother practiced these procedures in the laboratory, school, and at home. Negative and isolate behaviors in school were reduced to near zero levels from about 25 and 40 per cent of time in school, respectively. Interactions between peers and the subject were altered favorably. Two month follow-up observations indicated the maintenance of procedures. Patterson, Ray, and Shaw (1968) extensively describe case studies of six boys which show successful intervention using modification techniques modeled for parents and siblings to change behavior of the deviant child in the home and with both peers and teachers in school. This latter study is singular in the research in that it deals with a wide range of typical problems referred to guidance clinics and involves numerous tailored procedures to effect change, using a general observation procedure suitable across different subjects. The aim of the approach was to "reprogram the total environment."

The cost to the professional in time needed to train a lay individual could be high. A more practical use of time might involve training in groups.

Only one study is reported in the research where parents were taught

in a group setting how to change the behavior of their children using observation data as an outcome variable. Ray (1965) worked on a group basis with four mothers of disturbed children. Baseline observation in the homes of the children was followed by five weekly meetings where behavior modification techniques were taught; observations were again made following treatment. Results showed that two mothers significantly increased non-aversive interactions with their children. Three mothers significantly increased attending behavior to the child's initiations and one mother decreased significantly the proportion of aversive responses by the mother to the child's aversive initiations. Two mothers changed their behavior very little as a result of the five sessions.

Observational procedures have shown the effect of mothers, fathers, both working together, and mothers in groups, to change a wide range of behavioral problems. There is evidence also of parents effect not using observation as criterion measure.

Studies using parent report and other procedures to measure outcome.

Some studies utilizing parents as lay therapists have not used observational procedures to provide objective measures on outcome of treatment. The alternate outcome measures have been parent report, objective testing and parent report of observation.

Russo (1964) used a technique of operant play therapy as a setting to extinguish aggressive, hyperactive behaviors of two children. Parents were taught to ignore their child's misbehavior and attend to him only when he was playing in a cooperative fashion. Parents reported in each case that they were able to extend the procedures into the home and that

deviant behaviors were much improved.

Gardaer (1967) used three weekly counseling sessions with parents to alter the occurrence of psychogenic seizures of a ten-year-old Negro girl. The parents were taught in the final session how to play "deaf and dumb" to the complaints of the girl and to respond to appropriate behavior with their attention. Within two weeks frequency of seizure behavior dropped to zero from about six or eight per week. After twenty-six weeks of follow-up, seizures were still absent. The parents reported temper tantrums and somatic complaints were also reduced by utilizing the same procedures.

Holland (1969) was forced to work with a father in eliminating fire-setting in a seven-year-old boy. The boy was setting fires once or twice a week. The mother would not cooperate with the experimenters because she believed the suggested operant procedures were inadequate. Threat of permanent loss of a valued baseball glove, and money as a reinforcement for bringing all matches to the father, were used to halt fire-setting. The father also paid the boy one penny for each match presented to him from lots of twenty given to the boy to strike if he wished. Social reinforcement was gradually introduced as the monetary reinforcement was faded out. Results maintained through eight months of follow-up report.

Madsen (1966) used positive reinforcement to achieve bowel and bladder control in a 19-month-old girl. After a dry diaper, she was read to on a potty chair and told she would receive candy of her choice if she "went potty." Two days later, she urinated in the toilet and received her reward, plus verbal social approval. On the fourth day, she told the

Erratum

Page number 17 was inadvertently omitted. Contents of text are not interrupted; the Table of Contents and List of Tables and Figures are correct.

parents, as they had earlier requested, that she had to go and asked for candy. By the fifteenth day, candy was given only upon request. Sixty days after the program began, requests for candy had dropped to zero and the child was using the bathroom on her own. A six month follow-up revealed no relapse. The number of accidents was the dependent variable used in this study, and the parents reported the frequency periodically to the experimenter.

Williams (1959) extinguished the demands for special care and treatment at bedtime of a 21-month-old child. Two periods of seven days of extinction were necessary, due to an aunt's attention to the manding behavior of the child. The mother in this intervention stopped complying to mands, tucked the boy in and left. The length of time fussing and crying was the dependent variable reported by the mother.

Dupont (1968) was able to eliminate transvestite behavior in an eight-year-old boy. The parents were instructed to stop their excessive attention given to the behavior and to stop discussing their desire that the mother's pregnancy result in a girl. The study is based on parent report and is discussed in terms of Rotter's (1954) social learning theory. The study does not fit into exactly the same approach to behavior modification as do the rest of the cases reported, due to the psychoanalytic overtones, but it does have legitimate claim to the longest case study follow-up using some form of reinforcement theory. Dupont reports that the parents have noted no recurrence of the behavior in the last twelve years.

There are three studies using parent report combined with group

techniques. Walder, Cohen, and Daston (1967) discuss pilot study findings using 40 families in groups where they learned operant procedures to control a number of deviant behaviors of their children. Using principles of learning, the parents participated in lectures and group discussions with the experimentors and laboratory practice sessions using the new procedures with their children. In addition, the experimentors went into the homes to demonstrate techniques. According to the authors, preliminary parent report findings have been encouraging.

Hirsh (1968) has reported on the efficacy of some of Walder's procedures. Two groups were used: one group was a matched control group and the other received lectures on behavior modification and small group discussions once per week for nine weeks. Parents were asked to record child behaviors they were working on and children and parents in both groups were tested on behavioral and psychological tests three times during the experiment. A parent questionnaire indicated that the procedures changed both parents' and children's behavior. Records of modification programs showed behavior changed in the desired directions, but regrettably, no external criteria of behavioral change data were obtained comparing the two groups.

Lindsley (1966) worked with fathers of mentally retarded children in a group. Of the 14 fathers, nine tried to modify behaviors of their children. All were claimed successes, but no data were reported. Each of the parents were said to have recorded rate of behavior, plotted it on graph paper and introduced successive interventions until rate was changed to the desired level. Lindsley states that in addition to 10

retarded children helped, 21 siblings and five whole families were involved in modification programs.

One case is available on the use of ward personnel as therapists. The attention of a cottage cook was used as a reinforcement. Wetzel (1966) had several meetings with ward staff of a treatment center to teach them how to count the stealing incidence of an eight-year-old boy and use the denial of usual trips home with the cook as punishment for stealing. Wetzel had to return to the center only once to handle a crisis; otherwise, he telephoned suggestions to the staff. Stealing behaviors were eliminated in a three-month period. It is interesting to note that the staff was unable to carry out the program without the cook and several times were found to be actually reinforcing stealing behavior by failing to withhold the cook's attentions consistently. The frequency of one or more stolen objects per day was recorded cumulatively.

The above 39 research studies support the efficacy of the use of lay therapists using behavior modification principles. This number of replications of the use of lay may be taken as powerful support for the use of these individuals in therapy.

Traditional Approaches and the Use of Lay Therapists

Most of the criterion data in the traditional approaches lack the objectivity of observation data. Parent report is heavily relied on for the most part in the 10 studies found in the literature. Several studies did use more acceptable criterion data in the form of achievement testing and observation by trained observers and these studies will be emphasized.

Only two studies were found where untrained therapists were teachers. Katz (1969) used a multiple group design involving two classes and their teachers in each of three groups. Two teachers received typical social casework treatment, where the teacher sat in on case conferences, two classes received only teacher consultation, and the two remaining teachers and their classes received no help. The teachers rated the behavior of their children before and after the experiment; in addition, achievement tests were given each class before and after treatment. The results indicated that there was no difference between the groups based on achievement test measures. The teachers who had teacher consultants rated significantly fewer deviant behaviors in their classrooms than did the teachers receiving traditional casework.

Bedingfield (1964) found that teachers receiving consultation by a counselor were better able to help high school students than were teachers not receiving consultation. Findings were based on student self-report of personal adjustment. The findings are somewhat startling in view of the fact that the teachers in the non-consultation group had twelve unplanned consultations with the counselor.

Four studies were found where the therapist worked with the mother who operated as either intermediary or as therapist. Fuchs (1957) describes use of play therapy for toilet training her one-year-old daughter. A series of letters to and from her father, Carl Rogers, provide the details of the technique, which involved reflective statements and the use of toy toilets and dolls. The child was toilet trained after three weeks of daily sessions. Fuchs suggests that the therapy provided a

medium to overcome fears of the toilet associated with earlier parental concern.

Stover (1966) described "filial" therapy as the training of mothers for reflective roles in play sessions with their own troubled children. The approach was designed after the Rogerian model. Results of therapy with fourteen mothers were compared to an equal group of mothers who engaged in play therapy with their children without training. Two therapists increased reflective statements in their groups 15 percent and 58 percent, respectively. No increases were noted for control group members. Coded tape recordings for pre- and post-training were evaluated by two judges and reflective statements noted. Experimental group children, when compared to controls, were said to have increased in leadership behavior, decreased in dependency, increased in expressed negative feeling, and significantly increased overt aggressive acts. These results were taken as support for training mothers in successful use of the first stages of the "filial", since they showed expression of feeling.

Schwarz (1943) worked with mothers whose children were involved in therapy. She found that those children who had mothers active in the modification of their behaviors gained more in therapy. Gain was determined by the child's ability to "show" his problems in therapy as defined by the therapist.

Bonnard (1950) used a mother as intermediary between herself as psychiatrist and a four-year-old obsessive-neurotic boy. The procedure used was psychoanalytic. The mother reported the boy's behavior, while Bonnar interpreted the meaning and suggested what course of action should

be taken. The case study is rich in clinical detail and parent report indicated success.

Two studies discuss use of both parents as therapists for problems. Ruthven (1964) describes a procedure whereby the therapist observed parent-child interactions from behind a mirror for fifty minutes and then counseled the parents for an equal time interval. Two groups of children were used. The five children in the experimental group received observation and parent counseling, while the four children in the control group were observed while a trained play therapist worked with them. Parent report of symptoms, deviant behaviors and current level of adjustment before and after treatment or control participation were used to gauge effect. Raters were used to rate interviews as to treatment effect. Results showed that parents were as effective as professional play therapists.

Augenbraun (1967), a pediatrician, found that three sessions with parents of pre-school children were effective in reducing temper tantrums and non-compliance in two children. The parents were seen with the child in a room where toys were available. The experimenter helped the parents change their behavior toward the child by demonstration and by having them carry out recommended programs. Parents reported that the behaviors were eliminated.

College students as therapists have been used by Mitchell (1960) and Stollack (1967). Mitchell coined the term "amica-therapy" to describe the use of volunteers to work in sustained friendship roles with troubled and disturbed persons. The study reported the use of college students

to provide one-to-one relationships to troubled children. Clinical evaluation supports the value of the approach to give the disturbed youngster a person to relate to in a meaningful way. Stollack used undergraduates as play therapists with emotionally disturbed children ten years old or less. Students were trained in client-centered play therapy, and trained coders observed aggression in 15-second time intervals. Aggression, expressive negative feelings, and leadership were expected to increase significantly if therapy were effective, while dependency would decrease. Findings were that aggression changed little, expression of negative feeling increased significantly, and leadership behaviors increased. Dependency scores were unchanged. No control group was used, which limits generalizations. This study was the only one reported in the traditional literature that used observation data as outcome criterion.

All these studies in the use of the traditional approach show some support for the thesis that teachers, parents, and college students are effective as therapists. The research with lay in this approach suffers a drawback not found in the behavior modification approach. In the above reported studies little mention is made of reduction of the symptoms of the behavior problem. Fuchs' (1957) work on toilet training is an exception. In most cases, however, it is difficult to assess outcome if measures such as "expressed negative feelings" are used. This problem, and the use of clinical impression and parent report, decrease the strength of the findings in the traditional approach.

Discussion and Conclusions

The total research findings lend support to the thesis that lay

therapists can and indeed, should, be called upon to help meet the manpower needs of mental health. There have already been enough replications in the behavior modification field using observation data to enable researchers to make some rather firm statements about treatment effect.

For example, based on the research of Becker et al. (1967) and Wolf et al. (1967), time out can be very effective in controlling severe deviant behaviors.

Ignoring deviancy and attending to appropriate behaviors, often called extinction and counter conditioning, have been used effectively with a wide range of moderately deviant behaviors (Patterson & Brodsky, 1967; Becker, 1966). In addition, token economies have shown effect (Becker, 1966).

Many of the modification studies have worked with multiple problems with a deviant boy with effect (Patterson, Ray, & Shaw, 1968; Wolf et al., 1967; Patterson & Brodsky, 1967). Patterson, McNeil, Hawkins, and Phelps (1967), in dealing with the total environment, approach the level of treatment necessary in the clinic or treatment center. This extension of modification to the total range of presenting problems in children is a necessary step toward providing a meaningful alternative to the traditional clinic procedures.

While it is true that some behavior modifiers still use the somewhat questionable parent report outcome criterion for data analysis, most researchers use observation, and many use the reversal design, which allows a check on the effect of the treatment in a dramatic fashion. It is recommended that the use of control group designs such as Paul (1967)

has suggested and that larger samples be used more frequently by researchers in behavior modification, as well as traditional approaches, in order to provide a variety of comparisons of effect.

Traditional approaches have made surprisingly little use of the lay therapist compared to behavior modification use. Only 10 studies were found in the research dealing with the topic. A probable reason is that behavior modification is based essentially on an educational model. That is, behaviors, deviant or appropriate, are said to be learned. Such a view would naturally lead to the use of parents and teachers as logical agents of change. In the traditional approach, due to the emphasis for the most part on causation, extensive training is felt to be necessary before the procedures can be applied effectively. The therapist would thus be slow to use an agent he would feel an obligation to train, perhaps for years, in the intricacies of his view.

It is suggested that only as therapy moves toward a behaviorally-oriented or social learning approach will lay therapists be extensively used. Indeed, Bergin (1966), after reviewing outcome research, has expressed the same thought.

Several implications may be drawn from this review. First, parents, teachers, and other non-professionals can change behavior in the role of therapist. Second, the use of such individuals would provide a source of help for professionals. Assuming supervision, it is likely that one professional could influence two or three times as many clients as is now possible. Third, the use of the lay therapist makes use of an individual highly motivated to bring about change. The parent under seige by a

monster child would no doubt work very hard to escape his clutches. The professional who is burdened with impossible case loads may be much less motivated or perhaps unable to effect change. Fourth, through the use of the lay therapist, much greater contact with the child with behavior problems can be affected. For example, in the case of the use of the parent, intervention could virtually last most of the week rather than for 50 minutes. Fifth, the behavior modification approaches provide greater support than traditional approaches for the use of lay. This is due in part to more extensive use of adequate criterion data and experimental control. There is also the emphasis on behavior being learned, not caused, which makes therapy educational rather than medical.

Bandura (1962) has stated that the best use of professionals is in advising others. Hopefully, it will soon be recognized that one great body of significant "others" are the capable individuals surrounding the disturbed child every day of his life--his parents, teachers, and peers.

CHAPTER II
MODIFICATION OF BEHAVIORS OF DEVIANT BOYS THROUGH
PARENT PARTICIPATION IN A GROUP TECHNIQUE

This study was concerned with the evaluation of a procedure for training parents to use social learning principles to modify the deviant behavior of their boys. Direct observation of deviant behavior in the home provided data for a comparison of matched groups of treated and non-treated families.

Traditional psychotherapy with children has failed to demonstrate its effectiveness as indicated in the reviews by Levitt (1957, 1963). This result is due, in part, to poor evaluation procedures used to determine effect. Adequate evaluation studies should: 1) use sound criterion data and 2) follow experimental and control group designs. Levitt's review revealed that none of the studies through 1963 used random assignment to treatment and non-treatment groups. In addition, the criterion used, parent report, is open to serious criticism on methodological grounds. A review by Radke-Yarrow (1963) on parent report data showed that parents' recall ignored, denied, or transformed earlier information on 80 variables of maternal care and characteristics of the child. Recall of traumatic events was the most distorted of all. At least two studies have shown that when behavioral criteria indicated no change in untreated control children, the parents still reported improvement (Collins, 1966; Clement & Milne, 1966). The latter findings indicate that

in the studies reviewed by Levitt (1963) the rate of improvements in the untreated control group might have been overestimated because of the use of parent report as a criterion. Taken together, these findings suggest the procedure is an inadequate criterion for evaluating intervention procedures.

Assuming that parent report as a criterion may be biased, other modes must be considered, such as direct observation by reliable observers, peer sociometrics, sociometrics, achievement score change and perhaps ratings by teachers.

Kranzler (1967) has reported on the results of five studies that fulfill both requisites for adequate evaluation studies. Using matched experimental and untreated controls and sociometric ratings, he evaluated client-centered counseling in elementary schools. The conclusion was that there was no demonstrated effect of counseling shown.

The study by McManus (1964) is the only one using observation in the home as a means of evaluating traditional family therapy. He used two hours of observation on each of two days of observation pre and post treatment to test effect of an Adlerian counseling procedure. Of four families, only one showed significant ($p = .06$) reduction of problem behaviors.

Behavior modification techniques, which as a rule focus on rather discrete behaviors, find empiric support for dealing with many types of problems with children (Gelfand & Hartmann, 1968). Observation data from home and school serve as the main criterion. One of the most commonly used designs is the reversal, which provides for baseline

observation of the behavior, a treatment phase, another observation with treatment procedures removed, and finally, the reinstatement of treatment. This design has adequate criteria and makes use of the subject as his own control. A case study approach is often used in behavior modification with the reversal design methodology and is open to at least one criticism. There is no way in the case study design to check on other subjects given the same treatment who are not successes. It then could be that of all the cases seen in a clinic, only the successful ones are reported in the research. An alternative would be to take all referrals within a set period of time, employ adequate observation data collected in the home and school, and use experimental and non-treated control groups.

The present study relied upon ten hours of baseline observation in the home and an additional four hours during intervention to assess effects of the first stages of a parent training program. The changes in behavior of six deviant boys were compared to changes in a matched group of boys receiving no treatment. Statistical tests were applied to the data and the outcome discussed with reference to implications for parents using the behavior modification techniques.

Method

Subjects

Male children, ages six through fourteen, referred from school personnel, parents, or mental health specialists for conduct disorders, comprised the sampling population. All families referred in the time interval from October, 1968, through April, 1969, were included in the

sample. The conduct disorders included aggressiveness, hyperactivity, temper tantrums, disobedience, theft, running away, destructiveness, lying, and enuresis. The area for referral was restricted to the Eugene-Springfield community in Oregon. Each family had three or more family members, with a minimum of two children. Twelve deviant boys and their families formed the sample used in the study.

The first six referrals constituted the experimental group. From the next eight families, six were selected as controls. The selection of a control family was based upon similarity to an experimental family on socio-economic status of the family, age of deviant child, and the proportion of social interaction characterized by coded behavior deviant in the home during the baseline period.

The two groups of boys were rather closely matched by age. The mean age for treatment group boys was 9.83 years with a range of 7 to 14 years. Control mean age was 9.3 with a range of 6 to 10 years. Under the classification system by Hollingshead (1958), the two groups were considered to be closely matched with regard to socio-economic status. Hollingshead's system rates the occupations of heads of households on a seven point scale, with professionals coded one and unskilled laborers, seven.

Insert Table 1 about here

As can be seen in Table 1, fathers were for the most part administrative personnel, clerical or skilled employees. No families in the sample were from the highest two or lowest categories of socio-economic

status, and all but one family was classified in the lower one-half of the scale. The matching procedure for the two groups of boys on the dependent variable will be discussed in the analysis of data section.

Observation Procedures

A brief intake interview with the parents and the child, plus information from referring agencies was used to screen out obviously psychotic individuals. The interview also served as a means of informing the parents of the experimental nature of the project and to explain the observation schedule.

All observations were done by six observers who had been previously trained to reach a criterion of 70 per cent agreement with each other. Training involved memorizing the 29-item code developed by Patterson, Ray, Shaw, and Cobb (1969). Then the trainee observed a family with an experienced observer. Agreement was based on comparison of the codes observed and the order of their occurrence. The agreement percentage was derived by dividing the number of matched codes of the trainee with the experienced observer by the total coded behavior recorded by the experienced observer. For example, if 10 behaviors were coded in a 30-second interval by the experienced observer, and the trainee was in agreement with the first eight codes but not the last two, the agreement would be 80 per cent (eight divided by ten). After the observer reached the criterion, regular training sessions were held to maintain the level of agreement. The necessity of periodic retraining has been pointed out by Reid (1967), who found that observers without this retraining seem to develop their own codes with consequent loss of data reliability.

Each observer used a clipboard with a 30-second interval timer attached to provide mobility while observing and a method of obtaining constant segments of observation. The observer recorded behaviors of the child in focus and responses to that behavior for ten 30-second segments of five minutes of observation at one time. She then observed another family member for an equal period of time. This process was repeated until ten minutes of observation on each person was completed. Family members were randomly assigned to the order in which they were to be observed.

Observations were done when the whole family was present in the home, usually between the hours of five and seven in the evening. All family members were required to be present with the television set turned off. Each family was observed for ten week days prior to placement in either experimental or control groups. Over this period of time, one hundred minutes of observation data was collected on each family member in two five-minute samples each observation session. This extended baseline observation constituted the pre-test of the experimental treatment procedures.

Two-day observations were made in the treatment group at five and at nine weeks. During these observation "probes," the deviant child was observed for 20 minutes and other family members for five. One probe was made on the control families after they had been on the waiting list five weeks.

Biases in Observing. Rosenthal's (1966) work and that of Stratt, Burton and Radke-Yarrow (1967) suggest the presence of observer bias.

Observers may know the nature of the experiment and unwittingly influence the data in favor of the experimenter. In order to guard against this possibility, the position of "calibrating observer" was created. This individual was trained by a staff member and instructed to make observations with other observers on a random basis. She was prohibited from all records, discussions, and even office access, save for the area of the receptionist's desk. Families were instructed not to speak to any of the observers, so she was also denied this avenue of bias. An informal check was made following the collection of all data to see if the calibrator knew who the experimental families were. The names of families in both experimental and control groups were presented to her and she said she felt all the families were experimental.

From February 1969 until the end of the study in July, the regular observer data were checked against the calibrator's observations. In each case per cent agreement for correctness of code category and for sequence of coding was the criterion. Checks for agreement with the calibrator were obtained by having the calibrator go with the regular observer during a scheduled observation. The calibrating observer's agreement with four observers over the course of the study ranged from 46 to 88 per cent with a mean of 70.7. Twenty-eight separate checks were made during the period from January 10, 1969 to June 25, 1969.

Observer Influence. Another problem that is associated with observation methodology is that of the effect of observer presence. This issue has been investigated by Patterson and Harris (1968), who compared mothers trained to observe their own families with the results obtained

by outside observers coming into these same families. The data showed that initially the presence of the outside observer increased the variability in the behavior of family members. It also seemed that the presence of an outsider had an impact on the rates of social interaction. With increasing sessions, the data showed that families tended to habituate to the observer's presence. The finding suggests that observations in the home give a somewhat distorted estimate of the "true family interaction".

Data Sampling. The question of how much data must be collected before one can be sure that an observation sample is stable was discussed by Patterson and Reid (1969). They obtained Spearman-Brown corrected reliabilities of .78 for "frequency of deviant behavior" based on odd-even estimates from family interactions. Sixty to seventy-five minutes of observation data on each of 24 individuals from families were used in the analysis. A more recent analysis on stability of the coded behaviors has been made by Patterson, Cobb, Ray, and Shaw (1969), using a sample of 71 subjects. For the 29 categories they found a mean correlation of .52 for the first 50 minutes of observation with the last 50. The general conclusion was that stability was high enough over 100 minutes to provide an adequate estimate of behaviors.

Experimental Group Procedure

The intervention programs in which the six families participated were based in part on the pilot studies described by Patterson, Ray, and Shaw (1968). The more recent report by Patterson, Cobb, Ray, and Shaw (1969) outlines the intervention procedure used in the current study.

Following the baseline observation, the parents were given a copy of a programmed text (Patterson & Gullion, 1969), which outlines social learning principles. Contingent upon their responding to the text, an observation probe and a pinpoint interview were scheduled. During the latter, the parents selected one behavior of their child to observe and count. The therapist called them each day to collect data. Contingent upon their collecting several days of data, the parents were admitted to the parent group sessions. In the group the therapist reviewed programs and discussed the data for the behavior that the parents were working on. The family usually participated in eight to ten group sessions. Previous pilot work with the procedure suggested that five weeks of parent training generally initiated a change in the child's behavior.

All of the six families in the control group were placed in treatment groups at the close of the study. Actual time from intake to placement in treatment for controls averaged eight weeks. The control group families were told that they would have to wait for a maximum of five weeks due to the limitations of project manpower and time.²

Dr. G. R. Patterson was therapist for one family in the experimental group; the author was therapist for three; Dr. Barclay Martin, a post-doctoral fellow from the University of Wisconsin, handled one family, as did David Shaw, an advanced graduate student in clinical psychology at the University of Oregon. In all cases, intervention followed a similar pattern and staff conferences were held weekly to discuss procedures.

Data Analysis

Proportion of coded deviant behaviors to total social interaction

of the subject during baseline and "probe" observations was the dependent variable used in the study. Social interaction was defined as the sum of all interactions for the individual occurring in a social context. If the behavior was not "noted" by another person (code categories "self-stimulation" and "no response") it was not regarded as social interaction. The use of this measure in the denominator of the obtained proportion took into account the interaction going on between the observed individual and other family members. It was felt that since the modification procedures were aimed at influencing the total environment of the deviant child, a successful outcome would result in a significant increase in the amount of social interaction as well as a decrease in the frequency of deviant behavior. Previous research has provided the obvious finding that the frequency of social behavior, deviant and non-deviant, co-vary with the amount of social interaction (Patterson and Reid, 1969). Thus, improvements in one intervention outcome (social interaction) would confound the improvements which might be reflected in the traditional rate measure. For this reason it was decided to express behavioral units as a proportion in which the denominator was the estimate of social interaction.

The 29 categories were intercorrelated, using a sample of 52 children including the deviant children and their siblings from twenty families. A clustering procedure showed that the 13 code categories which had been constructed a priori as having some relevance for conduct disorder behaviors fell into three general clusters. One cluster labeled "aggressive" consisted of "hit", "tease", "yell", and "destructive". The

intercorrelations for these variables ranged from .46 to .62 with a median of .50. Another cluster, "hostile", included "humiliate", "disapproval", and "negative command". The range of correlations was from .48 to .63 with a median of .53. The third cluster, "immaturity", included the following: "cry", "dependent", and "whine". The intercorrelations ranged from .32 to .60 with a median of .34. One additional set of variables, "non-compliance" and "negativism", intercorrelated .59.

Each child displayed a somewhat different "profile" of deviancy. Some were elevated on the "aggressive" cluster, while others were elevated on the "hostile" or "immature" clusters. In order to facilitate across subjects, or across group comparisons, it was decided to combine the information for the three clusters, excluding "immaturity", into a total deviancy score. The "immaturity" cluster was not related to the referrals of conduct disorder. The score was expressed as the proportion of social interaction characterized by the sum of the deviant behaviors on the three clusters.

The matching procedure for proportion of deviant behavior, comparing control to treatment group, was carried out when a potential control family finished baseline. The comparison was made for the mean of each group on the sums of three clusters of coded deviant behavior in the home. The means were .0668 for experimental and .0640 for control group subjects during baseline observation. This difference was not significant and the groups were judged to be the same.³

The data were analyzed for experimental and control group

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1 OF 2

comparisons using a two factor repeated measures analysis of variance statistic. A single factor repeated measures analysis of variance statistic was also used to test treatment effect for the experimental group across baseline, five and nine week observations. Both statistics are described by Winer (1962).

Results

The major hypothesis of this study was that the experimental group subjects would show a decrease in deviant behavior, attributable to the behavior modification training program for the parents. A second hypothesis was that the deviant behavior of the non-treated control group subjects would not decrease.

The data in Figure 1 showed that there was a mean decrease of about 50 per cent proportion of deviant behavior for experimentals and a mean increase in proportion of about 30 per cent for the controls.

Insert Figure 1 and Table 2 about here

These data provide support for the efficacy of training parents in the use of behavior modification principles. The analysis of variance (Table 2) showed there was a significant differential effect for treatment procedures over the observations. No significant effects between treatment groups or across trials were apparent, but the F ratio for interaction between treatments and trials was significant at the $p = .07$ level.

A third hypothesis of the study was that treatment would continue to decrease deviant behaviors from five to nine weeks. It was clear

(Figure 2) that treatment effect continues longer than just five weeks for the experimental group. Mean proportion deviant behavior declined

Insert Figure 2 and Table 3 about here

over 60 per cent from baseline through nine weeks. The analysis of variance was run on these data and the results are presented in Table 3. The behavior modification procedures had significant effect over the nine week period of time. The F ratio for observations was significant at the $p = .09$ level.

Great variability was noted in both groups during the experimental phase. The variance increased for the control subjects and decreased for the experimental subjects (Figure 3). It is clear that as control

Insert Figure 3 about here

group variability increased, the reverse was true for the experimental group over the five week period of time. As treatment had effect, variance was reduced, in keeping with the hypothesis that behavior modification treatment reduces deviant behavior.

The results seem to show that the deviant behavior of the treatment group subjects decreased, and that of the control subjects increased over five weeks. In fact, this might not be the case. If, for example, the number of interactions was different between the two groups and was used as the denominator for the proportion of deviant behavior figure, a distortion of effect might result. It might be that the treatment group interaction increased, and control group interaction remained the same.

Assuming equal frequency of deviant behavior, the consequence would be that the proportion of deviant behavior for the treatment group would be low and for control, it would be high.

Effective family intervention should result in changes both in the amount of social interaction of the deviant child with other family members and a decrease in the frequency of his deviant behavior. The data showed that the social interactions for the control group did, in fact, remain constant, but it increased significantly for the experimental group. Figure 4 shows that mean rate per minute of social interaction for the experimental group increased, while for the controls, it decreased. The analysis of variance (Table 4) shows that for both treatments and interaction, the F score was significant at $p = .09$.

Insert Figure 4 and Table 4 about here

Since the social interaction did increase significantly in the experimental group, it is necessary to demonstrate that the frequency of deviant behaviors declined markedly in the treatment group but not for the control group at the five week point. Figure 5 shows the relative frequency of deviant behaviors expressed in rate per minute for the two groups. Again there was a differential effect between the groups

Insert Figure 5 and Table 5 about here

significant at $p = .09$ as shown by Table 5. This result shows that with social interaction controlled, the frequency of deviant behaviors was still significantly different between the two groups. The frequency

of deviant behavior in the experimental group at five weeks was greatly reduced over baseline, while it increased in the control group.

Taken together, these results showed that being in the treatment group decreased deviant behaviors and increased social interaction.

One last bit of data was analyzed. It is an assumption that the observed deviant behaviors in the homes are related to the conduct disorders precipitating referral by the parent or the school. In order to check on this assumption, parent report data were used to record frequency of these low rate behaviors before and during treatment in the group. Table 6 shows that, in general, frequency of these events decreased over the nine weeks of intervention. Caution is urged in the

Insert Table 6 about here

interpretation of these data, since parent report data collection was not precise.

Discussion and Conclusions

In clinic research such as this study, across subject variance is great, which means that the treatment effects must be dramatic in order to show statistical significance for such a small sample. One might say by analogy, that this is like hitting a small pail at 50 yards with a single toss of a ball. The success of this study means that the procedures are developed enough to warrant replication with larger numbers and varieties of cases. Several replications using samples such as the ones in the present report would mean that we may have intervention procedures with some practical value. Practical utility of these

procedures would be partially a function of the fact that they can be replicated, and also a function of the fact that only six to ten hours of professional time were required to produce the effects demonstrated at five weeks.

One interesting interpretation is that it is possible to show therapy effect in such a short period of time. Five weeks, in terms of the length of therapy of more traditional approaches, is a great improvement in cost of time to the therapist.

The data in Figure 3 imply that it may not be true, as Bergin (1966) suggests, that variability is increased in treatment groups and not in control groups. He found that some treated subjects were much more improved than controls, but that some were much worse after treatment. The data in the present study support the more desirable point of view that treatment reduces variability, due to successful intervention.

This study supports the position that parents can treat their own children with minimal contact with a professional. As a matter of fact, in this study the therapist had no direct contact with the deviant boys during treatment, which has implications for the thought that the relationship is central to counseling or therapy outcome, as C. H. Patterson (1968) has suggested.

Finally, this study supports the growing literature on the efficacy of the techniques of social learning theory or behavior modification. The techniques used were efficient and powerful enough to show effect in a short time with some evidence in support of the consequent reduction of referred conduct disorders.

More studies such as the one presented here may develop increasingly more effective methods for the prevention and treatment of the disturbing and disturbed behaviors of young people. Such a goal is well worth the effort. The rules suggested here are simple: 1) employ adequate criterion variables, such as observational methodology, and 2) use adequate control designs, such as the use of both treated and untreated groups for comparison.

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Footnotes

1. This study was conducted at the Oregon Research Institute in Eugene, Oregon. The project was supported by PHS 13330-01 and 02, and MH 15985-02. Computing assistance was obtained from the Health Sciences Computing Facility, U.C.L.A., sponsored by NTH grant FR-3.
2. The original design called for a sample of five subjects; when it was found that more subjects were available, one additional subject was assigned to each group through the same procedures outlined above.
3. When this study was originally designed, the matching was to be based on mean rate of total deviant behavior per minute and the variance of the two groups around that mean. Those figures were still kept after the decision to change to proportion was made. For the experimental group, the mean rate per minute of total coded behavior during baseline was 9.83, while control group was 9.33. Sum of variance for experimental group subjects was 2.87 and for control subjects, was 2.48.

Socio-Economic Classification of Heads-of-Households
of Treatment and Control Group Families

Abbreviated Descriptive Category	Number in Experimental Group	Number in Control Group
1. Higher executives, proprietors, major professionals	0	0
2. Business; managers, proprietors. of medium sized businesses and lesser professionals	0	0
3. Administrative personnel, small business owner, minor professionals	0	1
4. Clerical, saleswork, technician, small business owners	3	4
5. Skilled manual employee	1	0
6. Machine operator or semi-skilled employee	2	1
7. Unskilled employee	0	0

TABLE 2
 Analysis of Variance for Experimental and Control Groups
 on Proportion of Deviant Behavior (Baseline and Five Weeks)

Source	df	MS	F
Subjects between trials	11		
Treatment (A)	1	.0031	.5166
Error	10	.0060	
Subjects between treatments	12		
Trials (B)	1	.0004	.4444
Treatment by trials (AB)	1	.0039	4.3333*
Error	10	.0009	
Total	23		

* p = .07

TABLE 3
 Analysis of Variance for Experimental Group
 on Proportion of Deviant Behavior
 (Baseline, Five Weeks, Nine Weeks)

Source	df	MS	F
Between Subjects	5		
Within Subjects	12		
Observations	2	.003024	3.1500*
Error	10	.000960	
Total	17		

* $p = .09$

TABLE *

Analysis of Variance for Experimental and Control Groups
 on Rate per Minute of Social Interaction
 (Baseline and Five Weeks)

Source	df	MS	F
Subjects between trials	11		
Treatments (A)	1	7.1613	3.7157*
Error	10	1.9273	
Subjects between treatments	12		
Trials (B)	1	.9322	1.6225
Treatments by trials (AB)	1	2.0945	3.6457*
Error	10	.5745	
Total	23		

* $p = .09$

TABLE 5
 Analysis of Variance for Experimental and Control Groups
 on Rate per Minute of Deviant Behaviors
 (Baseline and Five Weeks)

Source	df	MS	F
Subjects between trials	11		
Treatments (A)	1	.5104	1.2430
Error	10	.4106	
Subjects between treatments	12		
Trials (B)	1	.0008	.0170
Treatments by trials (AB)	1	.1634	3.4914*
Error	10	.0468	
Total	23		

*p = .09

TABLE 6
 Experimental Family Parent Report of Frequency
 of Low Rate Behaviors

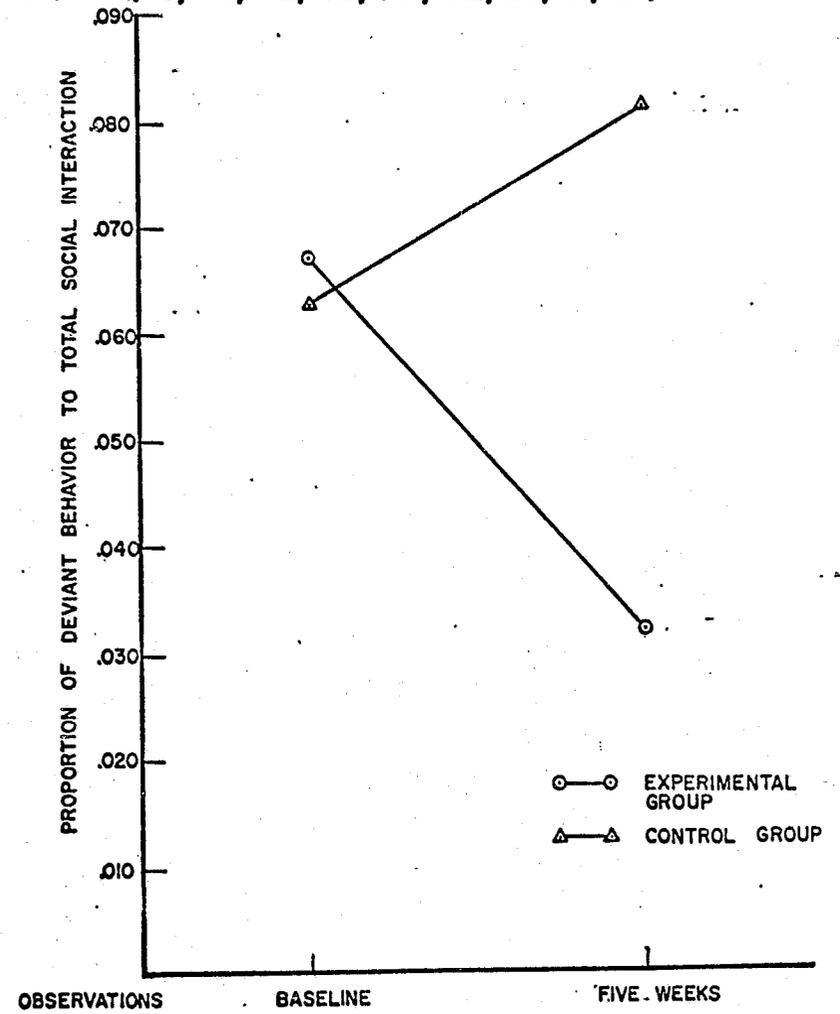
Experimental Subject	Major Referral Symptom	Baseline Period before Intervention	Frequency	
			1st - 5th Week of Intervention	6th - 9th Week of Intervention
E ₁	Violent temper Tantrums	5	2	0
E ₂	Violent temper Tantrums	0*	2	0**
E ₃	Violent temper Tantrums	2	0	0
E ₄	Bedwetting	10	(About every night)	
	Fights with Siblings	6	(No data collected)	
E ₅	Temper tantrums	6	0	0
	Fights with Brother	13	0	0
E ₆	Runaways	0*	0	1***

* Mother reports about one per month prior to baseline.

** Had two major tantrums just after nine weeks.

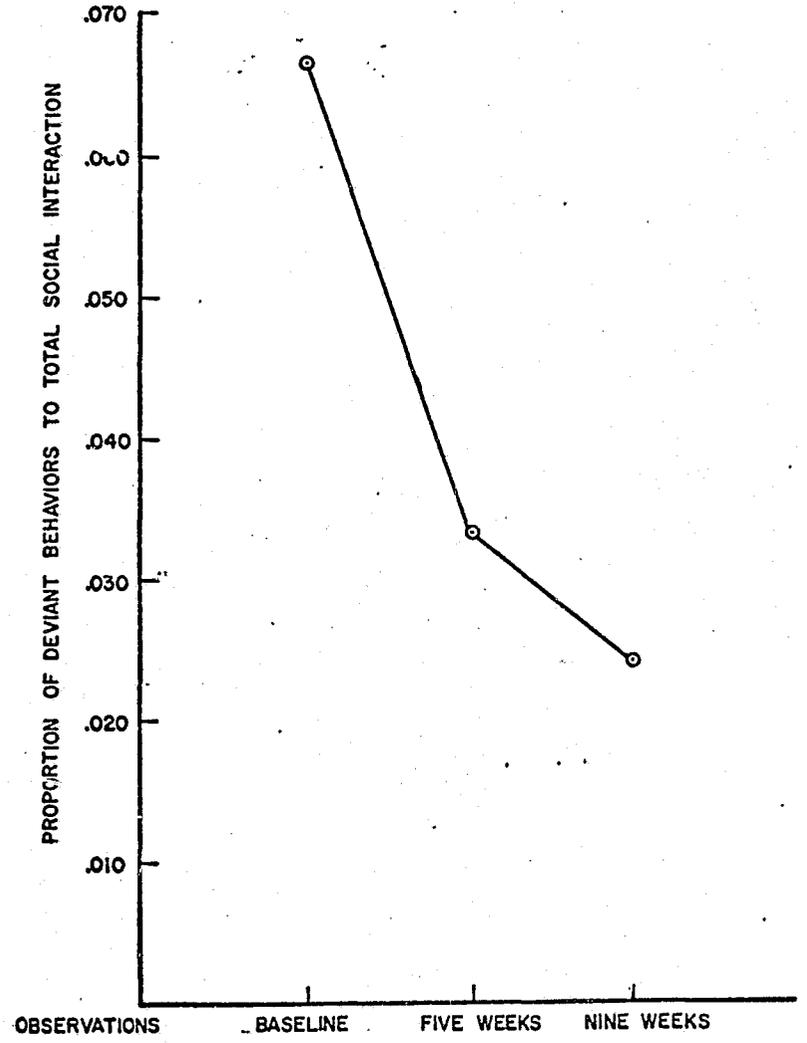
*** Ran away six times in next three months.

FIGURE ONE
MEANS FOR EXPERIMENTAL AND CONTROL
GROUPS FOR BASELINE vs. FIVE WEEKS ON
SUM OF THREE CLUSTERS
(HU, NC, NE, YE, PN, TE, DS, DI, CN)



CP

FIGURE TWO
MEANS FOR EXPERIMENTAL GROUP AT BASELINE,
FIVE WEEKS, NINE WEEKS, FOR SUM OF
THREE CLUSTERS
(CN, DI, HU, NC, NE, YE, PN, TE, DS)



CP

FIGURE THREE
INDIVIDUAL PLOTS OF EXPERIMENTAL AND
CONTROL GROUP SUBJECTS ON SUM OF
THREE CLUSTERS

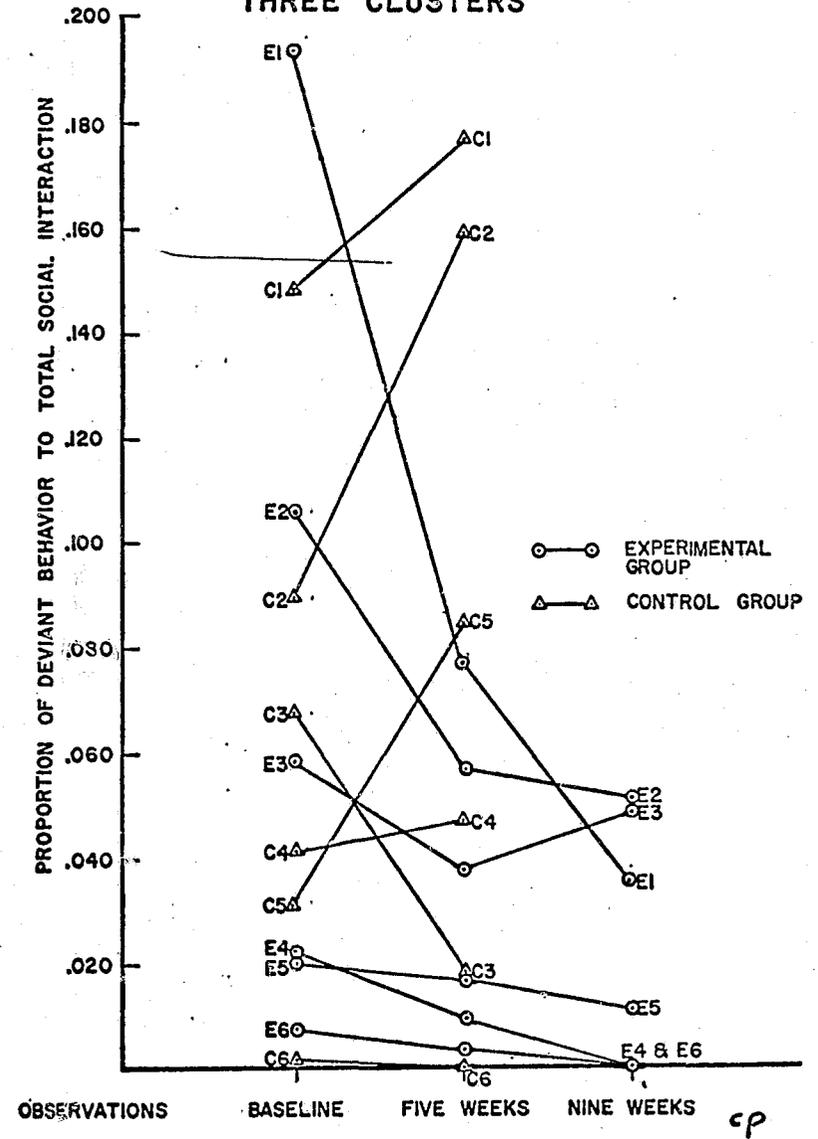
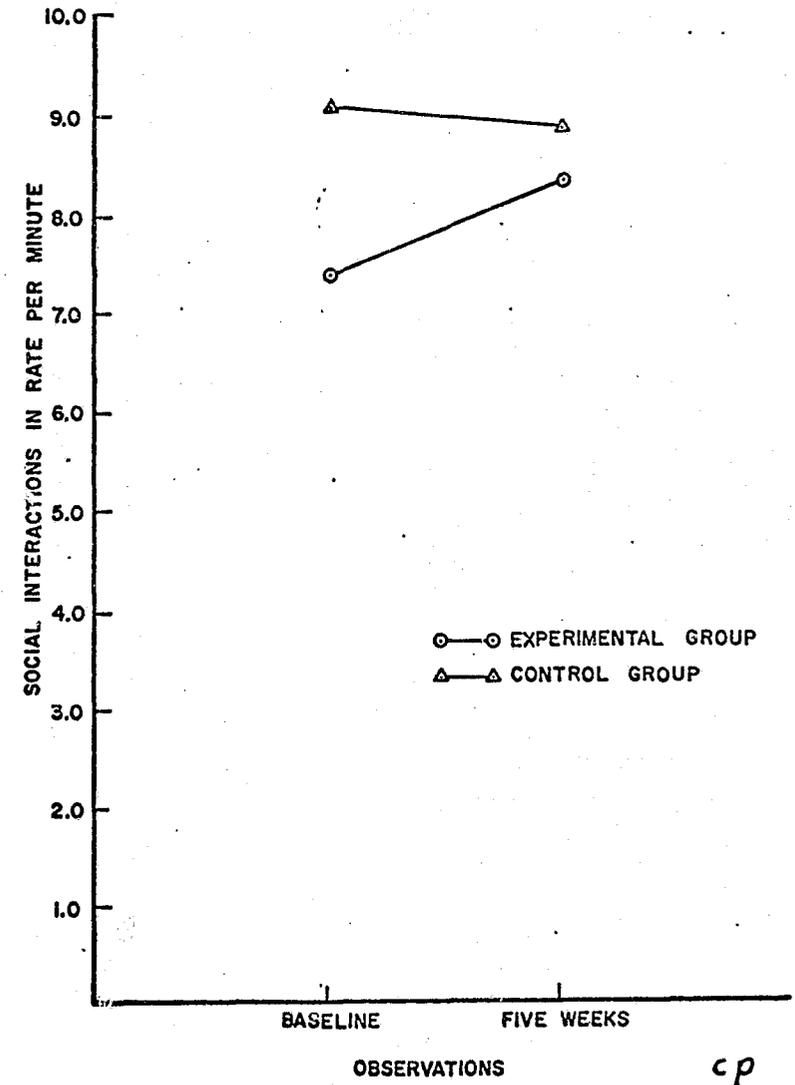
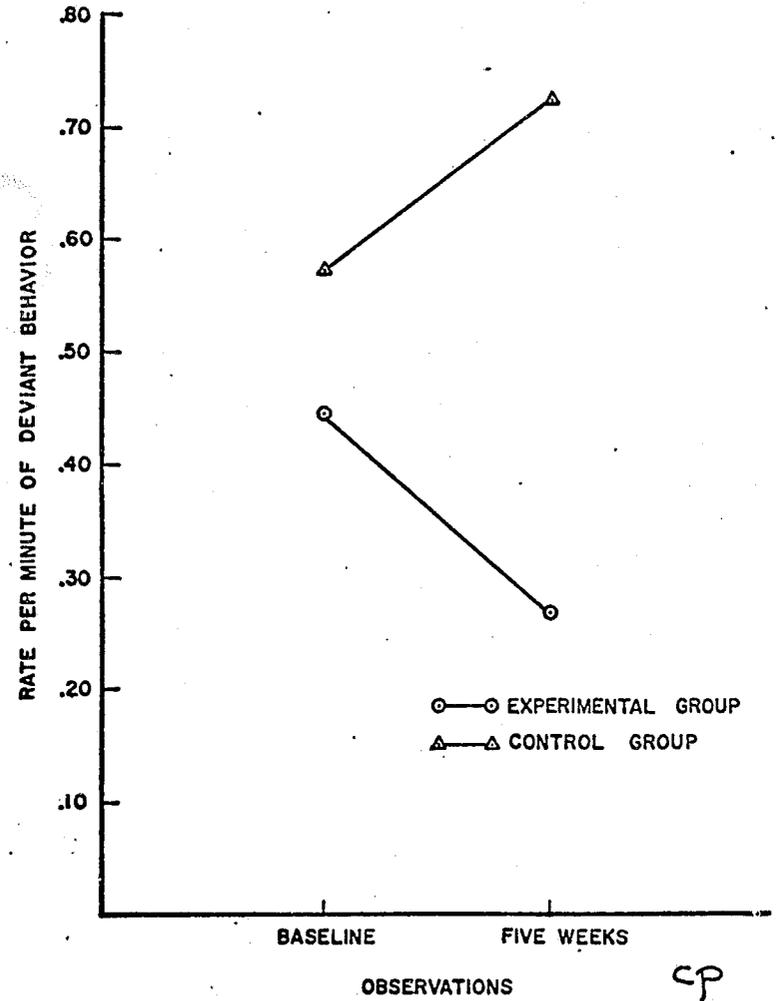


FIGURE FOUR
SOCIAL INTERACTION IN RATE PER MINUTE
FOR EXPERIMENTAL GROUP AT BASELINE AND
FIVE WEEKS



cp

FIGURE FIVE
MEAN RATE PER MINUTE OF DEVIANT
BEHAVIOR FOR EXPERIMENTAL AND CONTROL
GROUPS FOR BASELINE vs. FIVE WEEKS ON
SUM OF THREE CLUSTERS
(CN, DI, HU, NC, YE, PN, TE, DS)



END