THE EFFECT OF VIDEOTAPE MODELING ON PARENT CHILD INTERACTION TRAINING

by

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CONTENTS

ACKNOWLEDGMENTS ii

ABSTRACT v

LIST OF TABLES vii

LIST OF FIGURES viii

CHAPTER

I. INTRODUCTION 1

Lay and Paraprofessional Intervention Agents 1

Parental Roles in Behavior Modification 4

Methods of Training Parents in Behavior Modification 6

Parent-Child Interaction Training Program 7

Training Technology 19

Videotape Modeling in Parent Training 24

Rationale for Present Study 27

Hypotheses 29

II. METHOD 30

Subjects 30

Materials 31

Procedure 33

III. RESULTS 38

Data Analyses 38

Analyses of the Hypotheses 39

Overall Analyses of Variance 40

Post Hoc Analyses 41

IV. DISCUSSION 56

Limitations of Present Study 57

Recommendations for Future Research 61

Design Improvements 68

Future PCIT Research 70

The Future of Parent-Training Programs 73

REFERENCES 77

APPENDICES

A. TRAINING SCRIPTS 87

B. MATERIALS USED IN STUDY 93

ABSTRACT

The mental health field faces a steadily increasing demand for services and traditional methods seem unlikely to meet that demand. The search for more effective and more efficient approaches to mental health problems has intensified. Increased use of paraprofessionals and nonprofessionals has resulted along with attempts to develop improved, cost-effective and time-efficient techniques. One such approach has been training parents to use behavior modification techniques to deal with their children's behavior problems. Parent-Child Interaction Training (PCIT) is one program designed to teach parents general techniques for modifying parent-child interaction patterns. This approach attempts to establish mutually-rewarding relationships, while decreasing children's noncompliant and maladaptive behaviors through the use of positive and negative behavioral consequences.

Research into the most effective use and application of PCIT has only recently gained momentum, particularly that focusing on the acquisition of the behavior modification skills by the parents. One area of promise may be the utilization of videotape modeling in PCIT. The present study examined the relative effectiveness of traditional live modeling versus videotape modeling of skills taught in PCIT. Mothers were taught PCIT skills through one of the two modes of presentation. Performance before and after treatment was analyzed to determine if there was a difference between presentation modes.

Results indicated no difference in effect between the two presentation modes and neither yielded significant effects. However, when presentation form was ignored, PCIT training produced changes. However, methodological compromises preclude any assured inference from these findings and a less equivocal replication is warranted before firm conclusions can be drawn. Nonetheles, the promise of videotape-mediated enhancement of parenting skills remains a viable question.

LIST OF TABLES

Table 1 Pretreatment Score Means and Standard Deviations.....45

Table 2 Posttreatment Score Means and Standard Deviations.....46

Table 3 ANOVA Summary Table of Target Behavior Scores: Pretreatment vs. Posttreatment Across All Treatment Methods.....47

Table 4 ANOVA Summary Table of Target Behavior Scores: Pretreatment vs. Posttreatment Across Methods (Live vs. Video).....48

Table 5 ANOVA Summary Table of ECBI Problem Scores: Pretreatment vs. Posttreatment Across All Treatment Methods.....49

Table 6 ANOVA Summary Table of ECBI Intensity Scores: Pretreatment vs. Posttreatment Across All Treatment Methods.....50

Table 7 ANOVA Summary Table of Pretreatment Target Behavior Scores.51

Table 8 ANOVA Summary Table of Pretreatment Eyberg Child Behavior Inventory Problem Scores.....52

Table 9 ANOVA Summary Table of Posttreatment Target Behavior Scores53

Table 10 ANOVA Summary Table of Posttreatment Eyberg Child Behavior Inventory Problem Scores.....54

Table 11 Subject Attrition: Number of Subjects in Each Condition Who Completed Each Session.....76

LIST OF FIGURES

Figure 1 Overview of Assessments and Conditions.....36

Figure 2 Training Conditions and Assessments.....37

Figure 3 Pearson Correlations: ECBI Problem and Target Behavior Scores at Pretreatment and Posttreatment.....55

CHAPTER I

INTRODUCTION

Lay and Paraprofessional Intervention Agents

As the population of the United States has continued to increase, over the past two decades, so has the corresponding need for adequate mental health services. As O'Dell (1974) pointed out, the use of paraprofessionals and nonprofessionals to deal with mental health problems has greatly increased in response to this growth in demand. These lay and paraprofessional intervention agents are sometimes called "change agents" (Shah, 1969) and include teachers, parents, nurses, psychiatric aides, attendants, and others.

In a recent review of the problems in children's mental health issues, several authors discuss the growing incidence of mental health problems and the society's failure to meet these needs adequately (Inouye, 1988; Dougherty, 1988; Saxe, Cross, & Silverman, 1988). Recent reports by the Office of Technology Assessment (OTA: U. S. Congress, OTA, 1986) suggest that between 12 and 15% of children under age 18 suffer from mental health problems severe enough to warrant treatment. In addition to the 7.5 to 9.5 million in need of treatment, there are millions more who appear at high risk for developing mental health problems. Those at risk include approximately 14 million children living below the poverty level, seven million children with alcoholic parents, and approximately one million children who are the victims of abuse and neglect.

Of the children in need of treatment or preventive approaches, it is estimated that nearly 80% receive inappropriate services or none at all. Although children's mental health treatment is often more complex and hence more costly than mental health treatment for adults, as Inouye (1988) points out, children could be treated effectively and efficiently "if more effort was made to utilize the most up-to-date knowledge and employ methods of treatment other than hospitalization where possible" (p. 816). This becomes more crucial when account is taken of the insufficient number of clinicians available to deal with estimated treatment needs among children (Dougherty, 1988). Given the limited resources available, additional research is needed to determine the most cost-efficient treatment and preventive strategies.

Noncompliant or oppositional behavior in children is one of the most frequent reasons why parents seek help from mental health facilities. Approximately two thirds of the children who are referred for mental health treatment are eventually labeled antisocial, oppositional, or conduct disordered (Webster-Stratton, 1988). Although it is difficult to identify how many children and adolescents in the general population actually meet the diagnostic criteria for conduct disorder, estimates range from 4 to 10% (Kazdin, 1987). These children appear to be in particular need of effective and appropriate mental health treatment. Researchers suggest that conduct disordered children are at greater risk for being abused by their parents (Burgess & Conger, 1978). In addition, Robins (1979) suggests that conduct disorder or antisocial behaviors tend to be relatively stable over time and are unlikely to remit spontaneously. While children treated for anxiety-withdrawal problems typically respond well to treatment, both prospective longitudinal studies and retrospective analyses show those

children with conduct disorder symptoms to continue to experience problems into adulthood. Among adults with a childhood history of conduct disorder problems, 60% evidenced poor social adjustment, 18% committed crimes, and 20% were diagnosed as schizophrenic (Robins, 1979). Poor peer relationships, scholastic underachievement, and failure to accept the teacher's authority are often associated with future delinquency and adult maladjustment. Conduct disorders, of course, would seem particularly amenable to parental participation in the associated treatment.

Given the large number of children with behavior problems and limited professional resources, the training of parents in the use of behavior modification or social learning techniques has been an area which has received much attention in recent years. This type of therapeutic approach assumes that the child's behavior is related to his interactions with people in general but particularly with such significant figures as parents, siblings, and friends. O'Dell suggested three reasons why parents are an attractive and logical choice in dealing with children's behavior problems:

1. The prevention of disorders in childhood is seen by many to be one of major importance (Glidewell, 1971; O'Dell, 1974; Saxe, Cross, & Silverman, 1988), and, as the primary influence on children during their preschool years (Hawkins, 1972; Hall, 1984), parents can play a large role in child preventive mental health programs.

2. Only parents and teachers are available in sufficient numbers to deal with the behavior and mental health problems of the large number of children in need of such services.

3. There is a growing trend toward working in the client's natural environment and this inevitably leads to parents and parent-training programs.

Parental Roles in Behavior Modification

The recent question has been not whether to train parents, but how to do so. Parent-training appears to be a promising solution to children's behavior problems. As Bernal (1984) points out, the term parent-training can refer to a variety of approaches based on differing theoretical orientations which influence both content and methodology of the programs. These include approaches based on psychoanalytic principles; rational emotive therapy; transactional analysis; Rogerian, client-centered therapy; Adlerian therapy; and behavioral or social learning approaches. Some see parent-training as an abbreviation of "parent contingency training" which is based on general training in social learning principles, as opposed to more delimited training in parent-child contingency contracting and family problem-solving training (Blechman, 1984). In parent-child contingency contracting, details of a contingency management plan are outlined and agreed to by all family members. Family problem-solving training teaches families to negotiate and carry out formal and informal agreements and contingency contracts to deal with new problems as they arise. Most researchers and therapists, however, use the term "parent-training" to refer to those behavioral family interventions which are based on training parents to apply social learning principles and use behavior modification techniques.

One of the earliest studies to review the effectiveness of training parents to use behavior modification techniques with their child was

conducted by Hawkins, Schweid, and Bijou (1966). In this study, the mother of a noncompliant four-year-old was trained in differential reinforcement techniques. By use of predetermined hand gestures, experimenters directed the mother to give the child positive attention, to tell him to stop objectionable behaviors, or to send him to his room for a brief time-out period. In only six sessions, the child's undesirable behaviors decreased markedly. This study included a reversal procedure in which the undesirable behaviors were reinforced and the desirable behaviors were ignored. As anticipated, the undesirable behaviors began to reappear, confirming the functional relationship between the mother's behavior and changes in her child's behavior.

Parent-training is a young field. Over two-thirds of the research in the area have been done since 1968 (Goodall, 1972). Clearly, there is still much to be determined in the area. While there has been ample demonstration of improvement in children through parent-training (Graziano, 1983), not all studies have found parent-training to be effective with all parents (Wahler, 1980; Johnson & Christensen, 1975). There is, as yet, no consensus that one program or technique is superior to another. Programs have been developed which differ from one another on a variety of factors. In some programs, parents are trained in groups, while others provide individual training. A variety of developmental and behavioral problems have received attention. Programs have been developed to work with exceptional children, as well as normal children and children with special needs. The programs studied include those developed to modify noncompliant, aggressive or oppositional behavior. In addition, a number of studies have examined the effectiveness of parent-training programs with autistic chilaren (Lovass, Koegel, Simmons, &

Long, 1973; Nordquist & Wahler, 1973; Walder, Breiter, Cohen, Daston, Forbes, & McIntyre, 1966), children with medical problems (Allen & Harris, 1971; Gardner, 1967; Neisworth & Moore, 1972), and mentally retarded children (Tavormina, 1975; Walder, Cohen, Breiter, Daston, Hirsch, & Leibowitz, 1969). Research continues into which procedures, techniques, and variations of parent-training programs might be most effective.

Methods of Training Parents in Behavior Modification

As O'Dell (1974) pointed out, there are three parts to an effective parent-training program:

1. Parents must acquire the basic behavior modification skills and must make changes in their behavior.
2. Changes must be implemented with children.
3. Changes must generalize to many areas of the child's functioning and must last.

Researchers have focused their attention primarily on the implementation portion of the program, ignoring for the most part those factors which might improve acquisition of the skills and maintenance or generalizability of the behavioral changes. Improved training of the parents to enhance the understanding and the acquisition of the modificaiton skills is still needed. What evidence exists suggests that programs which emphasize behavioral as opposed to verbal or concept learning are more effective with a greater number of parents (O'Dell, 1974, 1985). Teaching parents about behavior modification principles on a verbal level does not seem to be as effective as teaching them to implement actual behavioral skills. In addition, a number of studies suggest that these skills can be more effectively taught with the aid

of modeling techniques and behavioral rehearsal (Nay, 1976; Cunningham, 1985). In an informal review of 50 studies of parent-training programs, O'Dell (1985) found that 36 programs reported using verbal discussion or lectures, 16 programs provided written or programmed materials, 12 used live or filmed modeling, and 11 used direct training in such techniques as shaping or behavioral rehearsal. Most programs used some combination of these techniques. Although oral instruction was used most widely, there is little research to support its effectiveness. Written training materials have been somewhat effective with some parents. For example, Clark, Greene, Macrae, McNees, Davis, and Risley (1977) reported good results in decreasing children's misbehavior during family shopping outings by providing parents with an 80-page manual addressed specifically to this problem situation.

Beyond factors which might improve acquisition or generalizability of the behavioral changes, recent research has focused on predictors of benefits from parent-training programs as well as which families will prove unable or unwilling to complete such programs (Clark & Baker, 1983; Frentz & Kelley, 1986; Webster-Stratton, 1985). Researchers are also beginning to emphasize the development of more cost-effective parent-training interventions (Webster-Stratton, 1988) as a prerequisite to providing all interested parents with training in parenting skills that serve both prevention and treatment.

Parent-Child Interaction Training Program

One parent-training program which combines both behavioral and verbal learning is the Parent-Child Interaction Training Program (PCIT) (Eyberg & Robinson, 1981), a modification of Hanf's (1969) dyadic interactional approach. PCIT focuses on helping parents learn general techniques for

modifying parent-child interaction patterns. When parents' behaviors are altered so that the children's behaviors receive appropriate reinforcement, the children's behavior changes in the desired direction. By teaching parents general behavioral principles as well as specific skills for dealing with behavior problems, PCIT is preferable in that it allows parents to beneralize their training to a wider range of problems than many other programs which focus only on teaching parents specific skills for specific problems. An additional strength of PCIT is that it includes a system for coding of parents' and children's behavior by an independent observer to assess ongoing changes. Other researchers have developed similar parent-training programs, based on Hanf's original model (Barkley, 1981; Forehand & McMahon, 1981; Zangwill, 1983). While research findings for these similar programs are basically generalizable to Eyberg and Robinson's (1981) PCIT, these programs do not usually involve the coding of as wide a range of behaviors. Thus, Eyberg and Robinson's PCIT program was employed in the present study.

Like Hanf's original model, PCIT takes a behavioral approach to parent-training. The main goals of PCIT include helping to establish or reestablish a positive and enjoyable relationship between parent and children, teaching parents to provide consistent consequences (both positive and negative) in order to increase appropriate, prosocial behavior and decrease maladaptive and noncompliant behavior of children. The positive consequences generally involve attention and praise for children's appropriate behaviors, while more negative consequences of extinction and time-out follow the children's less desirable behaviors. PCIT is divided into two stages: 1) the Child-Directed Interaction (CDI); and 2) the

Parent-Directed Interaction (PDI). Each stage has different goals and focuses on the acquisition of different techniques.

Child-Directed Interaction (CDI)

Child-Directed Interaction or the "Child's Game" is the first and more fundamental stage of PCIT. CDI is seen by some as the more important stage (Hiers, Cole, Ross, & Eyberg, 1980) because it focuses on improving the parent-child relationship and teaches parents the basic skills used in all phases of the program. It is designed to maximize the number of positive, mutually-rewarding interactions between the parent and child while minimizing the likelihood that any negative interactions will occur. Parents are taught how to gain greater control over their child's behavior through non-coercive methods and reinforcement for appropriate, desirable behavior.

As Eyberg and Robinson (1982) point out, the basic rule of CDI is that the parent "follow the child's lead by reflecting the child's statements, answering his or her questions, describing and praising the child's appropriate behavior, and ignoring inappropriate behavior" (Eyberg & Robinson, 1982, p. 32). During the CDI training sessions, the parent and child are asked to engage in play with toys. The parent is instructed to avoid giving commands, asking quesitons, critizing, or punishing the child. Questions are minimized because they often constitute indirect commands or attempts to lead the conversation. The parent avoids negative interactions during this phase in order to begin establishing a more positive relationship.

In CDI, the parents are trained in the use of four basic techniques. These techniques are termed descripstion, reflection, labeled praise, and ignoring.

Description entails a running commentary by the parent on the child's behavior, giving the child a verbal description of what is occurring in the play session. For example, the parent may say to the child, "Now, you're stacking the blocks. Now, you just put a red block on top of the blue block." Description is one way for the parent to give attention to the child's appropriate behaviors, thus rewarding and increasing the likelihood of appropriate behaviors in the future.

Reflection consists of paraphrasing the essential content of what the child says. For example, if the chid says, "I'm going to play with the blocks now," the parent might say, "Now, you're going to play with the blocks." This technique allows the parent to provide reinforcement via attention for the child's appropriate verbalizations. It also may serve to encourage conversation and allow the parent to model appropriate grammar or vocabulary for the child.

Labeled praise is a statement which indicates approval and specifies exactly which behavior or quality is being endorsed. Unlabeled praise is limited in the amount of information it provides the child. For example, the unlabeled praise "good" is not specific, while labeled praise such as "I like it when you play quietly like that," indicates the behavior at issue and what can be done again to obtain more praise.

Parents are also trained in ignoring mildly undesirable behavior, such as whining, by remaining silent and maintaining a neutral facial expression. They are to act as if the behavior had not occurred at all, while remaining alert to the presence of desirable behaviors for which they can offer immediate reinforcement to the child.

Parent-Directed Interaction (PDI)

Parent-Directed Interaction or the "Parent's Game" is the second stage in PCIT. It was designed to "increase low-rate prosocial behaviors and to decrease inappropriate behaviors that were too harmful to be ignored, were controlled by reinforcers other than parental attention, or did not extinguish easily" (Eyberg & Robinson, 1982, p. 133). PDI is taught after CDI because it relies heavily on the skills acquired in CDI and it is believed that most of the desirable behaviors can be obtained from children through the use of the more positive techniques taught in CDI. PDI is initiated only after the parent has demonstrated facility with the skills taught in CDI. These positive techniques are continued throughout PDI, as parents positively reinforce compliance and other appropriate behaviors.

In PDI, the parents are taught how to increase their child's compliance to commands by initiating clear and positive directives, following all compliant behaviors with immediate praise, and consequating noncompliance with consistent use of a three-step time-out procedure. The basic steps of PDI are outlined. The parent gives the child a direct command or instruction. If the child is slow in complying, he is warned of possible time-out in a chair placed in a boring corner. If he continues not to comply, he is taken to the chair where he remains until the parent gives him another chance to comply. If the child leaves the chair without permission, he is spanked and placed back on the chair. This sequence of behaviors is followed until the child complies with the parent's original command. Compliance is followed by immediate labeled praise. Hiers et al. (1980) justify the use of spanking by noting that most parents of children with conduct problems already do spank their children, but often in an inconsistent and ineffective manner which

may lead to more, not less, spanking over time. Teaching parents how to spank appropriately and consistently would thus help those families where spanking has been used inappropriately and with few positive benefits. Some researchers (Roberts, Hatzenbuehler, & Bean, 1981) have found time-out to be a necessary component of an effective behavior modificaton program with parents of noncompliant children.

PCIT Training Procedure

The training procedure for both the CDI and PDI stages of PCIT follow the same general format. The parent is first presented with an overview of the PCIT program and with the rationale behind the program. For each stage, the parent is then given the rationale for that phase of the program, its goals and techniques. He or she is then provided with a list of the skills to be learned in that phase, and a description of each skill. The therapist and the parent then typically engage in role-playing of the parent-child interaction with the parent taking the role of the child and the trainer playing the part of the parent. This allows the trainer to model for the parent how to use the target skills in a play situation with the child. Next, the roles are reversed while the parent practices the skills with the trainer/"child." The parent is trained in how to spank the child and is allowed to practice this skill on the trainer's arm. As Hiers et al. (1980) note, "How hard is 'appropriate' is of course, at the discretion of the therapist but generally should sting briefly...but not approach a force which might bruise" (p. 71). After practicing the skills in the training session, the parent is then asked to utilize these skills in a "play" situation with his or her child.

During this play situation in the training center, the parent is usually observed and coached by the trainer via a "bug-in-the-ear" device, a wireless ear-piece receiver through which the therapist in an adjoining observation room speaks to the parent as he or she practices the skills with the child. Coaching from the trainer emphasizes positive feedback to parents on demonstrated skills (Eyberg & Robinson, 1982) and allows the trainer to direct the parent when guidance is needed during the play situation. This in vivo training allows the parent to practice the CDI and PDI techniques in a more realistic situation (i.e., actually playing and interacting with his or her own child). It also allows the trainer or an independent observer to code the behaviors of the parent and child in order to determine whether or not progress is being made. Behaviors are coded at baseline assessment and at intervals throughout the program using the Dyadic Parent-Child Interaction System (DPICS: Eyberg & Robinson, 1981).

Parents are explicitly instructed not to implement these techniques at home until told to do so by the therapist. Once the parent has shown tha he or she has mastered the CDI skills in the training center, practice of these techniques is begun at home. Home practice incorporates at least one five-minute play session with the child into each day. When the therapist is confident that the parents have learned the PDI procedures well and can successfully implement this training in the home, parents are instructed to begin using these procedures for all instructions given in the home. The training program is typically terminated when the criterion level of the original goals set by the parent and/or the trainer has been reached. Training usually extends over six to 10 sessions.

PCIT has been found to be effective with a wide variety of families with a number of problems of varying levels of severity. Eyberg and Robinson (1982) attempted to evaluate the effectiveness of PCIT on the psychological functionining of children with conduct problems and their families. Their study included seven families with a 4- to 5-year-old child reported to have active behavior problems in the home, including disobedience, aggression, hyperactivity, destructiveness, and temper tantrums. One sibling was selected from each family for inclusion in the assessment, as well as the target child.

The families were seen for two pretreatment assessment sessions and two posttreatment assessment sessions. During each assessment session, the parents' interactions with each of their children were observed and coded, using the Dyadic Parent-Child Interaction Coding System (DPICS: Eyberg & Robinson, 1981). The parents also completed the Eyberg Child Behavior Inventory (ECBI: Eyberg, 1980) on each child. The ECBI is a 36-item questionnaire rating the frequency of various child behaviors. In addition, each parent completed a demographic data sheet and several other assessment devices to measure marital adjustment, intelligence, and personality variables. The majority of these assessment devices were administered both a pretreatment and at posttreatment sessions. Each family completed both the CDI and the PDI phases of the parent-training program.

Results from this study were generally positive, indicating that parents of conduct problem preschool children can learn to change their interactional style as well as their children's behavior. Moreover, the changes appeared to generalize with concomitant changes in sibling behavior. Parents reported a significant decrease in the occurrence of behavior problems at home as reported on the ECBI. Parental atitudes toward the child with the behavior

problems had improved markedly by posttreatment. When observed in interactions with the mothers, both the target children and the siblings showed fewer deviant behaviors and increased rate of compliance to maternal commands at posttreatment assessment. Although the children did show a numerical decrease in deviant behaviors and increased rate of compliance with their fathers, this trend was not significant. Overall, parents showed improvement following treatment, in giving children more labeled praise, asking fewer questions, and giving fewer indirect commands.

In a similar study, Forehand and King (1974) reported positive results. They evaluated the effectiveness of PCIT with eight conduct-disordered children. The researchers measured child compliance to commands, the amount of verbal reinforcement, and the number of commands and questions given by parents. The results showed significant posttreatment changes in parent interactions with their children, giving relatively more verbal rewards, fewer commands and fewer questions. In addition, child compliance to parental commands increased as did the ratio of their compliance to commands. Subsequent observations of parent-child interactions in the home for two of the families suggested that the behavioral changes generalized from the treatment center to the home.

Forehand and King (1977) attempted to replicate and expand their 1974 study. The later study examined the effect of treatment on parental attitude as well as on behavioral change, compared treatment with control groups and included a three-month follow-up investigation. The treatment group included eleven conduct-disordered children and their mothers. Their control group data were derived from eleven nonclinic children and their mothers who had been assessed in an earlier project. As in their earlier study (Forehand &

King, 1974), child compliance to parental commands and the number of commands, questions, and verbal rewards given by the parents were measured. Parental attitude toward their children was measured at all three assessment periods.

The results of this study showed, as before, that child compliance and parental rewards both increased while parents reduced the number of questions and commands given children. These results persisted at the three-month follow-up. Nonclinic children were more compliant than the conduct-disordered children at pretreatment but generally less compliant at posttreatment. More positive parental attitudes toward the clinic children appeared to accompany the improvement in their behavior. The clinic children were seen by their parents as less well-adjusted than nonclinic children at pretreatment but this difference no longer existed at posttreatment or follow-up.

Peed, Roberts, and Forehand (1977) also studied the effectiveness of PCIT. Multiple outcome measures included observational data from both the training center and the home, along with parents' reports of their children's behavior. The researchers selected twelve behavior-problem children and their mothers, and assigned each pair to either the no-treatment control group or the treatment group.

Results of this study generally supported the effectiveness of the Parent-Child Interaction Training program in altering parent-child interactions both in the clinic and at home. Peed et al. also concluded that parental attitudes alone may be a poor measure of the effectiveness of such a parent-training program. Observational data indicated that the children in the treatment group increased their ratio of compliance to parental

commands at posttreatment while children in the control group showed either no change or a decrease in their percentage of compliance to total commands. At posttreatment, parents in the treatment group increased the number of verbal rewards and appropriate commands as well as the amount of contingent attention given to their children. At the same time, they decreased their use of inappropriate commands. These results were obtained in both the training center and the home. Despite these generally positive behavioral changes, posttreatment modifications of parental attitudes were not consistently in the expected direction. Children in the treatment group were seen as being better adjusted than those in the no-treatment control group on some measures but not on others. Perhaps parental attitudes are affected by factors other than changes in children's behavior or a certain lag may exist between behavior change and the attitude changes indicated on these measures.

Zangwill (1983) attempted to assess the internal validity of the PCIT program and the extent to which the skills mastered during training in the clinic generalized to the home. Eleven conduct-disordered children were included in the study. Five of these children and their mothers participated in the parent-training program, while the other six were placed in a waiting-list control group.

The results of this study offered additional encouraging support for the effectiveness of this program. Not only did parents' and children's behaviors change in a desired direction, but so did parental atitudes toward their conduct-problem children. These changes appeared to generalize to the home. Moreover, in an informal follow-up an unspecified period of time later, most of the families appeared to have maintained the gains made during

treatment. In two cases, however, the presenting problems were reported to have returned at follow-up, after major stress on the family (unemployment and illness).

Baum and Forehand (1981) made a more formal assessment of the maintenance of the gains families achieved during PCIT. They selected 34 conduct-problem children and their mothers. Following the parent-training program, the researchers used multiple outcome measures to measure treatment effects at posttreatment as well as at follow-up periods of 1 1/2 to 4 1/2 years. Outcome measures included observations of the parent-child interactions in the home and mothers' reports of their children's behavior, adjustment, and personality.

Results obtained at the posttreatment assessment were similar to those obtained in other studies. After PCIT, they found that parents increased their use of rewards and contingent attention with decreased use of inappropriate commands. Children's incidence of deviant behaviors declined while their compliance to parental commands increased. Additionally, parents' attitudes toward their children appeared to have improved after treatment, as the parents perceived their children as better adjusted with improved behavior. All of these changes were maintained at follow-up assessments. Conversely, the parents also exhibited a significant decrease in their use of rewards and attention from posttreatment to follow-up. Reasons for this decrease are unclear and the effect it may have on long-term maintenance of treatment gains remains to be studied.

Summary of PCIT Outcome Studies

Findings from these studies into the effectiveness of Parent-Child Interaction Training indicate that this parent-training program produces desired behavior changes in both parents and children. Results appear to generalize from the training clinic to the home (Forehand & King, 1974; Peed, Roberts, & Forehand, 1977; Zangwill, 1983), to many differing behaviors, and to untreated siblings (Eyberg & Robison, 1982). Despite such promise, Zangwill (1983) questions whether the statistically significant gains are also significant clinically. While Forehand, Wells, and Griest (1980) showed children complying to commands 36% of the time after treatment, Zangwill points out that this rate of compliance is sufficiently low that most professionals would consider the child still to need treatment. The most effective manner in which to utilize PCIT remains to be established. As the first and most basic step in the treatment process, special emphasis will be placed on improving the acquisition of the behavioral modification skills by the parents. The present study focused on the issue of enhancing acquisition of these basic skills.

Training Technology

O'Dell (1985) has suggested that most of the parent-training techniques described in the literature can be divided into three categories:

1. interactive methods employing direct shaping of parent behaviors, including feedback and behavioral rehearsal;

2. dydactic methods which employ verbal inputs, primarily written or oral;

3. dydactic methods which employ visual inputs, primarily modeling.

Interactive Training

Interactive training methods are those in which the therapist's behavior in the training session is altered in response to the parent's behavior. These techniques include behavioral rehearsal, and positive and negative feedback which may be either immediate or delayed.

A number of studies employ a bug-in-the-ear device as a way to provide the parent with immediate coaching and positive feedback regarding performance (Forehand & King, 1977; Eyberg & Robinson, 1982). Other devices, such as buzzers, signal cards and light signals, have been used in a similar attempt to provide parents with immediate feedback about the timing and accuracy of responses (Forehand, 1977; Hawkins, Peterson, Schweid, & Bijou, 1966; Johnson & Brown, 1969). Delayed feedback has been provided at the end of the training or observation session, via verbal or written feedback (Budd,Green, & Baer, 1976), and audiotaped and videotaped recordings of the parent's behavior (Bernal, 1969; Bernal, Williams, Miller, & Reagor, 1972).

A review of the literature suggests that rehearsal is a widespread and critical part of most parent-training programs (Moreland, Schwebel, Beck, & Wells, 1982), yet it has not been studied in all its complexity (Bernstein, 1984). Keane, Black, Collins, and Vinson (1982) show that a modeling tape and lecture training format was more effective when behavioral rehearsal was included in the training package. It remains unclear how to manipulate the parameters of the various treatment components in order to achieve the most positive results for the least cost.

Verbal Dydactic Instruction

Verbal instruction, particularly oral instruction, is the most commonly employed training method. Although oral instruction is widely used, O'Dell (1985) points out that there are no studies which show oral instruction to be independently capable of producing acquisition of new parenting behaviors. Some studies, however, do show gains with written instruction (McMahon & Forehand, 1978; Clark, Greene, Macrae, McNees, Davis, & Risley, 1977) but neither oral nor written instruction is generally sufficient to teach behavior change skills.

There has been a recent increase in the number of written training materials designed for parents. This appears to mirror the recent influx of self-help materials available in the market which focus on a variety of general issues and treatments. As O'Dell (1985) points out, some of the "self-help" parenting materials are empirically derived and others are not. As with self-help manuals in general, some prove helpful with some people and some problems, while others are less successful. In a review of self-help treatment books available on a wide array of topics, Rosen (1987) cites evidence that many self-help books are not only devoid of rigorous experimental backing but in some cases potentially damaging. As Mahoney (1988) suggests, there is often a "sizable gap between what is promised (in self-help books). . .and what the profession can honestly deliver..." (p. 598). It remains unclear to what extent the books and materials available might prove helpful with certain people. It is likely that the success of these self-help approaches will vary from book to book and from individual to individual. Mahoney (1988) concluded that while such approaches may prove less helpful than professional counseling, they are more helpful than no

treatment at all. Since many psychologists commonly use a bibliotherapeutic approach with sometimes untested self-help books for their clients, Starker (1988) points up the need for caution and empirical evaluation of all materials. These concerns hold true for the written parent-training materials, as well. In addition, it remains unclear how such factors as vocabulary level, format, and type of skills taught might affect the individual's ability to learn from self-help books and parent-training materials.

Visual Dydactic Instruction

A review of the parent-training literature suggests that modeling is a critical aspect of effective parent-training programs (Gordon & Davidson, 1981; Moreland et al., 1982). Observational or vicarious learning in the modeling procedure allows a person to observe a model and learn a response without actually performing the behavior; all that is necessary for learning is the observation of the modeled response (Kazdin, 1975). Learning is assumed to occur via a process of cognitive coding of the behaviors observed (Bandura, 1969). The learned response may or may not be performed, depending on the incentives and the response consequences observed (Bandura, 1965). Many studies have shown modeling to be an effective therapeutic technique.

Videotape Modeling

Modeling and videotaped or filmed modeling have been used by some therapists to enhance the client's readiness to engage in therapy in an effective manner. Videotape modeling has been used with a variety of clients in the treatment of a number of different problems. Such techniques have

been adopted for use in social skills training with adults and children (Curran & Gilbert, 1975; Evers-Pasquale & Sherman, 1975), for teaching basic coping skills and assertiveness techniques (Galassi, Galassi, & Litz, 1974; Hersen, Eisler, & Miller, 1974; Rathus, 1973), and to promote self-control and verbal expressiveness (Thelen, Fry, Dollinger, & Paul, 1976; Thomas, 1974). These studies generally found that videotape modeling alone or with other treatment components (such as behavioral rehearsal) resulted in improvement over a control condition. As Thelen, Fry Fehrenbach, and Frautschi (1979) point out in their comprehensive review, many of these studies have focused on the combined effects of videotape modeling and behavioral rehearsal. These treatment components need to be assessed separately in order to determine the extent to which each contributes to the positive treatment effects. In addition, it remains unclear which treatment components combine most effectively with videotape modeling and which components might maximize both generalization and maintenance of the skills acquired.

A number of studies have focused on the use of videotape modeling to reduce anxiety in phobias (Bandura & Barab, 1973; Denney & Sullivan, 1976), medical and dental fears (Melamed & Siegel, 1975; Shaw & Thoresen, 1974), and test anxiety (Malec, Pack, & Watkins, 1976; Mann, 1972). In studies which focus on the use of videotape modeling in the treatment of phobias, the phobic stimuli have included water, animals, and snakes. Results generally support the effectiveness of videotape modeling, particularly when combined with a relaxation or guided participation component. A number of studies have used videotape modeling in an attempt to decrease medical and dental stress with mixed results. Generally positive results have been

obtained in the relatively few studies which have assessed the efficacy of videotape modeling in reducing test anxiety.

Some studies have used videotape modeling in the treatment of drug abuse, alcoholism, and sexual dysfunction (Baker, Udin, & Vogler, 1975; Reeder & Kunce, 1976; Wincze & Caird, 1976). The limited number of studies which have focused on these clinical problems precludes any firm conclusions regarding the efficacy of videotape modeling in these areas. More research is necessary to determine whether videotape modeling is a viable treatment component with these clinical problems.

Videotape Modeling in Parent Training

A number of studies have suggested that modeling or having someone demonstrate the skills to be acquired can play an important role in enhancing the parent-training process (Flanagan, Adams, & Forehand, 1979; Nay, 1976; O'Dell, 1974). Most parent-training programs which have used modeling techniques employed live models. The use of videotape modeling in parent-training programs has shown some promise in recent studies (O'Dell, Mahoney, Horton, & Turner, 1979; Webster-Stratton, 1981a, 1981b, 1982, 1984, 1988). While videotapes are initially quite expensive, they can be disseminated to a wide range of parents. This would reduce the need for valuable and costly therapist time and training, making the videotapes eventually cost-effective. A wider range of parents may be able to benefit from videotape modeling than could benefit from verbal or written instruction. Fewer therapists would need to be trained in this method. Videotapes also afford the opportunity to show many different people performing in a number of different situations. Finally, videotapes are

completely replicable, which may have a beneficial effect on the reliability and validity of future research in this area.

The use of videotape modeling in teaching parents time-out techniques (Flanagan, Adams, & Forehand, 1979; Nay, 1976; O'Dell et al., 1979; O'Dell, Krug, Patterson, & Faustman, 1980) and reinforcement skills (O'Dell, O'Quinn, Alford, O'Briant, Bradlyn, & Giebenhain, 1982) has been shown to be more effective than verbal instruction, written instruction, live modeling with role-playing, or rehearsal of these parenting techniques. However, these studies remain somewhat limited by their emphasis on only a single target behavior. Few researchers have as yet attempted to assess the impact of videotape modeling on a broader program of parent-training such as Parent-Child Interaction Training (PCIT).

Webster-Stratton has conducted several recent studies into the effectiveness of videotape modeling with parent-training programs and has found generally positive results. In one set of such studies (Webster-Stratton, 1981a, 1981b, 1982), a standardized videotape modeling, therapist-led group discussion program was developed and examined with a nonclinic population of children and their mothers. This study included 35 children, 12 girls and 23 boys. Subjects were randomly assigned to either a treatment group or a waiting-list control group. Both groups were assessed at pretreatment, posttreatment, and at a one year follow-up period. Behavioral data were collected for each mother-child dyad and coded using a system similar to the DPICS. Attitudinal, social and demographic data were collected. Parents were trained in interactional techniques as well as a variety of operant techniques for dealing with behavior problems. Significant attitudinal and behavioral improvements were observed at posttreatment in both the mothers

and the children. Most of the mother-child interactional changes were maintained at the one year follow-up assessment. It is unclear how these results might generalize to a clinical, conduct-disordered population.

In a more recent study with a clinical population, Webster-Stratton (1984) compared her standardized videotape modeling, therapist-led group discussion program with an individualized PCIT-type program that involved live modeling of the parenting skills. The study included 35 "high risk" families, randomly assigned to one of the two treatment conditions or to a waiting-list control group. Target children were 10 girls and 25 boys. The families were assessed on a number of measures, including the ECBI and home observations using the DPICS. There were no significant differences on any of the attitudinal or behavioral measures between the treatment programs at either immediate posttreatment or one year follow-up. Children in both treatment conditions showed reductions in noncompliance compared with control children, and both groups of mothers showed significant behavioral and attitudinal improvements as well. Total therapist time, however, differed drastically, from approximately 48 hours for the entire videotape discussion group to approximately 251 hours for the individualized treatment group. Thus, the videotape discussion group was clearly more cost-effective in terms of therapist time.

A major limitation of the Webster-Stratton (1984) study is that the two treatments differed on three procedural variables: modeling (live vs. videotape); context of treatment (group vs. individual); and presence or absence of behavioral rehearsal. Therefore, it is not known which component(s) or interaction of components was the critical ingredient in either program. Webster-Stratton (1988) addressed some of these questions in

a recent study comparing an individually administered videotape modeling treatment condition, a group discussion videotape modeling condition, a group discussion condition and a waiting-list control group. Parents in the videotape modeling condition were exposed to over 250 vignettes of parents and children in a variety of problem situations. Although the three treatment groups showed comparable treatment gains on the majority of the outcome measures, the differences favored the group discussion videotape modeling treatment condition. The most cost-effective approach was the individually administered videotape modeling format.

Further research is needed to help determine the most effective program of parent-training. The present study was designed to isolate and examine the effectiveness of variations in one program dimension, live modeling versus videotape modeling.

Rationale for Present Study

Due to the rapid rise in the population of the United States and a rise in expectation for the quality of life, the mental health field has been faced with a steadily increasing demand for services which has not been met by traditional methods. Hence, the search for more effective and more efficient approaches to mental health problems has intensified. Increased use of paraprofessionals and nonprofessionals has accompanied the movement toward improved, more cost-effective and time-efficient techniques.

Part of this trend has been the growing interest in training parents to use behavior modification techniques to deal with their children's behavior problems. Such a large number of children are in need of services, only parents and teachers are available in sufficient numbers to meet their mental

health needs. As a result, parent-training programs appear to be an attractive possibility. Parent-Child Interaction Training is one such program designed to teach parents general techniques for modifying dysfunctional parent-child interaction patterns. The PCIT approach focuses on helping parents establish or reestablish a positive, enjoyable, and mutually-rewarding relationship with their children. At the same time it attempts to decrease children's noncompliance and maladaptive behaviors through the consistent and appropriate use of both positive and negative behavioral consequences. PCIT and similar parent-training programs have been shown to be effective in dealing with children's behavior problems.

Research has only recently gained momentum into the most effective manner in which to use these programs and facilitate the acquisition of the behavior modification skills by parents. The utilization of videotape modeling in PCIT and other parent-training programs holds sufficient promise to warrant investigation. Previous studies have not yet clearly defined the part that videotape, as opposed to live modeling, may play in the parents' acquisition of parent-child interactional skills.

The purpose of this study was to isolate and more clearly define the relative effectiveness of videotape modeling and traditional live modeling in Parent-Child Interaction Training. This study employed two treatment conditions and a waiting-list control. One treatment condition trained mothers in the skills of the CDI portion of PCIT via traditional, individual methods. Mothers in the other treatment condition were trained in CDI skills by a videotape modeling program with minimal therapist contact (Appendix A). The relative effectiveness of these two treatment conditions was assessed and each compared with the waiting-list control condition.

Hypotheses

Based on the literature reviewing PCIT and other parent-training programs presented with videotape modeling, the following hypotheses were proposed:

Hypothesis I: Traditional live, individual training with PCIT will produce behavior change in the mothers as they learn the skills of description, reflection, and labeled praise. Mothers who have been trained in PCIT via traditional live, individual training methods should exhibit these skills more than those mothers who have not been trained.

Hypothesis II: Videotape modeling has been shown to be an effective mode of presenting skills to be learned in parent-training programs. Thus, videotape modeling of PCIT skills should be an effective training format. Mothers who have been trained in PCIT via videotape modeling of the skills of description, reflection, and labeled praise should exhibit these skills more than those mothers who have not been trained.

Hypothesis III: There should be no difference in acquisition of target behaviors between the two treatment conditions, live modeling and videotape modeling.

CHAPTER II

METHOD

Subjects

Subjects for the present study were recruited for this program by community announcements of a free parent-training program at a university psychology clinic. Some of the subjects sought admission to the program after hearing television advertisements while others were directed to the program by therapists or other mental health care professionals. This study focused solely on mother-child dyads. The basic criteria of selection were that the mother spoke English and had at least one child between the ages of three and eight years.

Of the 20 mothers included in this study, 13 had a high school education and seven had completed college. All of the mothers were Caucasian. Twelve of the mothers were married at the time of the study, seven were divorced, and one was separated. Twelve of the mothers reported an annual income below $25,000 while eight reported their annual income to be above $25,000.

The mean age for the children in this study was 5 years 8 months. In the Waiting List-Live Modeling (WL) condition, the mean age was 6 years 2 months (SD = 1.77); in the Waiting List-Videotape Modeling (WV) condition, the mean age was 5 years 4 months (SD = 1.05); in the Immediate Treatment-Live Modeling (IL) condition, the mean age was 5 years 11 months (SD = 2.04); and in the Immediate Treatment-Videotape Modeling (IV)

condition, the mean age was 5 years 5 months (SD = 2.31). Each of the four conditions included three girls and two boys. The mean number of behavior problems pretreatment according to the Eyberg Child Behavior Inventory was 16.55 (SD = 6.55), indicating that the children were clearly in the clinical range according to this measure (nonclinical mean = 6.8, SD = 3.9). The mean Intensity Score pretreatment was 138.80 (SD = 33.86).

The total number of parents who asked to be included in this study was 103, including 101 mothers and two fathers. Only data from the mothers were actually included in the study. Both fathers were offered treatment but failed to complete the program. Fourteen subjects scheduled a first assessment session but failed to return. Of the remaining 87 subjects, 42 were placed in the Waiting List (W) condition and 45 were designated to receive immediate treatment (I). The number of subjects who failed to complete the study was similar for each of the four treatment conditions. Only 20 mother-child dyads completed the full parent-training program.

Materials

The Eyberg Child Behavior Inventory (ECBI: Eyberg, 1980) provides a list of 36 behaviors typically reported to be problems by parents of conduct problem children (Appendix B). The ECBI is applicable to children aged two through 16 and covers a wide variety of parental concerns (e.g., dawdling, hitting parents, wetting bed). Each behavior is assessed by the parent on two dimensions: its identification as a problem and the frequency with which it occurs. On the problem identification portion of the ECBI, the parent is asked, "Is this behavior a problem for you?" Parents are required to answer

by circling "yes" or "no." The total Problem Score is calculated by summing the number of problems circled "yes." Frequency is rated on a seven-point Likert scale; frequency ratings range from Never (1) to Always (7). These ratings are summed to yield an overall Intensity Score.

Research has shown the ECBI to be a reliable measure with good construct validity. Normative indicate ECBI scores to be consistent across both socioeconomic levels and age (Eyberg & Robinson, 1983). Robinson and Eyberg (1981) found that ECBI scores were significantly correlated with parent-child interactions in a clinic setting. Numerous studies have found that the ECBI is a sensitive measure of change in children's problem behaviors (Eyberg & Matarazzo, 1980; Eyberg & Robinson, 1982; Webster-Stratton, 1982, 1984). The ECBI has been found to discriminate accurately between "problem" children and nonclinic "normal" populations (Eyberg & Ross, 1978; Robinson, Eyberg, & Ross, 1980). Eyberg and Ross (1978) established cutoff scores for distinguishing between these children (Problem = 11; Intensity = 127). Previous research (Robinson, et al., 1980) has estimated test-retest reliability to be .86 and the internal consistency to be .98.

Target behaviors, derived from the Dyadic Parent-Child Interaction Coding System (DPICS: Eyberg & Robinson, 1981), were tallied during assessment sessions. Target behaviors were defined as description, reflection and labeled praise statements. Description was any parental verbalization to the child which described what the child or parent was doing. Reflection was any parental statement which repeated or rephrased what the child said. Labeled praise was any statement which praised the child and specifically stated which behavior was being praised.

Demographic information was collected (Appendix B). Mothers were asked to report their age, education, household income, and the number of children in the home.

During training, mothers were given a daily recording sheet on which to note whether practice occurred (Appendix B). They were encouraged to note any questions or problems on these sheets for review at the end of the program.

Finally, completed an informed consent form (Appendix B). This form, of course, preceded formal involvement in the experiment proper.

Procedure

The subjects were 20 mother-child dyads. Each mother-child dyad was assigned at random to one of the two treatment conditions, live modeling (L) versus videotape modeling (V). Half of the subjects in each of these conditions were designated to receive immediate treatment (I) while half were placed on a waiting-list (W) to receive delayed treatment (see Figure 1 and 2). The program was offered to parents free of charge. Assessment and training were conducted in the Psychology clinic.

At baseline assessment, each mother completed the Eyberg Child Behavior Inventory (ECBI: Eyberg, 1980). The mothers also completed a demographic data sheet. Behavioral assessment was completed on each mother-child dyad in the clinic. Mothers were allowed fifteen minutes of unstructured play with their child. These sessions were videotaped. The number of description, reflection and labeled praise statements made by each mother was tabulated by an independent coder.

After baseline data collection, mothers in the waiting-list control condition (W) were informed that training would begin in approximately 2 1/2 weeks. Mothers in the immediate treatment condition (I) were scheduled to return in a few days to begin attending a series of three training sessions, each three to four days apart. Mothers in the waiting-list control condition (W) returned to the clinic in approximately 2 1/2 weeks and completed a second pretreatment assessment session, identical to the baseline assessment, prior to training. After training, mothers in all conditions participated in a posttreatment assessment session identical to the baseline assessment session. Mothers in the immediate treatment condition (I) participated in a second identical posttreatment assessment, approximately 2 1/2 weeks later.

Mothers in the traditional, live modeling condition (L) met individually with the therapist. In each training session, the therapist followed a standardized script. The therapist described and then modeled the target skills (description, reflection and labeled praise). Mothers in the videotape modeling condition (V) received identical training to those in the live modeling (L) condition, although the description and modeling of the target skills were presented via videotape. The identical script was followed in each training condition and the same therapist was used in all sessions to promote similarity across conditions.

Training, which lasted approximately 2 1/2 weeks, took place in the clinic. All sessions were scheduled approximately four days apart. The first training session consisted of a brief overview of the PCIT program and an explanation of the principles involved in PCIT. During the first training session, mothers were introduced to the basic skill of Description. This session lasted approximately 40 minutes. The second training session focused

on the basic skill of Reflection. The third training session focused on the basic skill of Labeled Praise. These sessions lasted approximately 20 minutes. The therapist described and then modeled each skill. Mothers were given the opportunity to rehearse the skill briefly with the therapist at the end of each training sesssion. In order to minimize therapist contact and ensure that all mothers received comparable training, mothers did not receive direct feedback on interactions with their children nor any corrective feedback during the rehearsal portion of the training session. In addition, all specific questions were deferred until treatment and assessments were completed.

Mothers were instructed to practice these skills in brief daily play-sessions at home with the target children. Mothers were instructed to ignore all mild misbehaviors during these practice sessions. They were given a recording sheet to keep track of practice and to note any questions or problems for discussion with the therapist at a later date.

Assessments	Conditions			
1	Pretreatment		Pretreatment	
	WL	WV	IL	IV
2			Posttreatment	
	WL	WV	IL	IV
3	Posttreatment			
	WL	WV	IL	IV

Note. WL = Waiting-List Live condition; WV = Waiting-List Videotape condition; IL = Immediate Treatment Live condition; IV = Immediate Treatment Videotape condition.

Figure 1. Overview of Assessments and Conditions

Week	Immediate	Waiting List
1	Assessment 1	Assessment 1
2	Training (video or live)	Delay
3	Training	Delay
4	Assessment 2	Assessment 2
5	Delay	Training (video or live)
6	Delay	Training
7	Assessment 3	Assessment 3

Figure 2. Training Conditions and Assessments

CHAPTER III

RESULTS

Data Analyses

Three types of data were obtained from each mother in this study. The number of Target Behaviors (total description, reflection and labeled praise statements) exhibited by each mother, the total number of children's problem behaviors (Problem) and the frequency of each problematic behavior (Intensity) indicated on the ECBI were tabulated. The following analyses examined all three types of data and will be discussed accordingly.

The number of description, reflection and labeled praise statements made by each mother was tabulated by the experimenter and an independent coder, a clinical psychologist from another city. The independent coder was blind to the hypotheses and to the group membership of the subjects. Training of the rater continued until a criterion of 85% overall agreement on the scoring of training videos was achieved prior to formal data analysis. Interrater reliability was assessed for 100% of the observations. The number of Target Behaviors was summed for each mother at each assessment period. Scores for the two pretreatment assessments for mothers in the waiting list (W) condition were collapsed, as were posttreatment scores for mothers in the immediate treatment (I) condition. After means and standard deviations for these scores in all treatment conditions were determined (see Tables 1 and 2), an overall analysis of variance (see Table 3) was computed in order to

determine if there were significant score differences among conditions pre- and posttreatment. Effect size was computed for treatment on all measures. Analyses of variance (see Tables 4, 5, and 6) were computed for each measure, comparing pretreatment and posttreatment scores. Cross-lagged Pearson correlations (see Figure 3) were computed comparing ECBI Problem scores with Target Behavior scores before and after treatment.

Direct comparisons of the effects of each treatment condition were made. A t-test was performed comparing the scores from the L condition after training with the scores of the waiting list controls, to test Hypothesis I. A second t-test compared the posttreatment scores of the V condition with the scores of the waiting list controls, as a test for Hypothesis II. Two analyses of variance (ANOVAs) were performed across all subjects and treatment conditions in order to determine the effects of each treatment method. The hypotheses were tested by examination of the results of these analyses.

Analyses of the Hypotheses

Hypothesis I

Hypothesis I stated that mothers who have been trained in PCIT via traditional live training methods should exhibit the target behaviors (total description, reflection and labeled praise) more frequently than those mothers who have not been trained. Controlling for time, at Assessment 2, the difference between the mean scores of the posttreatment L condition (n = 5) and the waiting list control (n = 10) was not statistically significant, $t(13) = 0.85$, p N.S. The mean number of target behaviors exhibited by mothers (WL and WV) prior to training was 9.30 (SD = 6.10) and after live training

(IL) the mean was 11.60 (SD = 4.04). This hypothesis was not supported but this does not necessarily mean that the Null Hypothesis should be accepted. It may merely reflect limitations in the design, available subjects and associated factors. The degrees of freedom were so low that a very large effect size would be required for statistical significance.

Hypothesis II

Hypothesis II stated that mothers who have been trained in PCIT via videotape modeling of the skills should exhibit the target behaviors more frequently than those mothers who have not been trained. The difference between the mean posttreatment scores of mothers in the V condition (n = 5) and the waiting list control (n = 10) was not statistically significant, t (13) = 1.40, p N.S. Prior to training (WL and WV), the mean number of target behaviors was 9.30 (SD = 6.10). Following videotape training (IV), the mean was 20.80 (SD = 18.32). This hypothesis was not supported, but this, too, may reflect considerations similar to those noted above with Hypothesis I.

Hypothesis III

Hypothesis III stated that mothers should show similar treatment gains regardless of treatment method (L vs. V). Tables 3 and 4 indicate that following training, mothers showed similar increases in Target Behavior scores. The first Interaction term in Table 4 ($F(1,37) = 0.87$, $p > .25$) suggests that there may be no significant difference between scores in the L and V conditions.

Overall Analyses of Variance

An initial analysis of variance (see Table 3) was performed comparing subjects' pretreatment and posttreatment Target Behavior scores across all four treatment conditions (Waiting List-Live Modeling: WL; Waiting List-Videotape Modeling: WV; Immediate Treatment-Live Modeling: IL; and Immediate Treatment-Videotape Modeling: IV). There was a significant difference in scores before and after treatment, $F(1, 37) = 23.03$, $p < .01$. There was no difference across treatment conditions, $F(3, 18) = 0.46$, p N.S.

As there were no differences noted in pretreatment scores, the four treatment conditions were collapsed and a second analysis of variance (see Table 2) was performed with only two between-subjects variables, Live Modeling (L) vs. Videotape Modeling (V). This analysis suggests that treatment method did not have a significant effect on the results, $F(1, 18)=1.38$, p N.S. There was no significant interaction, $F(1, 37) = 0.87$, $p>.25$. There was a main effect for treatment gain with significant differences between pretreatment and posttreatment scores, $F(1, 37) = 24.19$, $p < .01$, with the number of Target Behaviors greater following treatment.

The individual target behaviors were analyzed separately. These results were not significant. The pretreatment scores for mothers in the W condition were also analyzed, to determine if there were time-linked changes from Assessment 1 to Assessment 2 (see Figure 1). There was no significant difference between the pretreatment scores at these two assessment periods. Posttreatment scores (Assessment 2 vs. Assessment 3) were similarly analyzed for mothers in the I condition, to clarify maintenance of treatment gains. There was no significant difference between scores at these two assessment periods.

Post Hoc Analyses

The overall effect size (N = 20) for target behaviors was determined (ES = X post - X pre / SD pre) to be 1.45 SD units. For all subjects prior to training, the mean Target Behavior score was 9.57 (SD = 5.18). After training, the mean score was 17.08 (SD = 8.39).

The pretreatment scores were compared across treatment conditions in order to verify that the groups did not differ prior to treatment. An analysis of variance (see Table 7) indicated no reliable difference in Target Behavior scores among the four treatment conditions prior to treatment, $F(3, 16) = 0.54$, p N.S. Neither were there reliable differences in the ECBI Problem scores among the four treatment conditions prior to treatment, $F(3, 16) = 0.23$, p N.S. (see Table 8).

Posttreatment scores were compared across treatment conditions. There was no difference in Target Behavior scores between the four treatment conditions following treatment, $F(3, 16) = 0.40$, p N.S. (see Table 9). There was no difference in ECBI Problem scores between the four treatment conditions following treatment, $F(3, 16) = 0.43$, p N.S. (see Table 10).

An overall analysis of variance (see Table 5) compared ECBI Problem scores before and after treatment with two between-subjects variables (L vs. V). As with previous analyses, there was a main effect for treatment, $F(1,37) = 10.99$, $p < .01$. The difference between treatment methods was not significant, $F(1, 18) = 1.19$, p N.S. There was no significant interaction, $F(1, 37) = 0.54$, p N.S. The mean ECBI Problem score prior to treatment was 16.55 (SD = 6.55) while the mean after treatment was 13.80 (SD = 6.13).

A similar analysis (see Table 6) compared ECBI Intensity scores before and after treatment with two between-subjects variables (L vs. V). There was a significant main effect for treatment, $F(1, 37) = 14.44$, $p < .01$. There was no significant difference between treatment methods, $F(1, 18) = 0.70$, p N.S., nor was there a significant interaction, $F(1, 37) = 0.002$, p N.S. The mean ECBI Intensity score prior to treatment was 138.8 (SD = 33.86) and after treatment was 127.25 (SD = 28.58).

Pearson correlations were computed for the Target Behaviors and the ECBI Problem scores, at pretreatment and posttreatment (see Figure 3). The significant correlations were between the pretreatment and posttreatment scores on both measures (Target Behavior, Pre-Post $r(18) = .93$, $p < .01$; ECBI Problem, Pre-Post $r(18) = .67$), $p < .01$). Mothers' behaviors (Target Behavior scores) and perceptions of children's problem behaviors (ECBI Problem scores) were not significantly correlated. The largest correlation was between Target Behavior scores at pre- and posttreatment ($r = .93$). This appears to reflect the fact that all mothers showed a similar increase in Target Behavior scores following training. Those mothers who scored relatively high prior to training scored relatively high following training, while those mothers who originally scored low on Target Behaviors continued to score low in relation to the other mothers, in spite of the improved scores. The correlation between ECBI Problem scores at pre- and posttreatment was also significant ($r = .67$). This correlation appears to be a function of the general decline in ECBI Problem scores for all mother-child dyads following training. There was no significant correlation between pretreatment Target Behavior scores and posttreatment ECBI Problem scores ($r = .14$). Thus, the mothers' baseline ability to exhibit description, reflection

and labeled praise does not appear correlated with the amount of children's misbehavior following training. The posttreatment Target Behavior scores and pretreatment ECBI Problem scores were not significantly correlated ($r = .20$).

Interrater Reliability

A criterion of 85% overall agreement on the scoring of training videos was achieved prior to formal data analysis. Interrater reliability was assessed for 100% of the observations. Percentage of agreement was defined as the proportion of the total number of recorded behaviors by either observer for which they were in agreement divided by the sum of the total number of behaviors recorded by both observers. The sums for the numerator and denominator were calculated for each skill for each mother during each 15-minute assessment session. Reliability was determined to be 94% overall.

Table 1

Pretreatment Score Means
and Standard Deviations

	WL (n = 5)	WV (n = 5)	IL (n = 5)	IV (n = 5)
Target Behavior	x = 7.00	x = 10.70	x = 9.40	x = 11.20
	SD = 4.95	SD = 4.28	SD = 2.41	SD = 9.09
ECBI Problem	x = 16.10	x = 16.90	x = 14.80	x = 18.40
	SD = 4.94	SD = 10.53	SD = 5.07	SD = 5.86
ECBI Intensity	x = 127.90	x = 135.10	x = 138.60	x = 153.60
	SD = 21.01	SD = 41.65	SD = 32.19	SD = 42.34

Note. WL = Waiting-List Live condition; WV = Waiting-List Videotape condition; IL = Immediate Treatment Live condition; IV = Immediate Treatment Videotape condition. ECBI = Eyberg Child Behavior Inventory.

Table 2

Posttreatment Score Means
and Standard Deviations

	WL (n = 5)	WV (n = 5)	IL (n = 5)	IV (n = 5)
Target Behavior	x = 13.60	x = 20.80	x = 15.20	x = 19.30
	SD = 7.40	SD = 17.65	SD = 6.41	SD = 15.86
ECBI Problem	x = 12.00	x = 14.60	x = 12.30	x = 16.30
	SD = 5.29	SD = 9.61	SD = 6.04	SD = 2.51
ECBI Intensity	x = 121.60	x = 126.80	x = 121.50	x = 139.10
	SD = 25.99	SD = 35.41	SD = 33.10	SD = 24.79

Note. WL = Waiting-List Live condition; WV = Waiting-List Videotape condition; IL = Immediate Treatment Live condition; IV = Immediate Treatment Videotape condition. ECBI = Eyberg Child Behavior Inventory.

Table 3

ANOVA Summary Table of Target Behavior Scores:
Pretreatment vs. Posttreatment Across
All Treatment Methods

Source	SS	DF	F	p
Methods (WL,WV,IL,IV)	197.62	3	0.46	N.S.
Subjects	2272.47	16		
Trials	585.22	1	23.03	. 01
Interaction	26.85	1	0.35	N.S.
Interaction	889.42	37	25.41	

Note. WL = Waiting-List Live condition; WV = Waiting-List Videotape conditin; IL = Immediate Treatment Live condition; IV = Immediate Treatment Videotape condition. The test for homogeneity of variance produced F (4, 4) = 14.26, N.S.

Table 4

ANOVA Summary Table of Target Behavior Scores: Pretreatment vs. Posttreatment Across Methods (Live vs. Video)

Source	SS	DF	F	p
Methods (L vs. V)	176.40	1	1.38	N.S.
Subjects	2293.70	18		
Trials (Pre vs. Post)	585.22	1	24.18	.01
Interaction	21.02	1	0.86	N.S.
Interaction	895.25	37		

Note. L = Live condition; V = Videotape condition.

Table 5

ANOVA Summary Table of ECBI Problem Scores:
Pretreatment vs. Posttreatment Across
All Treatment Methods

Source	SS	DF	F	p
Methods (L vs. V)	78.40	1	1.19	N.S.
Subjects	1181.00	18		
Trials (Pre vs. Post)	72.90	1	10.99	.01
Interaction	3.60	1	0.54	N.S.
Interaction	245.50	37		

Note. L = Live condition; V = Videotape condition. ECBI = Eyberg Child Behavior Inventory.

Table 6

ANOVA Summary Table of ECBI Intensity Scores:
Pretreatment vs. Posttreatment Across
All Treatment Methods

Source	SS	DF	F	p
Methods (L vs. V)	1265.63	1	0.69	N.S.
Subjects	32622.23	18		
Trials (Pre vs. Post)	1334.03	1	14.44	.01
Interaction	0.23	1	0.002	N.S.
Interaction	3418.00	37		

Note. L = Live condition; V = Videotape condition. ECBI = Eyberg Child Behavior Inventory.

Table 7

ANOVA Summary Table of Pretreatment
Target Behavior Scores

Source	SS	DF	F	p
Between	52.84	3	0.54	N.S.
Within	525.30	16		

Table 8

ANOVA Summary Table of Pretreatment
Eyberg Child Behavior Inventory
Problem Scores

Source	SS	DF	F	p
Between	34.05	3	0.23	N.S.
Within	780.90	16		

Table 9

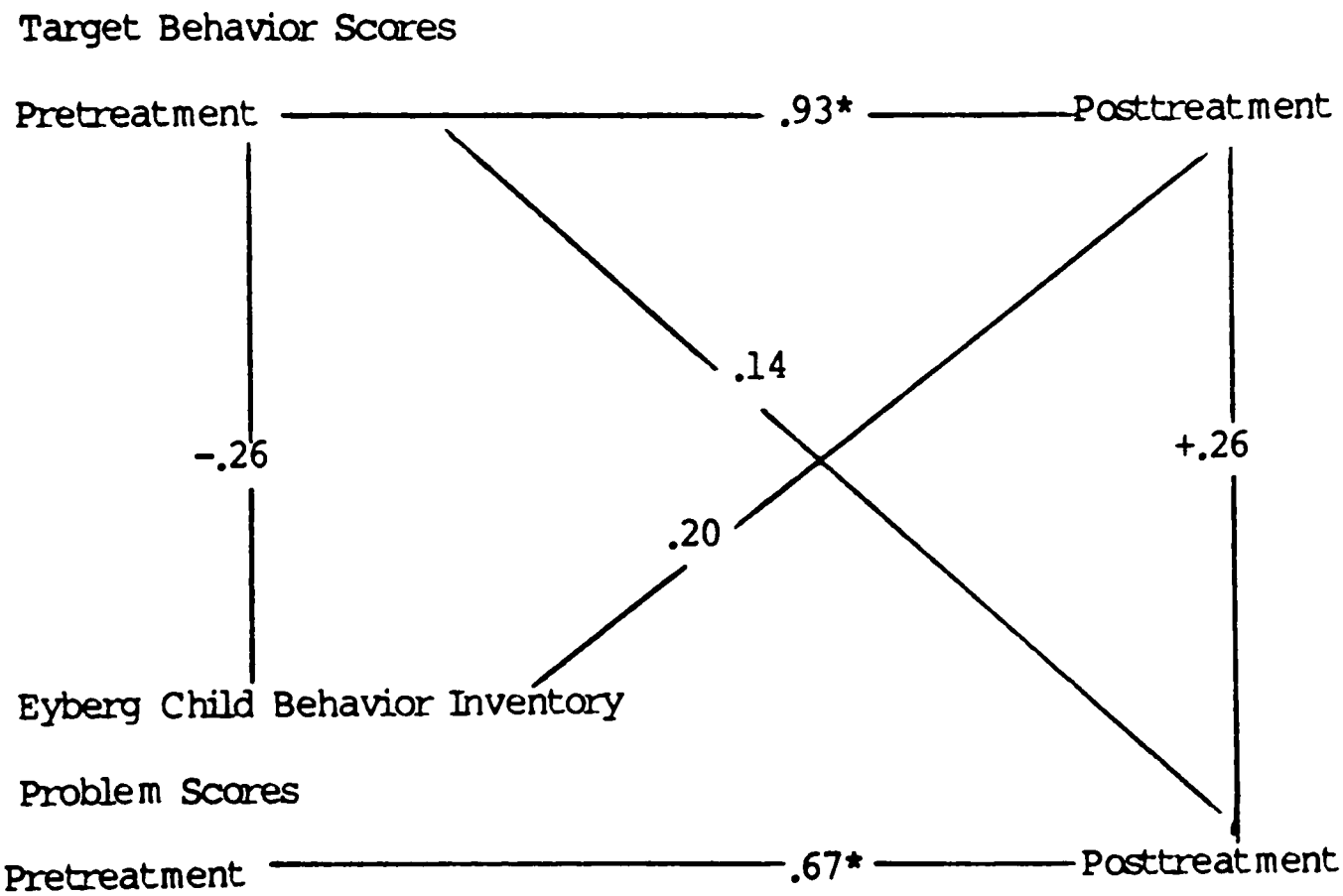
ANOVA Summary Table of Posttreatment
Target Behavior Scores

Source	SS	DF	F	p
Between	619.84	3	.3975	N.S.
Within	8316.16	16		

Table 10

ANOVA Summary Table of Posttreatment
Eyberg Child Behavior Inventory
Problem Scores

Source	SS	DF	F	p
Between	58.45	3	0.43	N.S.
Within	729.10	16		



*p < .05

Figure 3

Pearson Correlations: ECBI Problem and Target Behavior Scores at Pretreatment and Posttreatment

CHAPTER IV

DISCUSSION

The purpose of this study was to assess the need for individualized live modeling of PCIT techniques by comparing it with videotape presentation of the basic techniques in PCIT training. If videotape modeling were shown to be equally effective, a program of PCIT utilizing videotapes might decrease the amount of costly therapist time necessary, and result in a more cost-effective parent-training program. In addition to the cost benefits, videotape training might actually prove to be more effective than verbal or written training formats with some parents. Videotapes might provide the parent with the opportunity to review the material as necessary, without requiring the therapist to repeat the training sessions. Videotapes might also allow greater variety, showing different people in different settings modeling the basic skills. This might lead to greater generalizability of the behavioral changes, including setting and behavioral generality. Setting generality refers to the changes that occur in behavior in settings other than those specifically associated with the treatment. In behavioral generality, behaviors other than the specific behaviors which were the focus of treatment show improvement. This generalizability of treatment gains to other behaviors and situations might be expected for the mothers, as well as for their children.

Limitations of Present Study

Results of this study suggest that mothers are apparently able to learn the basic skills taught in the first phase of PCIT (description, reflection and labeled praise). Several limitations, however, render it difficult to interpret these results. Interpretation of these results is limited by the relatively small sample size. Pragmatic considerations regarding subject availability led to the selection of the sample size (N = 20). The effect size (ES = 1.45 SD units) was determined post hoc and suggests that if this were an accurate estimate of the population effect size, approximately twice this number of subjects (N = 40) would have been necessary to achieve significance at the $p < .05$ level.

Another difficulty in design was the fact that the third hypothesis predicted no difference between treatment modes (L vs. V). While it is not unheard of to accept the null hypothesis as part of an overall research strategy (Greenwald, 1975; Rosenthal & Rubin, 1984), there remains a great deal of prejudice regarding the null and in the majority of current research the null is typically "formulated for the express purpose of being rejected" (Siegel, 1956; p. 7). As indicated by the effect size, however, mothers taken as a whole exhibited an increase in target behaviors following training. In addition to the effect size, the Interaction in the second ANOVA performed (see Table 4) reflects the relative effects of live and videotape conditions. This factor was found to be not significant ($F = .87$, $p > .25$) which lends support to the postulate that there are no significant differences between these two training conditions. As implied above, this may be a function of one or more of the limitations in design outlined above.

Limitations in the design appear to have contributed to the contradictory results of this study. Neither treatment (L or V) alone produced a significant effect. Only when taken together was there a significant change associated with training. Taken together, these limitations detract from a singular interpretation of the results of this study. Something clearly happened but the failure of the individual hypothesis tests to replicate these findings makes it difficult to determine the exact nature and extent of these changes.

The mothers' perception of the number and frequency of problem behaviors in their children also changed following treatment. There was a significant decrease in the number of problem behaviors indicated on the ECBI. There were similar changes in ECBI Intensity scores. After treatment, mothers reported that their children displayed problem behaviors less often.

Although the change in perception of children's problem behaviors was statistically significant, these scores do not appear to reflect a clinically significant improvement in child misbehavior for the majority of subjects. The mean number of problem behaviors at pretreatment was 16.55 (SD = 6.55) which is clearly in the clinical range as established by Eyberg and Ross (1978; nonclinical mean = 6.8, SD = 3.9). Although these scores showed a decrease following treatment, the mean number of problem behaviors was 13.85 (SD = 6.13) which is still within the clinical range. This does not necessarily suggest that PCIT ultimately fails to produce clinically significant improvements in children's behavior. The mothers in this study were given little time between training and assessment to implement the parenting skills with their children and significant changes in children's behavior might not be anticipated in the short term. There is some reason to

anticipate a lag between behavioral changes and perceptual or attitudinal changes. It is perhaps surprising, in fact, that mothers would perceive significant behavioral changes in their children so soon after training. It can be postulated that mothers gain greater competence and confidence along with their acquisition of the basic parenting skills. This increased sense of competence might lead to changes in their attitude towards their children's problem behaviors. Behaviors which were once perceived as problematic would seem less troublesome and more manageable. Moreover, despite the research which supports the reliability and validity of the ECBI (Eyberg & Ross, 1978; Robinson, Eyberg, & Ross, 1980; Eyberg & Robinson, 1983; Robinson & Anderson, 1983), it might be that this instrument is subject to the influence of social desirability (Achenbach & Edelbrock, 1978). Mothers may tend to present themselves and their children in a more positive light following training that was designed to improve parenting skills.

In addition to the short period of time between training and assessment, it should be noted that this study focused solely on acquisition of the skills included in the CDI portion of PCIT. Utilization and maintenance of those skills were not the focus. Mothers were assessed prior to training in the PDI skills of giving clear commands and following time-out procedures. It is reasonable to assume that children's behavior problems might be further improved following the complete program of PCIT. Due to the very high attrition rate, however, only one mother completed the follow-up assessment. Thus, no assessment of treatment maintenance was possible.

The cross-lagged Pearson correlations were determined for the Target Behavior scores and ECBI Problem scores at pre- and post-treatment. The only significant correlations were the reliability coefficients for pre- post-

scores for each instrument, before and after treatment (see Figure 3). The number of children's misbehaviors at baseline does not appear to be correlated with changes in the frequency with which mothers exhibited the target behaviors. The correlation between Target Behavior and ECBI Problem scores at pretreatment was not significant ($r = -.26$), nor were these scores significantly correlated at posttreatment ($r = .26$). This suggests that the number of target behaviors exhibited by a mother at baseline is not an indication of how disruptive her child might be prior to training, nor does her presentation of target behaviors following training appear to be correlated with child misbehavior. The difference between these two correlations reflects the fact that Target Behavior scores showed greater change than the ECBI Problem scores after treatment. This is not surprising, given the fact that the Target Behavior scores are a direct reflection of the skills taught in the program. The literature consistently indicates that behavioral changes in the mother occur prior to mothers' perception of behavioral changes in their children. A lag between mothers' acquisition of skills and behavior change in children is anticipated.

The statistically significant elements of this study's findings are consistent with the literature on Parent-Child Interaction Training (PCIT). Although interpretation of other components of the findings is limited by design limitations and the subject attrition in this study, the effect size was sufficient to support the hypothesis that mothers would exhibit more description, reflection and labeled praise following training in the CDI portion of PCIT. Predetermined target behaviors were promoted under PCIT training, which is consistent with past PCIT studies. After training, all mothers taken together exhibited a statistically significant increase in target

behaviors. Unfortunately, results do not indicate such an effect in either treatment condition taken alone. Videotape modeling of PCIT skills may be as effective as live modeling. In addition to exhibiting behavioral changes, mothers reported a significant decrease in both the number and frequency of problem behaviors exhibited by their children following training. Tentatively, one might interpret these findings as suggesting that mothers can learn to change their interactional style as well as their children's behavior. Certainly, these results would support the viability of hypothesizing such in future investigations, although alternative interpretations might emerge under designs affording greater precision.

Recommendations for Future Research

Subjects and Attrition

Despite over two years' investment in continuous data collection and subject solicitation, this study ultimately was concluded with limits in subject sample characteristics and the relatively small sample size. Consequently, generalization to other samples may be limited. The sample's population characteristics were such as to limit real extrapolation of the findings to other racial or socioeconomic groups.

A major difficulty with this study was the high attrition rate prior to completion of the final assessment and the consequent lack of follow-up assessment (see Table 11). A significant number of subjects (Immediate Treatment condition) actually completed the CDI training and dropped out of the study prior to the final assessment. These findings parallel those of other recent studies which have reported a significant number of subjects failing to complete data collection following treatment. It can be postulated that

these mothers represent one of three groups: those mothers for whom the treatment met their needs and served to alleviate their immediate distress; those mothers who were disenchanted with the treatment and chose not to continue; and those mothers who were unable to complete treatment due to such reasons as illness or moving. Given the number of factors shown to be correlated with drop out, however, no firm conclusions can be made regarding the underlying causes of this study's attrition.

Recent research has focused on drop out rates and factors associated with the failure to complete training. Estimates of drop out rates typically range from approximately 40% to 81% (O'Dell, 1982; Firestone & Witt, 1982; Szykula, Fleischman, & Shilton, 1982). Factors which seem most strongly associated with drop out include maternal depression (Forehand, Wells, & Griest, 1980; Griest, Wells, & Forehand, 1979; McMahon, Forehand, Griest, & Wells, 1981), marital problems (Oltmanns, Broderick, & O'Leary, 1977), social isolation of the mother and lack of appropriate support systems (Wahler, 1980), single parenthood (Strain, Young, & Horowitz, 1981), as well as low SES (Blechman, Budd, Christophersen, Szykula, Wahler, & Embry, 1981; Szykula et al., 1982). The number of "excuses" offered by mothers during treatment for failed and rescheduled appointments has also been shown to predict drop out (Bernal & Kreutzer, 1976). In addition, as Bernal (1984) points out, lack of time, energy or commitment to the program may interfere with successful completion of any parent-training program. Parent-training requires a great deal more effort than traditional child psychotherapy, where the child was dropped off at the therapist's office to be "fixed."

The ability to predict which mothers are more likely to fail to complete training would be useful. The literature strongly suggests that any

parent-training program screen potential clients on these variables prior to initiating treatment. Further research clarifying which factors most clearly predict those parents who will have difficulty completing or implementing treatment is still needed. If identified early, such high risk mothers might be offered special support or incentives to complete treatment. Strategies have been developed to guard against such attrition. Simple appointment reminders such as phone calls or mailed reminders may help decrease missed appointments and consequent attrition (Friman, Finney, Rapoff, & Christophersen, 1985). Monetary incentives have been added to some programs with reported improvement in drop out rate. One such program reported initial drop out rates from 74-91% prior to offering a monetary incentive for completion of the training and assessments; their drop out rate decreased dramatically to approximately 12% (Bernal, 1984). Other programs have employed contingency contracts, where parents risk losing portions of a monetary deposit for failing to complete treatment (Eyberg & Johnson, 1974). A potential problem with such contingencies is that parents may find them aversive. Overall, however, these contingencies appear cost-effective and further research is warranted in this area.

Programs which provide a broader range of treatment components might decrease drop out rates, and enhance treatment outcome and generality of the parenting program. Several studies focused on the differential effectiveness of incorporating adjunctive treatment components into the parenting program. Such additions as training in social learning principles (McMahon, Forehand, & Griest, 1981), maternal self-control procedures (Wells, Griest, & Forehand, 1980), maternal self-reinforcement (Csapo, 1979), and parent enhancement therapy (Griest, Forehand, Rogers, Breiner, Furey,

& Williams, 1982) have been examined. Additional research is encouraged in order to determine which treatment components are most appropriate with which families. This study did not attempt to employ any measures to prevent drop-out other than consistent attempts to reschedule failed and cancelled appointments.

Assessment

One result of the high drop-out rate in this program was the limited follow-up assessment. It is therefore unknown whether the skills which were acquired by mothers during training were maintained over longer periods of time. In addition, there was no measure of consumer satisfaction with the training program, as this was to be assessed at a one-month follow-up assessment session which only one of the 20 subjects completed.

The present study used only a short-term assessment of mothers' skills in the clinic. Observations were not conducted in the natural environment, the home, nor was there long-term assessment of behavior change in mothers or children. Mothers were the only source for information about problem behavior in their child. Griest and Wells (1983) suggest that the relationship between parents' perceptions of child adjustment and actual child behavior is often poor. Wells and Forehand (1981) encourage the use of multiple sources of information in evaluation and treatment of children's problem behavior. They suggest that the clinician first collect information from all relevant family members, encouraging concrete rather than abstract descriptions of the child's behavior. They further suggest that observations of parent-child interactions be conducted in both the clinic and the home in order to identify antecedents and consequences of deviant behavior. There is some

evidence to suggest that caution is warranted in generalizing from analog assessments of parent skills in the clinic to actual home performance (Flanagan, Adams, & Forehand, 1979), although parents might also be able to bias home observations (Johnson & Lobitz, 1974; Lobitz & Johnson, 1975) and the possibility of reactivity cannot be ruled out (Bernal, Klinnert, & Schultz, 1980). Finally, Wells and Forehand note the need for gathering information from multiple sources in the child's social community, including grandparents, teachers, etc. A number of studies support the need for multiple sources of information regarding family relations and children's misbehavior. Alexander, Johnson and Carter (1984) and Hazelrigg, Cooper and Borduin (1987) concluded that the agreement among family members regarding the quality of family relations is generally quite low. Thus, generalizations should not be made from the perceptions of one family member to the entire family system. They suggest the use of aggregate scores based on ratings of multiple family members to provide the most valid description of family interactions. Achenbach, McConaughy and Howell (1987) point out that correlations are only .60 for similar informants and as low as .28 for different types of informants. This may be due in part to the fact that informants differ in their opportunities for observing children, their individual effects on children, as well as their standards of judgment.

Future research in PCIT might therefore use multiple sources of information regarding the children's behavior. Assessments might take place in the clinic as well as the home. Adequate follow-up assessment should be pursued in order to clarify long-term effects of the treatment program.

Program

This study focused solely on the skills acquired in the CDI portion of PCIT. The mothers were not assessed following completion of the PDI portion of the program. The results of this study cannot be readily extrapolated to include the effects of the entire PCIT program. In addition, in order to keep therapist interactions as similar as possible between the two treatment conditions, behavioral rehearsal was limited and mothers were given no feedback regarding their performance. This differs from the traditional training in CDI which includes behavioral rehearsal with feedback.

Like most of the research on parent training program, this study was limited to examination of mother-child dyads. Mothers are typically responsible for the bulk of the caretaking and parenting demands in the family. Studies have not demonstrated a clear benefit for the inclusion of fathers in parent training programs (Patterson, 1980), yet there is a growing body of research which suggests that fathers can be a valuable addition to most parent training programs. In fact, some programs have made their participation a requirement in two-parent families (Bernal, Klinnert, & Schultz, 1980). If fathers use the same parenting skills as mothers, this may increase the consistency of the consequences for children's behavior and add to the effectiveness of the program. There is some evidence to suggest that fathers do not have to be included directly in the parent training program in order to benefit from the training (Horton, 1984). Fathers may actually learn and incorporate the parenting skills exhibited by the mothers, obviating the need for formal training of the fathers. Further research is necessary to determine the mechanisms underlying the transfer of such training.

Experimental Design

Despite the increasing number of parent-training programs, as Csapo (1979) points out, analyses of the individual training procedures are infrequent. The "individual" and "specific" effects of the various components have not been clearly defined and there is conflicting evidence about the extent to which various treatment components affect training (O'Dell, Mahoney, Horton, & Turner, 1979). Demand expectancy manipulation might be incorporated as a preprogram element designed to enhance treatment and increase skill acquisition. Further research is still needed in this area. The purpose of this study was to isolate and more clearly define the relative effectiveness of videotape modeling in training parents in the basic CDI skills of PCIT. This study did not attempt to explore the specific effects of the different components of PCIT, including modeling and behavioral rehearsal.

In addition, this study did not include a placebo control group. Thus, such extratherapeutic ingredients as attention to the problem, interaction with the therapist, and hope for improvement cannot be ruled out as having contributed to the apparent positive effects of training. Despite these methodological shortcomings, the results are encouraging and suggest that videotape modeling may be an effective training format. Research is still needed to determine which elements might be included in the videotapes to achieve maximum effectiveness for target populations. As these factors are clarified, a more cost-effective parent-training program can be developed, one which meets the needs of most if not all parents.

Design Improvements

As Mahoney (1978) points out, "the perfect experiment has yet to be designed and is, in some sense, inconceivable" (p. 660). We are thus faced with the task of using hindsight and what we have learned from previous mistakes and shortcomings to attempt to develop the least fallible experiments, with the fewest threats to internal, external and theoretical validity. The limitations of this study outlined above impose severe constraints upon the conclusions which can be drawn from the data. More potent research strategies might be used to clarify a number of the questions which remain unanswered regarding the active treatment components of PCIT and ways in which PCIT can be made more effective and cost-efficient.

Review of Design Strategies

A number of authors (Kazdin, 1979; Kazdin & Wilson, 1978) have reviewed the various treatment evaluation strategies in the area of outcome research. The first approach often used to evaluate the effects of a particular treatment is the treatment package strategy which attempts to answer the basic question whether or not the treatment alters the problem for which it was developed. In this strategy, some type of no-treatment control group (including variations such as delayed-treatment or waiting-list control groups) is used to evaluate whether treatment is better than no treatment. In such a basic study, the treatment package is examined as a whole and it is usually not possible to determine the specific components or aspects of the treatment that might account for the change.

Once the treatment has been shown to work, research often focuses on analyzing the influence of specific components of the treatment. The

strong-inference approach to outcome research suggests that the goal is to rule out rival hypotheses regarding the causes of change in order to determine with increasing precision the parameters of the indepenent variable. Inclusion of a placebo control group actually goes beyond the basic question of whether the treatment works and begins to focus on identifying the specific and non-specific factors leading to the change. The use of a component control design or a dismantling treatment strategy helps to answer the question of which aspects of treatment are necessary and effective. To dismantle a particular treatment, individual procedural elements or treatment components are eliminated from the treatment. This allows comparison of the relative effects of each of the components as well as the combined effects of different ingredients. By dismantling the treatment, the researcher can reach conclusions about which elements of the treatment are necessary and sufficient for change and which are not. In addition, these results may provide information important in helping to refute or corroborate the theories regarding the efficacy of a particular treatment.

The parametric treatment strategy may be used to vary specific aspects of the treatment in one or more dimensions, usually along quantitative dimensions. This strategy can help maximize therapeutic change and test alternative theories regarding the relationship between parameter values and ability to cause change. In the constructive treatment strategy, different components are added to enhance the effectiveness of the treatment package. These strategies do not necessarily call for the inclusion of an attention-placebo control condition. As Kazdin (1979) points out, "If the sole interest of the investigator is to develop an increasingly effective treatment, all that is necessary is to show that a given component provided to one

group provides an increment in efficacy relative to another group that does not receive the component. . . .(T)he question may assess the variation of treatment that maximizes change rather than explaining why this variation accomplishes this" (p. 85). The comparative treatment strategy attempts to evaluate the differential outcome of treatments and determine whether a particular therapy or treatment package is better or more effective than an alternative treatment. This strategy is at odds with a strong-inference approach in that it does not allow for the sequential evaluation, and disconfirmation, of hypotheses basic to this approach.

Future PCIT Research

Further research regarding the effectiveness of videotape modeling in PCIT should also begin to examine the relative effectiveness of each of the treatment components of this parent-training program. It is not yet clear which element(s) of PCIT are most effective in creating change. The procedural ingredients of PCIT include instruction in the rationale and techniques of the program, modeling of the skills, role playing and rehearsal of the skills with feedback, as well as daily practice of the skills at home. Given the number of procedural elements, a single study designed to compare and contrast each of these would likely prove unmanagable. A series of experiments, however, might use the dismantling or component control strategy to assess the differential effects of each of these ingredients and all possible combinations. A waiting-list control group would be used to control for such threats to internal validity as history, maturation, regression, and effects of assessment. Those elements or combinations of

elements which are determined to be equivalent to the waiting-list control condition could then be labeled inactive.

Nonspecific factors might be controlled for in one of two ways. An attention-placebo group which was procedurally similar to the treatment group could be included. Such a pseudotreatment group is designed to provide all the nonspecific elements of the veridical treatment, at the same time excluding ingredients which are theoretically likely to be effective behavior change agents. Subjects in this group should be provided with a believable rationale regarding their "treatment" to control for such factors as expectancy and credibility. Preliminary analyses would be necessary to develop a placebo procedure which is rated by subjects as equally credible to the veridical treatment (Kazdin, 1979). It should be noted that there are some ethical problems associated with the use of placebo control conditions, including the lack of adequate informed consent and the fact that the client is not being provided with the best possible treatment (O'Leary & Borkovec, 1978). Such concerns are in part offset by the recognition that without carefully controlled research, it would not be possible to determine "the best possible treatment" at all. Moreover, post-experimental implementation of the true condition may be pursued for subjects in the placebo condition(s). With the inclusion of a placebo control, care should be taken to protect the subjects from possible harm due to frustration, anger, or ineffective treatment. Those ingredients or combinations which are found to be equal to an attention-placebo control condition might ultimately come to be considered nonspecific factors.

In a meta-analysis of placebo-controlled behavior therapy research, Bowers and Clum (1988) suggest that the specific effects of behavior

therapies are approximately twice as large as the nonspecific effects. Thus alternative treatment methods may "provide much of the data gained by placebo designs with less deleterious consequences" (p. 321). Given the ethical concerns surrounding its use, therefore, an attention-placebo control condition need not be included in this prospetive study. The component control strategy can be used in place of a placebo control. The components should have credibility ratings similar to the credibility of the total treatment package for subjects, in order to control for expectancy of success. This may prove difficult and preliminary analyses might be necessary in order to develop a credible context for individual treatment ingredients.

The treatment components or combinations of components which show greater contributions, in comparison with each other and the control condition(s), could then be further examined in order to develop an increasingly more effective treatment package. This might also clarify the underlying theoretical mechanisms leading to change.

Care should be taken to assure randomization of subjects to each of the conditions. Adequate sample sizes should be used to allow sufficient power to detect treatment differences. As the sample size becomes smaller, the probability of sampling error and artifacts which limit generalizability of the findings increases. In addition, given the major problems encountered with attrition, attention might focus on incorporating more effective ways of predicting and/or preventing such attrition in this study. This is particularly salient given the limitations in time, energy and personnel in most research settings. High drop-out rates may also cause unknown biases in subject performance, severely impairing the generalizability of such data. The possibility of therapist bias could be controlled by the use of therapists who

are blind to the hypotheses. Including therapists of several different theoretical orientations may also help to prevent biases due to therapist effects. Finally, given the difficulties inherent in postulating or accepting the null hypothesis, hypotheses should be formulated in such a way as to allow disconfirmation of alternative hypotheses, which have been developed on an a priori basis.

The Future of Parent-Training Programs

One major limitation of parent-training programs is that only those parents who seek treatment can be exposed to the principles and skills incorporated in such programs. As O'Dell (1985) points out, the majority of parents in need of parent-training never seek help at all. Should videotape modeling of parenting skills prove an effective training method, however, the opportunities for disseminating this parenting information to a larger number of parents would be expanded. The ubiquitous television medium may prove valuable in the effort to contact as many parents as possible. One option might be a weekly or monthly television show which would provide an overview of those parenting skills shown to be most effective. In addition, a comprehensive program of parent-training directed at the growing number of parents-to-be (i.e., school children) might prove to have some merit. An even more radical approach was advocated by Hawkins (1972) who called for mandatory parent-training through the public schools. Regardless, a program which incorporates videotape modeling might emerge as the most effective and cost-efficient method for presenting this information.

One limitation of parent-training programs such as PCIT is that they rely upon the parent to determine what is "appropriate" behavior for the child.

Research suggests that parents, particularly abusive parents, are often poorly informed as to what behaviors are developmentally appropriate and ones which they might expect from their children at different ages. A comprehensive program of parent-training might therefore include a review of what behaviors might legitimately be demanded from children at different stages of development. Videotapes could easily present a number of different models of parents and children through vignettes portraying parents interacting with children of many different ages in an age-appropriate fashion.

Another way to increase the number of parents familiar with parent-training techniques is to decrease the typically high attrition rates of such programs. Many parents might be willing and able to complete such a parent-training program if given help with transportation, child care during training sessions, and similar problems. Incentives for completing the program may also prove helpful in decreasing attrition.

Another potential limitation of parent-training programs goes beyond questions of acquisition and involves problems in implementation. More research is needed to determine those factors which affect implementation and generalization. Roberts (1985) points out that for some noncompliant children, parental praise may no longer be a powerful reward and/or other competing factors may be reinforcing continuing noncompliance. For these families, basic training in parenting skills may not be sufficient. Additional assessment and training may prove necessary if the parent is to continue trying to implement the parenting skills. Patterson (1982) suggests that in those cases where the parent is no longer an effective social reinforcer, material reinforcers or tokens may prove helpful. For some parents,

maintaining the treatment gains may prove problematic and periodic "booster" sessions may be beneficial. In order to improve generalization of behavior change in children, programs which include training teachers and other members of the child's social world may prove optimal.

While the present study was at best only a minimal address to the broader range of parent-training issues, its limited findings do indicate the prospective value of these procedures in future inquiry. Perhaps some of those directions can be discerned out of the experiences recorded here.

Table 11

Subject Attrition: Number of Subjects in Each Condition Who Completed Each Session

Waiting List (W)			Immediate Treatment (I)		
	Live (L)	Video (V)		Live (L)	Video(V)
Assessment 1	21	21	Assessment 1	23	22
Assessment 2	15	14	Training 1	21	19
Training 1	14	13	Training 2	20	17
Training 2	12	12	Training 3	18	15
Training 3	10	9	Assessment 2	10	11
Assessment 3	5	5	Assessment 3	5	5

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APPENDIX A

TRAINING SCRIPTS

Introduction

Parent-Child Interaction Training is a program for teaching parenting skills. It is designed to help parents gain better control over their children's behavior. The philosophy behind PCIT is that parents should control their children's behavior. Part of the philosophy is also that discipline and control should be firm but fair. In fact, research has shown that parents who set limits on what their children can and cannot do and who teach their children the difference between acceptable and unacceptable behavior raise children who are happier and better-adjusted.

A child whose behavior is "out of control" much of the time is often unpleasant to be with for the family or others. Nor is such a child usually a happy child. In addition, the child's misbehavior commonly produces greater-than-normal problems among all the children in the family and can cause problems in the parent's marriage. For these reasons, it is important that the child's behavior is brought back under control by the parents. This is the goal of PCIT

The skills taught in PCIT are skills that most parents already have but don't use as well as they probably could use them. These skills are based on three simple but important ideas:

1. Children learn to misbehave, to be aggressive, to throw tantrums, and to do other disruptive and annoying things. This means that they can learn to behave differently. PCIT teaches parents to teach their children how to behave more appropriately.

2. Behavior is controlled by what happens before and what happens after the behavior occurs---mostly by what happens after the behavior, the consequences of the behavior. Consequences can be either rewards or punishments. Rewards encourage a behavior to happen again; punishments discourage that behavior.

3. A child's behavior is controlled by what the parents do and say about the child's behavior. Parents can change a child's behavior by first changing their own behavior.

PCIT teaches parents how to use rewards and punishments more effectively to get their children to behave more appropriately. Rewards are by far the most powerful way to change a child's behavior. Punishment also has its place in the program, but we won't look at it until later on.

The most basic reward for a behavior is attention---saying or doing anything about the behavior. The most basic punishment is not paying attention, or ignoring, that behavior. PCIT relies strongly on teaching parents to use attention and ignoring more effectively.

We will focus on learning three basic skills.

Description

The first skill is called description. Description is verbally describing what the child is doing. To use this skill, you describe what the child is doing at any given time.

For example, if a child is stacking a green block on top of a red block, you might say to the child: "Now you're putting the green block on top of the red block." Other examples might include the following: "Oh, now you're stacking the blocks;" or, "There goes the truck around the table;" or, "You put the toy cow in the barn;" or, "You are painting the flower purple."

Research has shown that using description is very effective with children. It has been found that description produces a number of positive results.

For example, it makes the child feel very good because he is getting attention and because he feels that the adult is interested in him and in what he's doing. In doing so, it helps to produce a very positive and rewarding relationship between the adult and the child.

It also makes the child feel good about himself and the adult. Additionally, since the child is getting lots of attention, he is more likely to increase his performance of desirable behaviors. On the other hand, he is likely to decrease the amount of undesirable behavior he performs.

Finally, using description provides a great number of opportunities for the adult to model appropriate speech for the child, and this may help to increase the child's vocabulary.

Although like most people you may feel a little awkward at the beginning, you will also find that description is very simple to learn and use, and you will develop confidence quickly and easily.

You may also find, as do most adults, that you will enjoy using description because of its simplicity and because of the positive results it brings.

Now, let's practice using description. I will act as the child, and I would like you to spend several moments practicing making descriptive comments about what I am doing.

Reflection

You are about to learn about a skill called reflection which is used in the parent-training program. A reflection is a restatement or paraphrasing of what the child says. Thus, to use this skill you would repeat exactly what the child says or say something which is very similar to what the child says.

For example, if a child remarks that she is going to play with the truck, you might say: "Oh, you're going to play with the truck." If she says that she is going to tear down the tower of blocks, you might say: "Now you're going to tear down the tower." If the child says that she is going to build a bridge or a building, you might say: "Oh, you're going to build a bridge;" or, "You want to build a building."

Using reflection produces a number of positive results. Our experience has shown that using this skill makes the child feel that the adult understands what the child is feeling and thinking. It also makes her feel good because she is getting attention. She is likely to continue to perform any desirable behavior for which she is receiving attention.

As the adult gives the child this positive attention, it goes a long way towards creating a very positive relationship between the adult and child.

Consequently, both the adult and the child feel good about themselves and each other.

Finally, using reflection is a good way to reinforce appropriate speech in the child. It may help improve the child's grammar and enhance her vocabulary.

Adults in general are able to learn to use reflection quite effectively. They find it simple to learn and they like the positive results that it brings. It is a simple technique that helps them to give the child the kind of quality attention that they would like to give, and they find that the children love it. Now, let's practice using reflection. I will act as the child, and I would like you to spend several moments practicing making reflective statements about what I say.

Labeled Praise

You are about to learn about a skill called labeled praise which is used in the parent-training program. Labeled praise is a praise statement which describes a specific activity that the child has performed. To use this skill, you would praise the child for doing a specific thing.

For example, if the child picks up a toy from the floor, you might say: "I like the way you picked up the toy from the floor." Other examples might include such statements as: "I sure like the way you are playing so quietly;" or, "That's a great bridge you built;" or, "You're doing a great job building that house;" or, "What a pretty flower you're painting;" or, "Thank you for putting on your jacket when I asked."

Research has shown that using labeled praise is one of the best ways to get a child to continue doing good things. Children love being praised for

something they have done, and they will generally continue to do something for which they receive praise.

Labeled praise tells the child exactly what the adult likes and lets the child know exactly what he can do to receive praise again.

Giving this kind of positive attention and approval goes a long way towards making the child feel good about himself and the adult. It really helps to create a very positive relationship between the adult and child.

Our experience here in the program has shown that adults find labeled praise to be a very easy and natural skill to learn and use. Most adults have used praise before and find it to be very effective with children.

Because they are familiar with praising others and because of the positive and permanent changes that it brings about in children, adults often become excited about using this skill. They enjoy reinforcing children in this way and find using labeled praise to be very rewarding. Now, let's practice using labeled praise. I will act as the child, and I would like you to spend a few moments practicing making labeled praise statements about what I am doing.

APPENDIX B

MATERIALS USED IN STUDY

Consent Form

I hereby consent to participate in the investigation entitled: The Effect of Videotape Modeling on Parent-Child Interaction Training. I understand that I will be asked to participate in four parenting classes designed to teach me certain parenting skills, for example how to treat my child in order to improve the quality of our relationship and how to discipline my child more effectively. I further understand that my child and I may be asked to participate in one or two assessment sessions prior to the training, as well as an assessment session after the parent training program has been completed. I understand that these assessment sessions will last for approximately 20 minutes, during which time my child and I will be asked to play together. I understand that these assessment sessions may be videotaped in order for our behaviors to be analyzed at a later time to see how our behaviors have changed after the training. I understand that the parent training program will last approximately two (2) weeks, and that I may be asked to return with my child for a final assessment session approximately four (4) weeks following the end of the parenting classes to see if these changes have continued.

I understand that I may discontinue participation in this study at any time without incurring any negative consequences, and I will still receive the agreed upon treatment if I so choose. I understand that although no identifying information will be used and all information will be kept confidential, I may refuse to allow the use of data obtained during my participation. I understand that the videotapes of my child and myself will remain confidential and will only be kept by the experimenter for assessment for a period of ten weeks following the end of the parenting classes.

I understand that Dr. Bill Locke is responsible for this project and will answer any questions that I may have. I may reach Dr. Locke at the Department of Psychology, Texas Tech University (742-3737).

I understand that if this project causes any physical injury to myself or my child, treatment is not necessarily available at Texas Tech University, nor is there necessarily any insurance carried by the University or its personnel applicable to cover any such injury. Financial compensation for any such injury must be provided through my own insurance program. Further information regarding such matters may be obtained from the Office of Research Services, Texas Tech University (742-3884).

Please sign one copy of this consent form and keep one copy for yourself:

Signature of participant: _____

Date: _____

Signature of witness: _____

Name of experimenter: Claire Jacobs

Basic Information Survey

NAME: _____

ADDRESS: _____

_____

_____

PHONE: home _____ work _____

Marital status:
Presently Married _____
Separated _____
Divorced _____
Widowed _____
Single _____

Descent or origin:
Caucasian _____
Black _____
Mexican-American _____
Spanish _____
Oriental _____
Other _____

Please list information for all members of household:

NAME	AGE	SEX	LEVEL OF EDUCATION

Note: This information will be kept strictly confidential.

What is the approximate gross yearly income for your household?

1. Less than $5000 a year
2. $5000-$9,999 a year
3. $10,000-$14,999
4. $15,000-$19,999
5. $20,000-$24,999
6. $25,000-$29,999
7. $30,000-$34,999
8. $35,000 or more a year

Child's Name_____ Date_____

Rater's Name_____ Child's Age_____

Relationship to child_____ Birth Date_____

Eyberg Child Behavior Inventory

Directions: Below are a series of phrases that describe children's behavior. Please (1) circle the number describing how often the behavior currently occurs with your child, and (2) circle "yes" or "no" to indicate whether the behavior is currently a problem for you.

	How often does this occur with your child?							Is this a problem for you?	
	Never	Seldom		Sometimes		Often	Always		
1. Dawdles in getting dressed	1	2	3	4	5	6	7	Yes	No
2. Dawdles or lingers at mealtime	1	2	3	4	5	6	7	Yes	No
3. Has poor table manners	1	2	3	4	5	6	7	Yes	No
4. Refuses to eat food presented	1	2	3	4	5	6	7	Yes	No
5. Refuses to do chores when asked	1	2	3	4	5	6	7	Yes	No
6. Slow in getting ready for bed	1	2	3	4	5	6	7	Yes	No
7. Refuses to go to bed on time	1	2	3	4	5	6	7	Yes	No
8. Does not obey house rules on his own	1	2	3	4	5	6	7	Yes	No
9. Does not obey until threatened with punishment	1	2	3	4	5	6	7	Yes	No
10. Acts defiant when told to do something	1	2	3	4	5	6	7	Yes	No
11. Argues with parents about rules	1	2	3	4	5	6	7	Yes	No
12. Gets angry when doesn't get his own way	1	2	3	4	5	6	7	Yes	No
13. Has temper tantrums	1	2	3	4	5	6	7	Yes	No
14. Sasses adults	1	2	3	4	5	6	7	Yes	No
15. Whines	1	2	3	4	5	6	7	Yes	No
16. Cries easily	1	2	3	4	5	6	7	Yes	No
17. Yells or screams	1	2	3	4	5	6	7	Yes	No
18. Hits parents	1	2	3	4	5	6	7	Yes	No
19. Destroys toys and other objects	1	2	3	4	5	6	7	Yes	No
20. Is careless with toys and other objects	1	2	3	4	5	6	7	Yes	No
21. Steals	1	2	3	4	5	6	7	Yes	No
22. Lies	1	2	3	4	5	6	7	Yes	No
23. Teases or provokes other children	1	2	3	4	5	6	7	Yes	No
24. Verbally fights with friends his own age	1	2	3	4	5	6	7	Yes	No
25. Verbally fights with sisters and brothers	1	2	3	4	5	6	7	Yes	No
26. Physically fights with friends his own age	1	2	3	4	5	6	7	Yes	No
27. Physically fights with sisters and brothers	1	2	3	4	5	6	7	Yes	No
28. Constantly seeks attention	1	2	3	4	5	6	7	Yes	No
29. Interrupts	1	2	3	4	5	6	7	Yes	No
30. Is easily distracted	1	2	3	4	5	6	7	Yes	No
31. Has short attention span	1	2	3	4	5	6	7	Yes	No
32. Fails to finish tasks or projects	1	2	3	4	5	6	7	Yes	No
33. Has difficulty entertaining himself alone	1	2	3	4	5	6	7	Yes	No
34. Has difficulty concentrating on one thing	1	2	3	4	5	6	7	Yes	No
35. Is overactive or restless	1	2	3	4	5	6	7	Yes	No
36. Wets the bed	1	2	3	4	5	6	7	Yes	No

Intensity score _____ Problem score _____

	YES	NO	Questions or Comments
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			