

Winter 2011

Effectiveness of a Staff Modeling Procedure on Increasing Appropriate Interactions Between a Mother and Child With Behavior Problems

Mitchell D. Mast
mitchell.mast@gmail.com

Follow this and additional works at: http://opensiuc.lib.siu.edu/gs_rp

This version has been revised and re-submitted under a new # as I deleted the previous one.

Re: Vita, I have posted a vita which has all of the required fields from the template. It also covers research and experience I gained during my undergraduate career. I would like to keep this information in the current version of my Vita.

Recommended Citation

Mast, Mitchell D., "Effectiveness of a Staff Modeling Procedure on Increasing Appropriate Interactions Between a Mother and Child With Behavior Problems" (2011). *Research Papers*. Paper 180.

http://opensiuc.lib.siu.edu/gs_rp/180

This Article is brought to you for free and open access by the Graduate School at OpenSIUC. It has been accepted for inclusion in Research Papers by an authorized administrator of OpenSIUC. For more information, please contact opensiuc@lib.siu.edu.

EFFECTIVENESS OF STAFF MODELING ON INCREASING APPROPRIATE
INTERACTIONS BETWEEN A MOTHER AND A CHILD WITH BEHAVIOR
PROBLEMS

by

Mitchell Mast

B.A., University of Nevada, Reno, 2007

A Research Paper
Submitted in Partial Fulfillment of the Requirements for the
Master's of Science Degree

Rehabilitation Institute
Behavior Analysis and Therapy
Southern Illinois University Carbondale
August, 2011

RESEARCH PAPER APPROVAL

EFFECTIVENESS OF STAFF MODELING ON INCREASING APPROPRIATE
INTERACTIONS BETWEEN A MOTHER AND A CHILD WITH BEHAVIOR
PROBLEMS

By

Mitchell Devitt Mast

A Research Paper Submitted in Partial
Fulfillment of the Requirements
for the Degree of
Master's of Science
in the field of Behavior Analysis and Therapy

Approved by:

Dr. Brandon F. Greene

Graduate School
Southern Illinois University Carbondale
November 11, 2011

AN ABSTRACT OF THE RESEARCH PAPER OF

MITCHELL D. MAST, for the Master of Science degree in Behavior Analysis and Therapy, at Southern Illinois University Carbondale.

TITLE: EFFECTIVENESS OF STAFF MODELING ON INCREASING APPROPRIATE INTERACTIONS BETWEEN A MOTHER AND A CHILD WITH BEHAVIOR PROBLEMS

MAJOR PROFESSOR: Dr. Brandon Greene

The present study was an attempt to determine the effect of a training program on altering the frequency and type of verbal interactions exhibited by a parent of a child with behavior problems. Data on verbal interactions between a mother and her child was gathered using the Systematic Observation of Family Interactions, a partial interval system for recording verbal interactions that evaluates interactions as either positive or negative. On some days staff assumed the role of parent during the meal routine in order to demonstrate a more positive interaction style. A focus was placed on decreasing the amount of negative affect and verbal statements, while increasing positive verbal statements and positive affect. Although this procedure was effective at reducing statements with negative affect made by the mother, it was found to be less effective at reducing her negative verbal statements. On other days, a more intensive prompting/modeling procedure was implemented where both staff and parent shared the parenting role during the meal. The degree to which interactions learned during mealtime generalized to a period when the dyad discussed the child's day at school was then assessed. Additional training in the form of an after school discussion was conducted in order to provide a more appropriate way to debrief with the child after his school day.

DEDICATION

I dedicate this project to my mother. There is no way to express in writing how eternally grateful for her undying support and nurturance of my ability to believe that I can achieve whatever I set out to do. I also dedicate this project to the children and families I served as part of my graduate assistantship at Project 12 Ways.

ACKNOWLEDGMENTS

First, I would like to express my sincere gratitude to my advisor Dr. Brandon Greene for his knowledge, patience, and continuous support throughout my graduate career. His guidance helped to shape my behavior throughout the research and writing of this research paper.

I thank Mrs. Dana Harvey for her day-to-day oversight and support of this project. It was through her training and supervision I learned all that I know about working with children and families. I could not have asked for a more supportive supervisor.

I would also like to thank Ms. Nancy Peck for her continued friendship and support throughout this entire process, Thank you for listening to my difficulties and providing support and assistance at the most pivotal moments.

Finally, I would like to thank Project 12 Ways, including its staff and the families I had the pleasure of serving. I will forever look back fondly on the experience I gained from each person I came in to contact with during this time.

TABLE OF CONTENTS

ABSTRACT.....	i
DEDICATION.....	ii
ACKNOWLEDGMENTS.....	iii
LIST OF TABLES.....	vii
LIST OF FIGURES.....	viii
INTRODUCTION.....	1
Child Abuse and Neglect.....	1
Child Behavior Problems.....	3
Attention Deficit Hyperactivity Disorder.....	4
Diagnostic Criteria.....	5
Diagnostic concerns of ADHD.....	7
Treatment Concerns.....	8
Parental Stress.....	9
Judgments During Moments of Anger.....	14
Limitations of Self-Report Measures.....	17
The Coercive Cycle.....	18
Past Parent Training Programs.....	20
Patterson’s Social Learning Theory Approach.....	20
Parent-Child Interaction Therapy.....	22
Key Therapy Components.....	23
Individualized Services.....	24
Measuring Effectiveness.....	24

PCIT and Child Abuse.....	26
PCIT and Behavior Problems	30
Limitations to PCIT Research	33
METHOD	35
Participants	35
Setting.....	37
Materials.....	38
Behavior Definitions	38
Child Behaviors	38
Parent Behaviors.....	39
Routines.....	39
Meal	40
After School	40
Observation Procedures and Data Collection.....	40
Interobserver Agreement.....	41
Experimental Procedures.....	42
Meal Baseline.....	42
Meal Training.....	43
Alternating Interactions.....	44
Simultaneous Interactions	45
After School Baseline	45
After School Routine Training.....	46
Follow-Up	47
Experimental Design	48
RESULTS	49

Child Behaviors	49
Positive Verbal Statements	49
Negative Verbal Statements	50
Parent Behaviors.....	51
Positive Verbal Statements	51
Negative Verbal Statements	51
Negative Affect	53
Positive Affect.....	53
Routine Training.....	53
Meal Routine.....	54
After School Routine.....	55
DISCUSSION	56
Design.....	57
Follow-up	57
Unique Comparisons	58
Implications for ADHD Research	59
Comparisons to Parent-Child Interaction Therapy	60
Limitations.....	62
Future Research.....	64
Summary.....	65
REFERENCES	94
VITA.....	98

LIST OF TABLES

Table 1	Interobserver agreement scores by condition.....	69
Table 2	Mark's average positive verbal statements by condition.....	70
Table 3	Mark's average negative verbal statements by condition.....	71
Table 4	Kathy's average positive verbal statements by condition.....	72
Table 5	Kathy's average negative verbal statements by condition.....	73
Table 6	Kathy's average negative affect by condition.....	74

LIST OF FIGURES

Figure 1. Percentage of Intervals of Mark’s Positive and Negative Verbal Statements During the Baseline and “Alternating” Meal Routine Phases.....	75
Figure 2. Percentage of Intervals of Mark’s Positive and Negative Verbal Statements During the “Simultaneous” and Follow-Up Meal Routine Phases.....	76
Figure 3. Percentage of Intervals of Mark’s Positive and Negative Verbal Statements to His Mother During the After School Routine.....	77
Figure 4. Percentage of Intervals of Mark’s Negative Verbal Statements to His Mother and the Experimenter During the Baseline and “Alternating” Meal Routine Phases...	78
Figure 5. Percentage of Intervals of Mark’s Positive Verbal Statements to His Mother and the Experimenter During the Baseline and “Alternating” Meal Routine Phases.....	79
Figure 6. Percentage of Intervals of Kathy and the Experimenter’s Positive Verbal Statements During the “Simultaneous” and Follow-up Meal Routine Phases.....	80
Figure 7. Percentage of Intervals of Kathy’s Positive and Negative Verbal Statements during the After School Routine.....	81
Figure 8. Percentage of Intervals of Kathy and the Experimenter’s Negative Verbal Statements During the Meal Routine Baseline and “Alternating” Phases.....	82
Figure 9. Percentage of Intervals of Kathy and the Experimenter Negative verbal Statements During the Meal Routine “Simultaneous” and Follow-Up Phases.....	83
Figure 10. Percentage of Intervals of Kathy and the Experimenter’s Negative Affect During the Meal Routine Baseline and “Alternating” Phases.....	84
Figure 11. Percentage of Intervals of Kathy and the Experimenter’s Positive Affect During the Meal Routine Baseline and “Alternating” Phases.....	85

Figure 12. Percentage of Intervals of Kathy and the Experimenter Positive Affect During the Meal Routine “Simultaneous” and “Follow-Up” Phases.....	86
Figure 13. Percentage of Intervals of Kathy and the Experimenter’s Negative Affect During the Meal Routine “Simultaneous” and “Follow-Up” Phases.....	87
Figure 14. Percentage of Intervals of Kathy and the Experimenter’s Positive and Negative Affect During the After School Routine.....	88
Figure 15. A Comparison of the Percentage of Intervals of Kathy and Mark’s Negative Verbal Statements During the Meal Routine Baseline and “Alternating” Treatment Phases.....	89
Figure 16. Percentage of Intervals of Mark’s Positive and Negative Verbal Statements That Occurred When He Was Interacting With His Mother.....	90
Figure 17. Percentage of Intervals of Mark’s Positive and Negative Verbal Statements That Occurred When He Was Interacting With the Experimenter.....	91
Figure 18. Percentage of the Meal Routine Steps Kathy Completed Independently.....	92
Figure 19. Percentage of the After School Routine Steps Kathy Completed Independently.....	93

INTRODUCTION

Child Abuse and Neglect

In 2006 nearly 3.6 million children were involved in a Child Protective Services investigation or assessment (U.S. Department of Health and Human Services, 2006). Of the children investigated, almost one quarter, or 905,000, were found to be victims of abuse or neglect (U.S. Department of Health and Human Services, 2006).

The type and severity of maltreatment varied considerably. Nationally, 64% of victims experienced neglect, 16% experienced physical abuse, 8.8% experienced sexual abuse, and 6.6% experienced emotional or psychological maltreatment. The U.S. Department of Health and Human services reported that an estimated 1,530 children died as a result of abuse or neglect (U.S. Department of Health and Human Services, 2006).

While individual states may differ in their definitions of child maltreatment, one nationally accepted definition includes “any recent act or failure to act on the part of a caretaker that results in death, serious physical or emotional harm, sexual abuse or exploitation; or an act or failure to act which presents an imminent risk of serious harm.” (U.S. Department of Health and Human Services, 2006). A report is “substantiated” if credible evidence is found that a child has experienced either abuse or some other form of maltreatment.

In the state of Illinois alone, reports of child abuse comprised 8.2% of all indicated reports of child maltreatment (Illinois Child Abuse Neglect Statistics, 2008). Due to the fact that a report must be classified by a specific allegation code (e.g. #11 cuts, welts, and bruises), the actual number of children who experienced some form of physical abuse is most likely much higher. Physical abuse may also be involved in

allegations that do not specifically indicate the occurrence of child abuse, such as those labeled as “risk of harm” or “blatant disregard”. A report in which a child is determined to be “at risk of harm” may have involved abuse, however, this was not what brought the family to DCFS involvement. This makes determining the actual prevalence of abuse at both a national and state level much more difficult. National and state data indicate that children of specific ages, nationalities, or ability levels may be at a higher risk of maltreatment. In the state of Illinois, the highest rate of victimization (42.5 out of every 1000) involved children less than one year of age (Illinois Child Abuse Neglect Statistics, 2008). While the likelihood of being a victim of child abuse or neglect declines from infancy, 25.2 out of every 1000 adolescents between the ages 10-13 were victims of abuse, or other form of maltreatment (Illinois Child Abuse Neglect Statistics, 2008).

One measure of the success of child welfare agencies addressing the problem of child maltreatment is a demonstrated reduction in the number of children who are re-victimized. For those involved in addressing the problem of child maltreatment this presents a particular challenge. Statistics indicate that children who were victims of some form of maltreatment were 96% more likely to experience some additional form of maltreatment (U.S. Department of Health and Human Services, 2006). These statistics highlight the need for effective programs that end the child maltreatment cycle. Despite increasing numbers of parents receiving services for child maltreatment, research demonstrating the effectiveness of such interventions is scarce. In order to design effective interventions it is important that the problem of child maltreatment be properly understood.

There are several environmental factors that increase the risk of child abuse. Some of the main parental risk factors include parental stress, belief in corporal punishment, and psychological factors such as depression (Crouch & Behl, 2001; Lempers, Clark-Lempers, Simmons, 1989; Patterson, 1976; Rodriguez & Green, 1997)

Child maltreatment continues to be a problem on both a national and state level. In order for this problem to be effectively addressed, it is crucial that professionals develop parent-training programs that are effective at reducing re-victimization rates. A discussion of some of information and research evaluating individual risk factors as well as existing parent-training programs will potentially lead to a better understanding of the problem as a whole.

Child Behavior Problems

Nationally, 13% of all child victims had a disability (e.g. physical, behavioral, or emotional challenges). It is highly probable that “children with such risk factors are undercounted” (U.S. Department of Health and Human Services, 2006). Reasons for this include the fact that not every child received a clinical assessment, and some of those reported had more than one disability.

Children who exhibit behavior problems or are otherwise labeled as “challenging” or “difficult” may be at an increased risk for child maltreatment (Kurz, Chin, Rush, & Dixon, 2008). Most children exhibit behaviors that are challenging for their parents (e.g. tantruming). The type, duration, and frequency of challenging behaviors vary widely among children. When these behaviors occur frequently, for extended periods of time, and in conjunction with other environmental risk factors such as parental stress, the risk of child maltreatment increases (Matos, Baurmeister, & Bernal, 2009; Timmer, Urquiza,

Zebell, & McGrath, 2005; Wilson, Rack, Shi, & Norris, 2008). These findings suggest that it is important to evaluate the way child's behavior and other environmental factors influence the risk of child maltreatment.

Attention Deficit Hyperactivity Disorder

While all children will exhibit challenging behaviors at one time or another, specific behavior problems (e.g. aggression, hyperactivity, impulsiveness) may result in the child receiving a diagnosis of some form of behavior disorder. Attention Deficit Hyperactivity Disorder (ADHD) is one of the most commonly diagnosed childhood disorders (NIMH, 2008). Research indicates that 3-5% of children in the United States are diagnosed as having ADHD, with boys being diagnosed at a higher rate than girls (NIMH, 2008).

Children diagnosed as having ADHD often exhibit impulsiveness, over-activity, and difficulty sustaining attention. These behaviors comprise the three main categories in which behaviors characteristic of ADHD are classified: hyperactivity, inattention, and impulsiveness. A child who exhibits behaviors falling in the hyperactivity category may include a child who has problems sitting still and being quiet. Behaviors typically classified as inattention include a child who is easily distracted, has difficulty focusing, loses things, and has trouble with instructions. Behaviors characteristic of impulsivity include children who are impatient and have difficulty controlling their emotions and behavior (NIMH, 2008). As of yet, no direct causes of ADHD are known, but genetics, exposure to toxins, and environmental variables are all potential explanations (NIMH, 2008). Accurately diagnosing ADHD can be difficult for several reasons. Characteristic behaviors differ from person to person, and all children exhibit some of the behaviors at

some time in their lives (NIMH, 2008). For example, children under the age of 2 years old typically have difficulty sustaining attention.

Diagnostic Criteria

Specific behaviors typical of children diagnosed as having ADHD generally fall in to broad categories that include differing degrees of hyperactivity, impulsivity, and inattention. Behaviors may be observed at home or at school. The DSM IV-TR states the criteria for ADHD as:

A. Either 1 or 2

Inattention

1. Six (or more) of the following behaviors: inattention has persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:
 - a) Often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
 - b) Often has difficulty sustaining attention in tasks or play activities
 - c) Often does not seem to listen when spoken to directly
 - d) Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)
 - e) Often has difficulty organizing tasks and activities
 - f) Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)

- g) Often loses things necessary for tasks or activities (eg, toys, school assignments, pencils, books, or tools)
- h) Is often easily distracted by extraneous stimuli
- i) Is often forgetful in daily activities

2. Six (or more) of the following behaviors of hyperactivity-impulsivity: has persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity

- a) Often fidgets with hands or feet or squirms in seat
- b) Often leaves seat in classroom or in other situations in which remaining seated is expected
- c) Often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
- d) Often has difficulty playing or engaging in leisure activities quietly
- e) Is often "on the go" or often acts as if "driven by a motor"
- f) Often talks excessively

Impulsivity

- g) Often blurts out answers before questions have been completed
- h) Often has difficulty awaiting turn
- i) Often interrupts or intrudes on others (eg, butts into conversations or games)

Additional diagnostic criteria:

- B. Some hyperactive-impulsive or inattentive behaviors that caused impairment were present before 7 years of age.
- C. Some impairment from the behaviors are present in 2 or more settings (e.g., at school or at home).
- D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.
- E. The behavior does not occur exclusively during the course of a pervasive developmental disorder, schizophrenia, or other psychotic disorder and are not better accounted for by another mental disorder (e.g. mood disorder, anxiety disorder, dissociative disorder, or personality disorder). (NIMH, 2008)

Diagnostic concerns of ADHD

One concern regarding the diagnosis of ADHD is that there currently are no true diagnostic tests. The disorder can only be diagnosed by inference on the basis of behavioral observations and assessments and/or the reports of adults. Assessment techniques may involve rating scales, which are filled out by a variety of professionals (e.g. pediatrician, teachers, psychiatrist, etc.), in a variety of settings (e.g. home, school). While guidelines for diagnosing ADHD have been established, some have raised questions regarding whether physicians follow these guidelines in practice (Issacs, 2006). Children who meet only some of the criteria may be diagnosed as having ADHD. A physician's decision to make a diagnosis may also be affected by the desire of parents to obtain such a diagnosis in order to acquire medication that may control their child's behavior. Evidence of this phenomenon is visible in the fact that stimulant medications

are often prescribed after the first visit to the doctor. This brings about questions regarding which types of treatments are necessary in order to address the behaviors (Issacs, 2006).

Treatment Concerns

A number of stimulant medications have been developed in an attempt to control the behaviors of ADHD. The main effect of stimulant medications is increased attention. However, this effect is observed both in children with and without a diagnosis of ADHD (Issacs, 2006). Stimulant medications are also being used to address behaviors typically associate with ADHD in increasingly younger children. Connor (2002) states that there has been “a three-fold rise in prescription rates specifically for stimulants in [preschool aged children] since 1990” (p. 1). Due to the fact that the DSM IV-R requires that some behaviors be present at an early age (7 years old), children may be evaluated and prescribed stimulant medications early in their development. Although many stimulant medications have been approved for use with children as young as 3, long term effects are not known. Concerns about the safety of such medications for young children still exist (Connor, 2002).

Stimulant medications do not address the environmental aspects that contribute to the disorder. After an extensive review, a National Institute of Mental Health (NIMH) report concluded that a combination of behavior therapy and stimulant medications achieved better outcomes than stimulant medication alone (NIMH, 2008).

Environmental factors are often de-emphasized when evaluating whether stimulant medications are an appropriate solution. Diller (1998) states that labels such as “disorder” or “troublemaker” have an effect on future negative behavior. Children who

are less engaged in the classroom or at home are more likely to exhibit behaviors typical of ADHD. A closer evaluation of the environment may reveal additional contributing factors such as large class sizes and other distractions. These factors may in part be responsible for the observed inattention/hyperactivity. Features of the home environment, such as inconsistent parenting practices or lack of appropriate attention, may also have an effect on behavior attributed to ADHD. By targeting the environmental factors that maintain these behaviors it may be possible to make more lasting changes that have a positive impact the lives of everyone in the family.

The behaviors typical of ADHD (e.g. noncompliance) place children with the disorder at a higher risk for maltreatment. However, it is important to note that is not merely the behavior of children alone that places them at a higher risk. These behaviors, combined with additional environmental risk factors, increase the risk a child may experience some form of maltreatment. An evaluation of some of the most prevalent risk factors and research in those areas will provide a more complete picture of the environments in which children are at increased risk of maltreatment. Once the environmental factors contributing to child maltreatment are identified, it becomes easier to design effective interventions.

Parental Stress

Many researchers have attempted to evaluate the role that parental stress plays in the increased potential for child maltreatment. Previous research has highlighted mediating variables such as the expression of anger, socio-economic factors, and belief in corporal punishment.

Rodriguez and Green (1997) described two studies that provide an account of the role of stress and anger as predictors of child abuse. Dependent measures included parents' scores on several self-report measures. Such measures included the Child Abuse Potential Inventory (CAPI), Parenting Stress Index (PSI), and the State-Trait Anger Expression Inventory (STAXI). The CAPI has frequently been used in studies that seek to evaluate relationships among different characteristics of child abusers (Rodriguez & Green, 1997; Crouch & Behl, 2001, McElroy & Rodriguez, 2008). The Parenting Stress Index (PSI) surveys answers to a variety of different questions in order to identify stressful areas in their lives. The PSI uses a combination of child traits (e.g. hyperactivity), and parent traits (e.g. depression). The State Trait Anger Expression Inventory (STAXI) assesses anger on several different dimensions. Parents use a 4-point Likert scale to rate the extent with which a particular statement applies to them. There are two main portions to this assessment. The state anger scale provides information about the intensity of anger as an emotional state at a particular time. The trait anger scale provides information about how frequently parents experience anger. Expression of anger is further broken down into two components. Anger Expression-Out includes anger expressed towards other people or objects. Anger Expression-In includes anger that is held in, or suppressed (Rodriguez & Green, 1997). Both studies evaluated the anger expression score in their analysis. It was believed that in addition to previously demonstrated interactions between stress and child abuse potential, anger expression would prove to be an important mediating variable.

Participants in the first study were enrolled in an introductory psychology class. Those parents who had more than one child were asked to answer the questions for “the

child they were most concerned about” (Rodriguez & Green, 1997). Instructions and individual items from the various measures were presented on a computer screen. Responses were not displayed on the computer screen in order to ensure privacy. Participants in the second study voluntarily responded to notices sent from their child’s school. The procedures of the second study were identical to that of the first.

The outcomes of both studies yielded similar results. Statistical analyses revealed significant correlations between PSI scores and child abuse potential scores (CAPI). Significant correlations were also found between anger expression scores (STAXI) and potential for child abuse scores (CAPI). These studies add to previous research (e.g. Dix, Reinhold, & Zambarano, 1990; Mammen, Kolko, Pilkonis, 2002; Baker, Heller, & Henker, 2000) by demonstrating relationships that exist between stress and child abuse potential. These studies highlight the expression of anger as a mediating variable.

Limitations to the generality of these findings are based on the participants’ education level and socioeconomic status. That is, participants in the first study were recruited through their participation in an introductory college level psychology class. While they were classified in a lower income bracket it is believed that after they completed school they would have a higher income. For this reason, income was not an accurate representation of their socioeconomic status. Another potential confounding variable is the impact of stress unrelated to parenting. No attempt to evaluate the extent to which stress outside the role of parenting was made. It is possible that parents enrolled in higher education may experience stress unrelated to their parenting role.

Crouch and Behl (2001) examined relationships between parental belief in corporal punishment and potential for child abuse. A variety of self-report measures

were used. Standardized measures included the Adult-Adolescent Parenting Inventory (AAPI) Belief in Corporal Punishment scale, Parenting Stress Index (PSI), and the Child Abuse Potential Inventory (CAPI). The AAPI is a questionnaire that consists of four separate scales that assess parenting beliefs as well as expectations related to parenting. The AAPI Belief in Corporal Punishment scale is a self-report measure that consists of ten items developed to assess parent's beliefs about corporal punishment (Crouch & Behl, 2001).

A total of 41 participants from both general (N = 25) and at-risk populations (N = 16) completed the three self-report measures in a counterbalanced order. The three scales were presented to "general population" as well as "at-risk parents". At-risk parents were paid \$10 for their participation in the study.

Results confirmed that a significant relationship between parental stress level and potential for child abuse. In addition, relationships were also found among stress, belief in corporal punishment and child abuse potential. For parents who expressed a belief in corporal punishment and reported a high stress level, higher child abuse potential scores were observed (Crouch & Behl, 2001). The authors hypothesize that "the link between stress and physical child abuse potential may be moderated by the parents' belief in the value of corporal punishment" (p. 417).

The relatively small sample size (N=41) and homogeneity of parents (i.e. Caucasian female) are limitations to the generality of these findings. Although the parents from both general and at-risk populations were included, small sample sizes make it impossible to conduct separate analyses. Direct observation of parental behavior was also not included. Studies involving self-report of measures of stress may be limited for

several reasons. While the research typically focuses on parental behavior, stress may also affect others in the home. Some of the indirect effects include increases in inconsistent and coercive parenting. It is possible that this exacerbates children's challenging behaviors, resulting in reliance on increasingly coercive methods of child management by the parent. When attempting to account for environmental conditions that increase the potential for child abuse, it is clear that many individual and family variables must be considered. Some of the research aimed at parsing out additional important variables will now be discussed.

Lempers, Clark-Lempers, & Simmons (1989) evaluated direct and indirect effects of stress by examining times of economic stress in mid-western agricultural areas. Specifically, they analyzed the extent to which the consequences of stress resulted in changes in parenting practices. Participants included 622 high school students. Stress was assessed using the Economic Hardship Questionnaire. Items focused on changes in family lifestyle, such as becoming a one-car family (instead of two-car family) as well as changes in employment (e.g. both parents working, or one parent working two jobs). Although the measures do not provide an exact measure of financial hardship, they were used because they are indicative of the indirect effects of economic distress. The Parenting Scale was used to evaluate parenting practices. This was accomplished by sampling the teen's perceptions of how their parents had treated them within the past 6 months. Twenty-nine questions were used in an attempt to operationalize the concepts of nurturance, monitoring, and consistency of discipline practices. A measure of each child's distress was assessed using 4 different questionnaires, including the Beck

Depression Inventory, Loneliness Questionnaire, Delinquency Questionnaire, and Drug Use Questionnaire.

Results indicated that the economic hardship experienced by families was associated with measures of student distress. Economic hardship was also correlated with a decrease in parental nurturance as well as increases in inconsistent parenting practices. Although it is difficult to determine a cause-effect relationship among these factors it is clear that they appear to be interrelated. This research suggests that as anticipated, economic hardship has additional negative effects on the parent-child relationship.

In addition to the limitations of self-report measures, the current research is limited by its exclusive use of a single measure of the effects of economic hardship. Also, due to the fact that student's attitudes were only sampled once, the effects of long-term economic hardship are unclear. This research provides a broad view of the indirect effects of parental stress. Information regarding specific situations in which parents experience high stress may help in understanding how these situations increase the potential that negative parent-child interactions will occur.

Judgments During Moments of Anger

In addition to mediating variables such as those previously mentioned, a parents emotional state may also play a role in an increased potential for child maltreatment.

Dix, Reinhold, and Zambarano (1990) examined the relation between anger and mothers' judgments of children and socialization. They hypothesized that "moods bias the cognitive processes which parenting requires and, in particular, that negative moods make parental judgments of children more negative" (p. 466). Participants included 48

mothers of children from 6-8 years old. The study evaluated the impact of the mothers' mood on judgments of their children and unknown children.

The authors present a model of "discipline-related cognition" that involves four specific aspects of information processing. The first aspect they discuss is that parents enter into discipline related situations with expectations about how the interactions will proceed. It is understood that "negative expectations are associated with negative judgments of children" (Dix, Reinhold, Zambarano, 1990). Another aspect of the model includes that parents will attribute a cause to their children's noncompliance. This generally falls into one of two broad categories: intentional (e.g. stubbornness) and unintentional. Previous research has demonstrated that parents report "stronger negative affect and stronger preferences for forceful discipline" if they believe that children are able to control their behavior, but instead choose not to (Dix, et al., 1989). If parents believe that their children are to blame for their negative behavior this will lead to negative affect and the belief that more coercive parenting practices are appropriate. The final aspect is that parents must decide the extent to which they display their disapproval for the child's noncompliance. Given this model, it was hypothesized that anger negatively biases all of the aspects of information processing involved in discipline situations. The authors also tested this model in situations in which children's behavior was more ambiguous.

Mothers participating in the study were asked to fill out a mood rating survey every 1-2 hours while at home. This survey was designed to identify specific target moods (e.g. happy, neutral, angry). If their responses indicated that their mood met the criteria (e.g. was of appropriate intensity) for one of the target moods, the mothers

watched 3-videotaped segments of an unfamiliar child. Each segment was identical in that it involved a parent making a request of their child. Two versions of each videotape were made: noncompliance and ambiguous. The two versions were identical except that the noncompliance tapes showed the child's noncompliance (e.g. walking away) and the ambiguous tapes ended before the demand was completed. Mothers were assigned to either a noncompliance or ambiguous condition and watched only the corresponding videotaped segments.

Dependent variables included the mothers' responses to a series of questions after watching the videotapes. Mothers from both conditions (i.e. ambiguous and non-compliance) responded to 5 questions that asked them to rate their responses on a 7-point rating scale. Three of the ratings assessed expectations: Mothers' expectations of the child's behavior (e.g. will they do what was asked?), tone (e.g. how pleasant will the next parent-child interactions be?), and difficulty (e.g. how difficult will it be to get the child to comply?). An additional question asked mothers about the child's "disposition to resist parental influence". The final question targeted the mothers' expectations of the amount of sternness required to get the child to comply. Mothers in the non-compliance condition were asked to respond to 2 additional questions. The additional questions required mothers to select the adjectives (e.g. lazy) which best characterized the noncompliant child.

After completing the ratings of the videotaped segments, the mothers were asked to complete a number of ratings of their own children. Questions were grouped into 3 specific types. Three of the questions asked about the seriousness of common problems. Mothers were asked to rate the extent to which each had been a problem during the

previous 3-4 months. Mothers then rated how well they thought their children would respond in 3 target situations (Ex. “will the child complain or argue if told he/she cannot do something?”). The third set of questions asked mothers to rate how much their children possessed specific personality dispositions (e.g. stubbornness).

The final task required the mothers to answer another series of questions about their current mood, its cause, and intensity. At three different times: when they felt happy, angry and “neutral” (i.e. neither happy nor angry).

Affect was assessed by asking, “As a parent, how upset would you be with this child for ...”. Results indicated that anger did in fact alter mother’s expectations after watching the videotaped segments. Compared with mothers in neutral moods, angry mothers expected future interactions to be more unpleasant, blamed their children more and chose more derogatory traits to describe the child. Angry mothers also reported that they would be more upset with the child. Anger also appeared to affect mothers’ judgment of their own children. This research demonstrates that anger altered mothers’ perceptions of the severity of their child’s problem behaviors. It extends previous research by assessing mothers in the context in which they are experiencing anger.

It is possible that mothers misrepresented their answers on the initial questions aimed at determining their mood. It is also possible that mothers’ awareness of their current mood influenced their answers on subsequent self-report measures.

Limitations of Self-Report Measures

Research in the area of parent-child interactions that does not include measurement of such interactions should be interpreted cautiously. Self-report measures are limited in that they rely on one specific conceptualization of the construct being

studied. This has been demonstrated to be problematic when evaluating constructs such as stress (Rodriguez & Green, 1997). As previously mentioned, the construct of stress can be highly specific to an individual. Therefore, a questionnaire may not accurately capture information about stress as an individual experiences it. It is also important to consider the fact that responses to a questionnaire do not represent a direct measure of the constructs they are intended to measure.

Another limitation common to all of these studies is that parents may alter their responses so they meet socially desired perceptions of parenting practices. Parents in at-risk populations may feel they will encounter further problems for responding truthfully. Another common problem with results obtained from self-report measures is that they are only gathered a small number of times. This does not allow researchers to gather information that may represent a more dynamic view of situational factors that influence risk. Despite these limitations, research involving self-report measures is effective at describing general conditions in which the risk of child abuse is increased. Direct observation of parenting behavior is needed to add support findings of self-report measures. Direct observation of behavior is integral in developing effective interventions that end the coercive cycle.

The Coercive Cycle

Research regarding the cyclical nature of coercive parenting practices highlights the interrelatedness of factors that increase the chance that child abuse may occur. Patterson (1976, 1982) presents a hypothesis regarding how oppositional behaviors develop as a result of the contingencies surrounding the child's noncompliance. Specifically, if a child is presented with an aversive stimulus (parental demands, yelling,

etc.) the child may respond by not complying with the parental demands or by presenting his/her own aversive reaction, such as a tantrum. If tantruming results in the termination of the aversive stimulus (e.g. the parent ceases the demand), the tantrum will be negatively reinforced by removal of that stimulus. However, if the tantruming does not immediately result in removal of the demand, the child's behavior may escalate in intensity and/or the parent's coercions may intensify (more yelling, threats, etc.). The "winner" of this power struggle may vary with each episode, thereby intermittently reinforcing the behavior of both parties. If the child eventually complies with the demand, yelling by the parents may be positively reinforced by that compliance. The parent may believe that the coercive reactions to noncompliance were necessary. The child's tantruming behavior may also be positively reinforced either by escaping the demands and or by the attention it receives from parents (Patterson, 1976; Patterson, 1982).

For coercive parents, children's behavior problems such as non-compliance often result in negative parent-child interactions. This becomes especially problematic when negative affect (e.g. yelling) occurs frequently and at high intensity. As previously discussed, biases in mothers' perceptions during moments of anger promote negative conceptions of the child and increase the probability that negative interactions will result. Inconsistent parenting practices and negative parent-child interactions may also contribute to problem behavior exhibited by the child. This both reinforces the parent's negative perceptions of the child and reinforces the belief in corporal punishment for future misbehavior. It is clear that relationships between individual risk factors interact to both sustain and contribute to negative parent-child interactions, increasing potential

that child abuse will occur. A determination of exactly how such risk factors interact is difficult, due to the fact that responses to self-report measures are frequently the only data analyzed. A discussion of some of the limitations inherent in self-report measures highlights the need for objective measurement of dependent variables.

Past Parent Training Programs

To date, a variety of parent training programs have been developed to address the problem of child maltreatment. Training programs range from seminars and counseling to direct intervention on specific parenting behaviors that place children at risk.

Patterson's Social Learning Theory Approach

Patterson (1975) describes a behavioral training procedure that addresses problematic parent-child interactions. Patterson approached family problems as negative child behaviors (e.g. whining, stealing, etc.) that are brought about and maintained by the social environment, particularly those established by the parents (Patterson, 1975). Parent-child dyads are the primary focus for intervention.

The initial part of Patterson's approach involves assessments of family interactions. Assessment and intervention generally occur within a clinical setting. In-home observations were generally not conducted due to the observation that interventions conducted within the clinic were effective for 80% of the families served. Accommodations, including in-home family observations, were made for families when deemed necessary. Daily phone calls were used to track family progress and address parents' questions and concerns. For the first part of assessment, parents meet with the therapist to determine problem areas. Teaching parents the specific language and concepts of behavioral observation is a main focus of pre-intervention efforts. A

programmed text that explains key elements of observing and recording behavior is used to ensure parents understanding of basic behavioral concepts. Parents are tested on this material to ensure their comprehension. Examples of operational definitions of behavior and recording are practiced in the clinic. Parents practice recording therapist behaviors while at the clinic.

On the second visit the parents bring the child with them. During this visit, the parents are asked to define two pro-social (e.g. doing the dishes) and two deviant behaviors (e.g. lying) the child exhibits. The therapist and the family establish a behavioral contract, which includes daily observation of the behaviors of interest for a specific amount of time. Children are told how they may earn points for engaging in the pro-social behaviors chosen. Children select backup reinforcers that are made contingent upon earning points for good behavior. During intervention, parents are taught child management skills. The therapist models key aspects of providing pro-social reinforcers (i.e. establishing eye contact, labeling the behavior, and using an enthusiastic voice). Parents also role-play ways to consequence negative behaviors. Specifically, they are instructed in the effective use of time out. Weekly behavior contracts served as the focus for intervention targets. Daily phone calls allowed the therapist to track family progress and address any concerns. Intervention typically lasted 8 weeks. The main objective of Patterson's approach was to improve family interactions while reducing or eliminating the child's negative behaviors.

Limitations to Patterson's approach include the extent that behaviors learned in one setting (i.e. clinic) generalize to other settings. Additionally, the extents to which negative behaviors are replaced by increases in positive interactions are unknown.

Parent-Child Interaction Therapy

Parent-child interaction therapy (PCIT) takes a similar approach to that of Patterson. Specifically, this is accomplished by focusing on providing parents with strategies to manage their child's behavior appropriately. Therapists use an "ear bug" to coach parents through interactions with their children. The goal of PCIT is to increase positive interactions between parents and children while providing parents with more effective parenting strategies. Like Patterson's approach, training is conducted in a clinical setting. Parents are given opportunities to practice new skills while receiving immediate feedback and error correction from therapists. Therapists provide social reinforcement to parents, who in turn act as behavior change agents for their children. One of the main strengths of PCIT is that it addresses negative parent-child interactions that contribute to the disruptive behavior of children (Bell & Eyeberg, 2002). As previously mentioned, children who exhibit behavior problems are often given labels such as defiant, negative, or difficult. These labels may contribute to negative perceptions of the child by the parent that increase the chances for negative interactions to occur (Dix, Reinhold, & Zambarano, 1990). One important outcome reported in PCIT literature is that increases in positive parent-child interactions generally result in reductions of problem behavior. To the extent that changes observed in a clinical setting are maintained over time and generalize across other settings (e.g. school), the likelihood that the child will exhibit negative behaviors that cause them to be labeled "difficult" will be reduced. A review of key therapy components will help to highlight the differences between PCIT and other traditional approaches to assessing parent-child interactions.

Key Therapy Components

Parent-child interaction therapy utilizes two distinct phases to treatment. Both treatment phases are conducted in a clinical setting. All training sessions generally involve the target child and one parent. The focus of the first phase is on increasing positive parent-child interactions. This phase involves Child-Directed Interactions (CDI). The parent is taught to follow the child's lead. A therapist instructs the parent in the use of a combination of positive reinforcement and other skills such as demonstrating in what the child is doing and active listening. Parents are instructed to avoid criticisms or negative statements such as "no" or "stop". They are instead required to focus on using positive directions (e.g. "do this"). In addition to coached sessions, homework is given to parents in which they must practice newly acquired skills. When the parent's skill level meets the previously identified criteria the second phase of treatment begins (Bell & Eyeberg, 2002; Child Welfare Information Gateway, 2007).

In the second phase of PCIT, therapists focus on establishing a more appropriate approach to discipline. As with CDI, training occurs in a clinical setting with the child and one parent present. This phase involves Parent-Directed Interactions (PDI) in which parents are taught to give clear commands and implement consistent consequences for both desirable and undesirable behavior. Therapists instruct parents to use specific praise for compliance behavior (e.g. Nice work putting your plate in the sink). Parents are taught to consistently implement a time-out procedure for noncompliance. If a child fails to comply with a parental command, the parent warns the child that they will be placed in time out. Following this warning, the child is taken to a time-out chair for additional noncompliance. If the child is noncompliant on the time-out chair they receive one

warning, and then are taken to a time out room. In the clinic this is done in a dedicated time-out room. Parents are instructed to decide on a time-out space within the family home for use during home practice. After remaining in the time-out room for a specified amount of time, the child is placed back on the time-out chair. This procedure is continued until the child meets the contingencies for being allowed off the time-out chair.

Therapists use the same methods for coaching parents through skills learned in both CDI and PDI training (Bell & Eyeberg, 2002; Child Welfare Information Gateway, 2007).

Individualized Services

The structure of PCIT allows therapists to adapt training to meet parent's specific needs. If assessment reveals that a parent gives a lot of instructions during a playtime, for example, the therapist may direct the content of sessions to target this area during intervention.

Measuring Effectiveness

The first way in which family progress is measured is through the observation and coding of parent-child interactions. The Dyadic Parent-Child Interaction Coding System-II (DPICS-II) is used to assess the quality of parent-child social interactions (Eyeberg & Robinson, 2000). In addition to providing an observational measure of parent-child behaviors, the DPICS-II serves as a baseline for pre-treatment assessment as well as a measure of ongoing progress during treatment, and treatment outcomes. The DPICS-II measures interactions during one of three 5-minute training situations (i.e. CDI, PDI, and clean-up) that vary in the degree of parental control required. Behaviors coded include both parent-child verbalizations (e.g. question, command) and physical behaviors (e.g., positive and negative touch). The DPICS-II is used to code sequences of behavior.

These sequences may be helpful to therapists in revealing antecedents and consequences of child behavior. For example, a sequence of interactions involving several negative statements made by the parent that results in noncompliance by the child provides specific information regarding where to focus therapy efforts. (Eyeberg & Robinson, 2000)

The Eyeberg Child Behavior Inventory (ECBI) is a 36-item parent report scale that highlights conduct problems in children age 2-16. The Intensity Scale measures the frequency of current behavior problems, and the Problem Scale measures the extent to which the child's behavior is a problem for the parent. (Eyeberg & Pincus, 1999; Eyeberg & Robinson, 2000)

In addition to recording interactions on the DPICS-II for a five-minute segment at the beginning of each session, parents complete the ECBI each session. One problem with PCIT research is there are no universally accepted criteria for progressing through training phases. Most commonly, reductions in parents' ratings of child behavior problems as well as specific behavioral criteria (e.g. 7 or more labeled praise within a 5 minute segment) are used as a measure of therapy progress.

Parent-child interaction therapy has been demonstrated to be effective with many different populations such as children with prenatal drug exposure, older children, and Mexican American families. Clinical demonstrations have revealed that PCIT is effective for families with a history of child abuse (Borrego, Urquiza, Rasmussen, & Zebell, 1999, Chaffin et al., 2004; Timmer, Urquiza, Zebell, & McGrath, 2005). The focus on functional alternatives to negative parenting behaviors makes PCIT especially appropriate in situations where physical abuse occurs in the context of child discipline.

As previously discussed, abusive parents frequently interact with their children in negative ways, employ inconsistent and ineffective discipline strategies, and rely heavily on coercive punishments (Dix, Reinhold, & Zambarano, 1990). Negative child behaviors and coercive parenting practices increase the potential that physical abuse will occur. Outcomes of PCIT include increases in positive parent-child interactions (Bell & Eyeberg, 2009; Chaffin et al., 2004; Borrego, Urquiza, Rasmussen, & Zebell, 1999), reductions in stress (Timmer, Urquiza, Zebell, & McGrath, 2005), decreases in problem behavior (Brinkmeyer & Eyeberg, 2003) and reductions in corporal punishment (Chaffin et al., 2004). It is important to note that these changes were observed in a clinical setting. The extent to which the behaviors acquired within this setting are maintained over time and generalize to new settings is generally not evaluated.

PCIT and Child Abuse

Chaffin et al., (2004) provides a preliminary demonstration of the effectiveness of PCIT at reducing future reports of physical abuse. A total of 110 parent-child dyads were assigned randomly to one of three conditions. All of the participants had multiple past child welfare reports, including severe abuse. Parents were referred for participation in the study after a confirmed report of physical abuse was made. Additionally, all parents were low-income, and had previously experienced high levels of stress, depression, and other problems such as substance abuse. The authors used 3 intervention conditions, which included PCIT, Enhanced PCIT (EPICT), and a standard community based treatment. Parent-Child Interaction Therapy (PCIT) training was consistent with previous demonstrations. Enhanced PCIT included additional specialized community services (e.g. cognitive therapy). After all initial baseline measures were gathered; the

participants were randomly assigned to one of the 3 treatment conditions. Data included a combination of self-report measures as well as direct observation. All data was collected within a clinical setting. The Child Abuse Potential Inventory (CAPI), Child Neglect Inventory (CNI), Abuse Dimension Inventory (ADI), and the Dyadic Parent-Child Interaction Coding System (DPICS-II) were the primary instruments used to evaluate behavior change. All training began with a “motivational enhancement module” that consisted of material (e.g. information, testimonial, etc.) designed to motivate parents to fully participate in services. For parents in the PCIT and EPICT groups, Child Directed Interaction (CDI) was trained next. Therapists focused on teaching parents skills that promote positive parent-child interactions. All sessions were clinic based, and included only parent-child dyads. During CDI training parents were coached to ignore minor child misbehavior, to provide specific praise, to withhold sarcasm and other negative behaviors. During PDI training parents learned positive child management techniques. A time-out procedure introduced during this phase. In addition to time-out, therapists instructed parents on the use of several “backup strategies” (e.g. behavior charts and loss of special privileges) in order to prevent non-compliance with time-out. This training occurred in all areas of the clinic (e.g. hallways, waiting rooms, etc.)

There were several features of this study that differed from previous PCIT research. Perhaps the most notable is that parents involved in training did not share the same motivation for change as parents who voluntarily become involved in training. Another unique feature of this research, is that parent, not child, change was the main focus. This allowed researchers to extend the age range of children to include adolescents. The training protocol was adapted accordingly in order to accommodate

older children. Activity choices during CDI were altered to match the interests of adolescents, and wider range of discipline strategies was taught to parents.

In the Enhanced PCIT (EPCIT) training was identical to the PCIT group. Parents in this group were provided with additional services to address specific family problems (e.g. depression or substance abuse). One of the main targets of the EPICT group was psychiatric treatment for depression. Depression was typically chosen because previous research has demonstrated that parental depression has been found to be “a major risk factor predicting the onset of physically abusive behavior” (Chaffin, 1996; Chaffin et al., 2004). Parents in the EPIC group attended an average of 9.3 additional service sessions. Eighty percent of parents who received BDI scores of 19 or more were provided with antidepressant medication.

The standardized community group was conducted at a community based nonprofit agency, which had previously offered a parenting program for many years. The training program consists of 3 modules targeting many different aspects of parenting. The first model a was 6-session orientation group which focused on listening skills, the influence of parenting practices on children, and the way in which parents’ own upbringing influences their parenting choices. The second module was 12 sessions and targeted behavior management, stress management and communication. The third module consisted of 12 sessions of anger management training.

All PCIT sessions took place at a local training center. Each parent training condition took approximately six months to complete. Several methods were used to insure treatment integrity. Supervisors observing behind one-way mirrors completed

session checklists. Independent observers also coded a random sample of videotapes (10%), to insure adherence to therapy protocols.

Follow-up data for future reports of child maltreatment was assessed. All reports were manually checked to insure that the perpetrator involved was a study participant. Any report that did not involve a study participant was ruled out. Reports made by study service providers were also ruled out. A total of 37 parents involved in the study had additional reports of abuse subsequent to training. An examination of recurrence by treatment condition indicated that 19% of participants in the PCIT condition, 36% of participants in the EPICT condition, and 49% of participants in the community group had future reports of physical abuse. Due to the fact that some reports were ruled out, it is difficult to know the effectiveness of each condition. Although reports not involving the parent as a perpetrator were thrown out, this may indicate a failure of the parent to protect their child from harm. Additionally, service providers have frequent contact with the families they serve. It is unknown how many reports were ruled out due to the fact that a service provider made them. Finally, it is not known if the parents had additional reports of abuse that did not involve the child targeted in this study. For these reasons follow-up data should be interpreted cautiously.

Several possible mediating variables were assessed. Changes in depression scores on the Beck Depression Inventory (BDI) were measured at post treatment. Among parents who indicated a moderate to severe level of depression prior to treatment, a reduction in BDI scores was observed across all treatment groups. Statistical analyses indicated however, that reduction in depression scores were not associated with decreases in future physical abuse reports. Mediation by changes in parent-child interactions was

conducted by collapsing interaction data in to two main categories: positive and negative parent-child interactions. Parents in the PCIT and EPICT group showed reductions in negative interactions during training sessions. The community group showed no change in this area as compared with baseline measures. Changes in the amount of positive parent-child interactions were not found in any of the three groups. One particularly interesting effect observed was that the EPCIT condition was not found to be superior to standard PCIT when comparing future abuse reports. The quality and content of additional services provided in the “enhanced” condition were not controlled. It is possible these additional services may have provided conflicting information regarding parent-child problems.

These findings are significant for several reasons. Results are consistent with previous studies that describe relationships between negative interactions and potential for physical abuse. This study extends previous research by providing an effective demonstration of a therapy designed to address negative parenting practices. It also provides a demonstration of the effectiveness of PCIT with older (age 8-12) children. The effects were also obtained with low-income households where depression and past substance abuse problems were prevalent.

PCIT and Behavior Problems

PCIT has also been demonstrated to be effective at reducing behavior problems, many of which are identified as behaviors typical of ADHD. This includes increases in compliance, reductions in inattention and hyperactivity, aggression, and other conduct problems (e.g., Eisenstadt, Eyeberg, McNeil, Newcomb, & Funderburk, 1993; Matos, Baurmeister & Bernal, 2009). Matros, Baurmesiter & Bernal (2009) evaluated the

effectiveness of PCIT for Puerto Rican preschool children with ADHD and other behavior problems. Children targeted had either previously been diagnosed as having ADHD, or exhibited characteristic behaviors. Those who exhibited only “inattentive” behaviors were excluded, as this is typical of preschool aged children. Those children who were already receiving treatment for ADHD were also not included in the study. Thirty-two families were selected for inclusion in the study. Families were randomly assigned to either a PCIT or wait-list condition.

Once it was determined that children met the requirements for inclusion, families were observed during three different interaction situations (CDI, PDI, and clean up). The information collected was used as pretreatment data. Additional information gathered at pre-treatment and at follow-up included type and severity of ADHD and ODD behaviors, child receptive vocabulary, adaptive functioning, parenting practices, and depression. Following pre-treatment assessment, all parents attended a 2 session educational workshop regarding various aspects of ADHD and behavior problems. Treatment consisted of weekly PCIT sessions that lasted 90 minutes. All training sessions were conducted in a clinic. PCIT training sessions progressed in the typical order (i.e. CDI then PDI). Training sessions consisted of a combination of instruction, modeling, and role-plays. Individual services were provided to each family by a therapist and a co-therapist. All sessions were videotaped in order to allow for individual supervision on a weekly basis. Therapists used a combination of instruction, modeling, and role-playing to facilitate skill acquisition. Parents were also instructed to practice skills outside of scheduled sessions. Parents received a maximum of 8 CDI and 9 PDI training sessions. Treatment integrity was assessed to ensure that the training parents received was

consistent with standard PCIT protocols. Treatment integrity was assessed for 20% of all sessions, and was 98% across all sessions.

Mastery criteria were based on demonstration of skills during scheduled observations. “CDI phase typically ended when parents could attain 7-10 behavioral descriptions, reflections, and labeled praises and three or less commands, questions, and criticisms during a 5 minute coding interval” (p. 241). PDI skills were considered mastered when direct commands and follow-through after commands occurred for 75% of one 5-minute coding interval. In addition to behavioral goals for each phase of PCIT training, a number of other self-report measures were used as dependent variables. Self-report measures included the Eyeberg Child Behavior Inventory (ECBI), Family Experiences Inventory (FEI), Parental Practices Inventory (PPI), Beck Depression Inventory (BDI), Therapy Attitude Inventory (TAI), and the Treatment Evaluation Scale (TES). These measures assessed a variety of participant factors such as stress (EFI and BDI), parenting practices (PPI), and consumer satisfaction (TAI and TES).

The Eyeberg Child Behavior Inventory (ECBI) was used as an outcome measure for frequency and intensity of child behavior problems. Following completion of PCIT, parents reported decreases both in the frequency and number of child behavior problems. Additionally, decreases in measures of stress and inattention were reported. Parents reported increases in positive parenting practices. The proportion of children that were classified within the “normative” range on measures of hyperactivity, aggression, and other behavior problems ranged from 50-75 (mean 62.5) percent. A 3.5 month follow-up revealed that 35-70% (mean 55%) of cases maintained clinically significant changes.

Results suggest that PCIT is an effective behavioral treatment for families of children with ADHD or other behavioral problems (e.g. ODD, CD). This study was also effective for younger children. If behavior problems can be effectively addressed at a young age, it may reduce the risk that such children will encounter additional social and educational difficulties. Another important part of this research was that target children were not taking stimulant medication. It is possible that behavioral treatments such as PCIT provide an effective alternative to pharmacological treatments.

Limitations to PCIT Research

There are several limitations to current research on PCIT. First, PCIT is most frequently conducted in clinical settings. As previously mentioned, it is unclear how skills acquired within the context of a clinical setting generalize to the home and other community settings. Restricting therapy to parent-child dyads also may not approximate the natural environment for families with multiple parents and children. The generality of treatment gains to situations in which additional children and caregivers are present is currently unknown. Little is known about specific treatment doses needed to produce clinically significant effects. Specific criteria for progressing through individual treatment phases are also unknown. Many of the research studies evaluating PCIT have used a variety of mastery criterion. Some studies required parents to engage in specific behaviors for a percentage of intervals and some required a discrete number of specific behaviors. In order to compare outcomes it is important that the criteria used for mastery of specific intervention targets be comparable.

The present research represents an attempt to evaluate a comprehensive behavioral treatment package aimed at preventing further risk of harm to the children in

one family. Direct behavioral observation techniques similar to those described in PCIT were used to address negative interactions that had previously resulted in situations that presented a risk of abuse. A main focus was increasing positive parent-child interactions. This was accomplished through parent training and modeling of specific interaction components. Sessions were conducted within the family home, and occurred during times where parent-child interactions occurred frequently.

METHOD

Participants

Participants in the current study included Kathy, a 37-year-old mother, and her 13-year-old adopted son, Mark. Kathy and her husband Keith adopted Mark when he was 2 years old. According to Kathy, Mark's biological mother reportedly had abused controlled substances (e.g. prescription medications) while pregnant with him, and he had been born premature. Other family members in the home included Mark's aunt, and three cousins. The family lived in a small town in Southern Illinois.

After graduating high school Kathy had been briefly employed at a local retirement home washing clothes. At the time of this study Kathy was not employed. Kathy received state funding through the Illinois Child Care Research and Referral (CCR&R) program to provide after school care for all of the children in the home. This program provides assistance to families that meet specific guidelines (i.e. income, number of children, age of children). Money is provided to families to help pay for childcare. If there is a friend or relative who is able to care for the children he/she is eligible to receive state funding through CCR&R to provide childcare. Keith was employed full-time at a local auto-body repair shop at the time of the study. Keith consistently put in additional time at work, which resulted in him not being home for the majority of the time the children were out of school.

In interviews with Project 12-Ways staff, Kathy did not report being a victim of abuse or neglect when she was a child. Kathy did report that her mother would smack her in the face when she was a child. Kathy stated that she had a sister living in the area that she visited frequently. However, Kathy reported that she did not have any additional

social supports in her within 15 miles of her home. Kathy's mother was deceased and she reported no contact with her father or stepfather.

In 2008 Kathy was arrested on criminal charges of domestic battery as a result of a report made by Mark's teacher. A counselor had questioned Mark when he came to school with a bruise on the right side of his face. Mark admitted that Kathy had physically abused him the previous day. Department of Children and Family Services records indicated that Kathy had physically abused Mark while attempting to reprimand him for inappropriate behavior at school. Following this incident Mark was briefly removed from the home in order to protect his own safety. Kathy was charged criminally and arrested by local police. Kathy was allowed to return home with the specification that she would have no unsupervised contact with Mark. Criminal charges were dropped when Kathy agreed to participate with Department of Child and Family Services. Kathy's DCFS caseworker stipulated that she complete intensive in-home training with Project 12-Ways.

According to Department of Child and Family Services (DCFS) records, Mark experienced developmental delays. At age 11 Mark was given an evaluation for special education services. Results of this evaluation indicated that Mark had learning disabilities. Mark was enrolled in special education classes at his school. Kathy reported that in addition to developmental delays, Mark exhibited challenging behaviors while at home and school. Kathy stated that she believed Mark's behavior to be a major limiting factor in his ability to participate in other community activities (e.g. Boy Scouts and sports). This resulted in little socialization outside the home for both Kathy and Mark. At age 12 Mark became physically aggressive with one of his school peers. As a result of

this incident as well as a history of disruptive and challenging behaviors at school, Mark was required to leave the regular classroom and was then enrolled full-time at a local “special education school”.

Kathy reported that Mark’s challenging behaviors worsened once he was enrolled at the special education school. Kathy took Mark to be evaluated for possible behavior disorders. Mark was diagnosed with Attention Deficit Hyperactive Disorder (ADHD), and began taking stimulant medication to control his behavior. Mark was first given Ritalin. Kathy reported that Ritalin was not effective at controlling Mark’s behavior. Mark was then prescribed Adderall. Specifically, Mark was given 5 mg of Adderall in the morning and 10 mg after school. At Kathy’s request Mark’s dosage of Adderall was increased from to 15 mg in the morning, 20 mg after school, and an additional 15 mg before bed. Kathy reported that this dosage of Adderall had positive effects on Mark’s defiance and negative attitude. During the course of services, the medication used to address Mark’s behavior problems changed from Adderall to Concerta. Medication changes were made based on Kathy’s reports that current medications and dosages were no longer effective at controlling his behavior. At the time services concluded, Mark received 27 mg of Concerta extended release in the morning and 27 mg in the afternoon.

Setting

All services were provided at the family residence in a rural mid-western town. Sessions typically took place in the family dining room, kitchen, and living room. Training sessions were conducted once a week and lasted between 60 and 90 minutes. The experimenter conducted all sessions with support from additional Project 12-Ways staff.

Materials

Materials used included a Palm Pilot programmed with Observe software, and a 3X3" stimulus prompt card. One side of the stimulus prompt card was red, and the other was green.

Behavior Definitions

Selection of intervention targets and strategies was based on a careful review of the family's DCFS case file, discussion with the family's caseworker, parental responses on standardized measures, and direct observation of family interactions. Informal observations confirmed that Mark engaged in a high degree of self-injurious and disruptive behaviors. Additionally, Kathy was observed to engage in a high degree of coercive interactions with Mark.

Accordingly, a variety of behaviors reflecting parent-child interactions were targeted and measured using a system a system developed for this purpose. Specifically the Systematic Observation of Family Interactions (SOFI) was used (Grskovich, 1994). SOFI is a partial-interval recording system used by Project 12-Ways staff to assess family interactions on a number of different dimensions. These dimensions include verbalizations, affect, touch, and child management.

Child Behaviors

Positive Verbal. Any statement, comment, question or other vocal noises made by Mark, which do not qualify as a negative verbal statement. This typically included general statements or requests regarding current or future activities.

Negative Verbal. Statements, comments, questions and other vocal noises made by Mark that contain negative affect, negative content, or negative behavioral references.

This typically included, but was not limited to verbal defiance, yelling, screaming, arguing, and whining.

Parent Behaviors

Positive Verbal. Any statement, comment, question or other vocal noises made by Kathy, which do not qualify as a negative verbal statement. This typically included responses to statements made by Mark about his day or initiations such as comments or questions regarding his day.

Negative Verbal. Statements, comments, questions and other vocal noises made by Kathy that contain negative affect, negative content, or negative behavioral references. This typically included, but was not limited to, teasing, yelling, arguing, or complaining about Mark's behavior

Positive Affect. Modulation in the Kathy's voice indicative of a positive or calm emotion and contains none of the attributes of negative affect.

Negative Affect. Modulation in Kathy's voice indicative of negative emotion. This included, but was not limited to, yelling, screaming, and teasing.

Routines

In addition to family interactions, specific behaviors comprising a meal and after school routine were targeted. Many of the behaviors targeted during routines were parent-child interactions (e.g. affect). Each of the parent-child interactions targeted was given a specific numeric value. Additional behaviors were targeted within the meal and after school routines, providing a loose structure for each routine.

Meal

Ratio of Verbal Interactions: A criteria of 4:1 (positive:negative) verbal statements (as defined above).

Affect: A criteria of 98% positive affect (as defined above).

After School

Ratio of Verbal Interactions: A criteria of 4:1 (positive:negative) verbal statements (as defined above).

Affect: A criteria of 98% positive affect (as defined above).

Observation Procedures and Data Collection

Observation and data collection procedures were consistent with those developed for the SOFI protocol. The recording form consisted of rows containing behavioral observation codes for the parent and child behaviors listed above. Each row represented a 10 second interval. An audiotape was used which indicated the beginning of each consecutive interval. Ten-second observation intervals are followed by 10-second recording intervals during which staff codes the occurrence of the specific behaviors listed. If a target behavior occurred at any time during the interval, the behavior was recorded on the corresponding column for that row. Staff record both the nature of what family members say to one another (verbal content), as well as the manner in which it is said (affect). SOFI allows for comparison of family interactions before, during, and after intervention. Pre-assessment data allow for a determination of the specific content areas that should be addressed during training.

Observers collected data in the family's home between the hours of 3:00 p.m. and 6:00 p.m. one day a week. Typically, sessions were conducted on the same day of the

week unless scheduling or other family obligations presented conflicts. Parent-child interactions were recorded during the meal and after school routines. These routines were chosen because they were times when Kathy reported that she had the most problems with Mark.

Interobserver Agreement

All observers were graduate assistants studying Behavior Analysis and Therapy at Southern Illinois University at Carbondale. A total of four observers participated in collecting data. Two observers were designated as secondary data collectors. The data they collected was used in combination with data collected by the experimenter to represent the target behaviors. All secondary observers' data was used as reliability checks on interobserver agreement with the experimenter. During situations in which the experimenter was directly interacting with the participants, the secondary observers independently recorded data on family interactions and routines. During these times, reliability checks on interobserver agreement included data from both secondary observers.

Observer training was consistent with Project 12 Ways procedures. Prior to being exposed to in-situ data collection, observers watched several five-minute video taped segments of a range of family interactions. Both the experimenter and secondary observers independently recorded interaction data using methods consistent with SOFI data collection procedures. A criterion of 80% agreement with the experimenter for each target behavior was used. For behaviors that occurred infrequently (1 or 2 times within a five minute video segment), a criterion of 50% reliability was used. Observers were

required to meet this mastery criterion for two independent families prior to in-situ observation of family interactions.

Interobserver agreement was calculated for each child and caretaker target behavior during each phase of the after school and meal routines. Interobserver agreement was collected during 100% of all after school routines and 79% of all meal routines. Interobserver agreement was calculated by dividing the number of agreements by the number of agreements plus the number of disagreements and multiplied by 100%. An agreement was scored when two observers independently recorded that the same behavior during the same interval. A disagreement occurred when one observer recorded that a behavior occurred in an interval and the second observer did not record that the behavior occurred within that interval. Interobserver scores are represented in Table 1.

Experimental Procedures

Generally, behaviors targeted in both routines included (a) providing more structure to each routine, (b) providing ample amounts of positive attention contingent upon appropriate behavior, (c) limiting demands, (d) ignoring mild inappropriate behavior, (e) redirecting Mark to appropriate topics of conversation, (f) refraining from negative behavior references, (g) maintaining a positive tone of voice.

Meal Baseline

During the meal routine baseline, observers stood or sat approximately 4 to 5 feet away from Kathy and Mark. The experimenter informed Kathy that there were no expectations for either her or Mark during this time. The number of children at home varied from session to session. The experimenter did not provide specific instructions to the other children in the home. During some meals Mark's cousins joined him and Kathy

at the table. On other occasions only Kathy and Mark were present. Meal routine data collection began when both Kathy and Mark were present at the table. Data collection continued until Mark had completed his meal, and brought his plate to the sink. Duration of meals varied from 20 to 60 minutes, depending on conversation topics and Mark's interest in post-meal activities.

Prior to intervention Kathy's meal routine was observed to consist of: (a) Kathy prepping the family's dinner before Mark arrive home from school, (b) Kathy giving Mark his Ritalin pill as he arrived home from school, (c) Kathy bringing Mark his plate of food, (d) Kathy demanding that Mark finish his entire plate, (e) minimal interactions between Kathy and Mark, (f) Kathy teasing Mark about his behavior at home or at school, (g) Mark becoming upset and engaging in inappropriate behavior, (h) Kathy reprimanding Mark for his behavior. Mark was allowed to leave the table to go play only after finishing every bite of his dinner.

Meal Training

Baseline observations indicated that training was needed during the meal routine. Targets for this routine would involve specific steps determined to be "critical" (e.g. family members sit at the table together) as well as additional interaction components (e.g. 100% positive affect). Prior to training, Kathy and the experimenter met to discuss the meal routine. Kathy was given a verbal description and rationale for each step in the meal routine. The experimenter also created a "parent friendly" list of each routine step. During training the experimenter verbally prompted Kathy to complete meal routine steps that she did not complete independently. If a verbal prompt was not effective, the experimenter modeled completion of that specific step.

Examples of positive interaction strategies and role-plays of potentially challenging interactions were covered at this time. Strategies aimed at increasing positive interactions were stressed. Specific interaction strategies included: (a) Kathy responding to Mark's comments and questions, (b) Kathy initiating topics of conversation, (c) Kathy engaging Mark in specific tasks (e.g. meal preparation) when appropriate.

Alternating Interactions

Parent-child interaction training was structured to allow the experimenter and Kathy to alternately assume the role of "parent" with Mark. The experimenter modeled interactions that were consistent with those chosen as interaction targets (e.g. positive verbalizations and affect). The experimenter also modeled positive child management strategies when appropriate. Child management during the meal routine was limited to ignoring inappropriate behaviors (e.g. whining) and redirecting the conversation to appropriate topics when necessary.

When training began Kathy and the experimenter alternately managed 5-minute segments of the meal routine. Kathy and the experimenter alternated in this fashion for the duration of the meal routine. No specific time limit was imposed. Meals ranged in duration from 20 to 60 minutes. A red stimulus prompt card was placed on the table to indicate to Kathy that it was her turn to observe the experimenter's model. The experimenter sat across the table from Kathy so that she could clearly see the stimulus card. The stimulus card was used instead of a strict 5-minute observation interval because it allowed for a more natural flow of conversation. The experimenter placed the card on the table so that it was visible to Kathy, signaling that it was the experimenter's

turn to interact with Mark. Both Kathy's and the experimenter's interactions with Mark were recorded on the SOFI data sheet. The experimenter and at least one additional Project 12-Ways staff member was present during all routines.

Simultaneous Interactions

During initial training of the meal routine, it was determined that alternately assuming control of interactions may not have been the most effective method of training parent-child interactions. The decision to modify the "alternating" training procedure was made on 3/5/09, when it was apparent that Kathy continued to attend to the Mark's negative verbalizations. Specifically, the way meal interactions were structured (i.e. alternately assuming the role of "parent") was modified to allow Kathy and the experimenter to interact with Mark simultaneously. All interaction components and intervention targets were the same as those used in the previous training phase.

A criterion of 3 meals during which Kathy independently completed 100% of the interaction steps outlined on the task analysis was established for reducing the experimenter's role in the meal routine. The experimenter's role in the meal routine was gradually faded out, to evaluate Kathy's ability to integrate the parent-child interaction training in to increasingly larger portions of the routine.

After School Baseline

During the after school routine baseline the experimenter and one additional Project 12 Ways staff member accompanied Kathy when she picked up Mark from school. The experimenter informed Kathy that there were no expectations for either her or Mark during this time. When Mark entered the car, he presented his behavior note for that particular day. His behavior note served as the primary subject matter for the

after school routine. After school routine data collection began when both Kathy initiated the discussion of Mark's day at school. Data collection continued the topic of conversation changed to something other than Mark's school day. SOFI was used to record parent-child interactions during the after school routine.

Prior to intervention Kathy's after school routine was observed to consist of: (a) Kathy waiting in her car for Mark to be released from school, (b) Mark handing Kathy his behavior note for the day, (c) Kathy reprimanding mark for any negative behavior at school that day, (d) Kathy reminding Mark of previous instances of negative behavior at school, (e) Mark arguing with Kathy about his behavior at school, (f) Kathy becoming upset with Mark for arguing with her about his behavior at school.

After School Routine Training

Many of the parent-child interaction targets were the same as those targeted in meal routine training. In addition to interactions targeted in the meal routine, the after school routine was specifically structured to include: (a) a discussion of positive behavior Mark exhibited at school, (b) a discussion of what Mark could have done better at school, (c) a plan for how to increase future instances of positive behavior, (d) allowing sufficient time for Mark to discuss his school day. Training on the after school routine began when Kathy successfully completed all meal routine steps independently for 3 consecutive observations.

Targets for this routine included specific steps determined to be "critical" (e.g. making a plan of how to increase positive behavior) as well as additional interaction components (e.g. 100% positive affect). Prior to training, the experimenter provided Kathy with a verbal description and rationale for each step in the after school routine.

Data was collected on the number of behaviors Kathy completed on the task analysis, as well as parent-child interactions. Steps on the After School routine addressed both the content and quality of Kathy's interactions with Mark during this routine. Specifically, Kathy was required to discuss both positive (e.g. "what was good about today?") and negative (e.g. "what could have been better?") aspects of Mark's day. This discussion resulted in both Kathy and Mark developing a plan regarding how Mark would behave the next day at school in order to continue to improve his behavior at school. During training the experimenter verbally prompted Kathy to complete all routine steps that were not completed independently. If a verbal prompt was not effective, the experimenter modeled completion of that specific step. Due to the relatively short duration of the after school routine, the experimenter modeled completion of specific routine steps only when Kathy was not able to complete a step independently.

The after school routine was later modified to allow Kathy to discuss with Mark about his behavior on days when he was not in school. On these days, Kathy initiated a discussion of Mark's behavior at the same time each day. The discussion continued until both Kathy and Mark were satisfied.

Follow-Up

Observations were conducted on Kathy's management of the Meal and After School routines beginning one week after she met mastery criteria. Kathy was informed that she would be observed implementing the routine, and that no instructions or additional assistance would be given. No specific feedback was given during follow-up observations.

Experimental Design

The intervention was assessed using a multiple baseline across routines design. A multiple baseline design is beneficial when it is difficult or impossible to reverse the effects of training (Cooper, Heron, Heward, 2007). It also allowed for a comparison of the extent that parent-child interaction training conducted during one routine generalized to additional routines.

Training elements included modeling of positive interaction strategies, verbal feedback following routine completion, and visual feedback depicting progress towards training goals. Both the experimenter and Kathy alternately assumed control of parent-child interactions during the meal routine. This resulted in Mark being exposed to the experimenter and Kathy's management of the meal routine. Training on the After School routine did not begin until Kathy met the established criteria for the Meal routine. Parent-child interaction behaviors targeted during the meal routine (i.e. focus on pro-social behaviors, pleasant affect, and absence of negative physical interactions) were the primary focus of the after school routine. Parent-child interactions during the after school routine were managed entirely by Kathy.

RESULTS

This study assessed differences in parent-child interactions during after-school and meal routines (prior and subsequent to training). During training the experimenter modeled parent-child interactions by participating in the routines. Specific intervention targets included the content (verbal statements), and quality (affect), of parent-child interactions. Data was also collected on experimenter-child interactions for comparison. Additional parent behaviors were included as routine steps. A task analysis was used for training and data collection during each routine.

Child Behaviors

Figures 1-4 show data on Mark's behaviors during the after-school and meal routines. Overall Mark's verbal interactions with both his mother and the experimenter improved as a result of parent-child interaction training.

Positive Verbal Statements

Prior to training Mark made positive verbal statements during an average of 71% of meal routine intervals, with a range of 62%-73% (see Figure 1). When "alternating" training was initiated, Mark's positive verbal statements to his mother increased to an average of 82%, with a range of 45%-100%. Comparatively, Mark exhibited an average of 87% positive verbal statements when interacting with the experimenter (range 33%-100%). When "simultaneous" training was initiated, the amount positive verbal statements made by Mark decreased slightly to an average 77% with a range of 57%-91% (see Figure 2). At follow-up Mark's positive verbal statements were consistent with all other training phases with a range of 78%-87%.

Before training began, Mark made very few positive verbal statements during the after school routine (see figure 3). During baseline Mark's positive verbal statements occurred during an average of 35% of intervals (range 0%-60%). Although Mark's behavior was not targeted during the after school routine, he made significantly more positive verbal statements. During training of the after school routine Mark made positive verbal statements during an average of 90% of intervals (range 71%-100%). At follow-up, Mark made positive verbal statements during 100% of routine intervals.

Negative Verbal Statements

Prior to training Mark made negative verbal statements during an average of 10% of meal intervals (see Figure 4). During "alternating" training Mark's negative verbal statements occurred during an average of 10% of meal intervals. The amount of negative verbal interactions between Kathy and Mark varied during "alternating" training. During "simultaneous" training the amount of negative verbal statements made by Mark decreased to an average of 6% (see Figure 2). Mark did not make any negative verbal statements during follow-up.

Before training on the after school routine was initiated Mark made a relatively high amount of negative verbal statements (see Figure 4). Although average percentage of intervals was relatively low (8%), the ratio of positive to negative verbal statements was relatively high. On one occasion the ratio of positive to negative verbal statements Mark made was 3:1. After training began Mark's negative verbal statements significantly decreased to an average of 3%. As previously mentioned, the amount of positive verbal statements Mark made increased significantly resulting in an average ratio

of 10:1, positive to negative verbal statements. Mark did not make any negative verbal statements during follow-up

Parent Behaviors

Figures 5-16 show data on Kathy's verbal interactions and performance on the after-school and meal routines. Overall Kathy's verbal interactions improved as a result of parent-child interaction training. Decreases in negative interactions were maintained while the experimenter's presence was faded.

Positive Verbal Statements

Prior to training Kathy was observed to make relatively few positive verbal statements during the meal routine (see Figure 5). During "alternating" training Kathy made positive verbal statements during an average of 63% meal routine intervals, with a range of 44%-93%. During "simultaneous" training Kathy made positive verbal statements during an average of 57% of intervals, with a range of 24%-74% (see Figure 6). At follow-up the Kathy made positive verbal statements during 68% of meal routine intervals.

Prior to training Kathy made positive verbal statements during an average of 46% of after school routine intervals, with a range of 0%-60% (see Figure 7). Kathy's positive verbal statements increased significantly during training, to an average of 89% with a range of 68%-100%. At follow-up Kathy made positive verbal statements during an average of 83% of after school routine intervals (range 67%-100%).

Negative Verbal Statements

Kathy's negative verbal interactions with Mark were one of the main targets for parent-child interaction training. Prior to training Kathy made negative verbal statements

during an average of 25% of meal routine intervals (see Figure 8). The ratio of positive to negative verbal statements Kathy made during the meal routine was very low (4:3). During “alternating” training Kathy’s negative verbal statements decreased to an average of 14% of intervals, with a range of 4%-23%. The ratio of positive to negative verbal statements was higher overall during this training phase. However, Kathy was unable to consistently meet the criteria of 4:1 positive to negative verbal statements during “alternating” training. During “simultaneous” training Kathy made significantly fewer negative verbal statements (see Figure 9). She made negative verbal statements during an average of 4% of meal routine intervals during “simultaneous” training, with a range of 0%-8%. Kathy consistently met the established criteria of 4:1 positive to negative verbal statements. The average amount of negative verbal statements Kathy made remained low, 3% at follow-up (range 0%-6%).

Before training was initiated Kathy made negative verbal statements during an average of 23% of after school routine intervals (see Figure 7). The ratio of positive to negative verbal statements Kathy made was very low. On one occasion the ratio of positive to negative verbal statements was 1:1. Kathy’s negative verbal statements decreased significantly, to an average of 6% during after school routine training. The ratio of positive to negative verbal statements increased drastically during training on the after school routine. The ratio of positive to negative verbal statements was consistently higher than 4:1 during training. At follow-up Kathy made negative verbal statements during an average of 9% of intervals, with a range of 0%-16%.

Negative Affect

Prior to training Kathy exhibited high amounts of negative affect during the meal routine (see Figure 10). Prior to training, Kathy exhibited negative affect towards Mark on an average of 9% of meal routine intervals, with a range of 4%-17%. Kathy's negative affect decreased to an average of 4% during "alternating" training, with a range of 0%-17%. Comparatively, during "simultaneous" training Kathy did not exhibit any negative affect (see Figure 13). Negative affect remained at 0% during follow-up.

Kathy did not exhibit negative affect at any time during after school routine baseline, training, or follow-up (see Figure 14).

Positive Affect

Prior to training, Kathy exhibited positive affect during an average of 91% of the meal routine. During "alternating" training Kathy exhibited positive affect during an average of 96% of meal routine intervals (See Figure 11). Kathy exhibited positive affect during 100% of "alternating" training. Positive affect was maintained at 100% during follow-up (See Figure 12). Data on the experimenter's affect is provided as a comparison.

Kathy exhibited positive affect at during 100% of the after school routine baseline, training, or follow-up (see Figure 14).

Routine Training

In addition to focusing on parent-child interactions, routines co-created by Kathy and the experimenter helped to add structure to the after school and meal routines. Routines consisted of a task analysis co-created by Kathy and the experimenter. Kathy's

score for each routine was determined by dividing the total number of steps she completed independently by the total number of steps included in the routine.

Meal Routine

Many of the behaviors targeted during the meal routine involved parent child interactions. Prior to intervention, Kathy completed an average of 69% of meal routine steps independently (see Figure 18). During “alternating training Kathy’s performance was highly variable. Kathy completed an average of 56% (range 25-100%) of steps during this training phase. As previously mentioned, Kathy met the established criteria of 4:1 positive to negative verbal statements on 8 of 14 occasions. Kathy met the established criteria of 98% positive affect on 7 of 14 occasions. Kathy’s performance during the “simultaneous” training procedure was much more consistent. During this phase of training she completed an average of 92% (range 80-100%) of meal routine steps. During “simultaneous” training, Kathy met the criteria for the ratio of positive to negative verbal statements on 100% of meals. Kathy also met the criteria for affect on 100% of meals. Kathy initially met the criteria for meal routine training on 4/16/09. The proportion of the meal managed by the experimenter was reduced from 50% to 30% beginning 4/23/09. After Kathy successfully managed an additional 3 meal routines the proportion of the meal managed by the experimenter was reduced to 10% on 5/38/09. The experimenter’s role was eliminated from the meal routine on 6/25/09, when Kathy’s performance was maintained for another 3 consecutive meals. During follow-up observations continued to independently complete 100% of meal routine steps.

After School Routine

The after school routine provided an additional setting for Kathy to demonstrate the parent-child interaction skills she acquired during meal routine training. Prior to training Kathy completed an average of 60% of after school routine steps independently (see Figure 19). After training was initiated, Kathy quickly demonstrated the ability to manage the after school routine independently. Kathy independently completed 100% of after school routine steps on her third opportunity. During training Kathy completed an average of 88% of after school routine steps independently. During follow-up, Kathy's performance was maintained at 100%.

DISCUSSION

The present research examined a comprehensive behavioral treatment package aimed at preventing further risk of harm to the child of a family at risk for dissolution. The treatment package included routine management and modeling positive parent-child interactions, and feedback. A task analysis was developed for routine training. Kathy and the experimenter cooperated to develop each family routine trained. These routines served as a positive way to structure daily activities and promote positive interactions. Verbal feedback was provided after each routine was completed. Graphs depicting progress toward individual family goals were used as a form of visual feedback. The child included in this study had previously exhibited challenging behaviors at home and at school, and had an ADHD diagnosis.

This study demonstrated that modeling positive parent-child interaction strategies within the context of daily routines was effective at both increasing positive interactions, and reducing negative interactions. This was accomplished by having the parent and experimenter co-manage a meal routine. Training initially occurred in an “alternating” fashion. This required the parent and experimenter to alternately assume control of roughly 5-minute intervals throughout the routine. When not actively participating in the routine, the parent was instructed to observe the experimenter, who modeled appropriate parent-child interactions. The experimenter modeled strategies for increasing positive conversation by providing differential reinforcement for appropriate child behavior during the routine (e.g. appropriate conversation). Although this method of training was effective at increasing positive parent-child interactions, negative parent-child interactions remained variable. The training procedure was altered to allow the parent and

experimenter to interact simultaneously during the meal routine. This allowed the experimenter to limit negative parent-child interactions by modeling positive interaction strategies during particularly stressful portions of the routine. The “simultaneous” method of parent training was found to be successful at further reducing negative interactions, while maintaining consistently high proportions of positive interactions.

Design

The treatment package was implemented in a multiple baseline across routines design. A multiple baseline design is beneficial when it is impossible to reverse the effects of training. This design also allowed for a determination of the extent that parent-child interactions targeted during one routine would generalize to an untrained routine (Cooper, Heron, & Heward, 2007). Parent-child interactions were measured during both routines concurrently.

Follow-up

Kathy’s ability to consistently implement parent-child interactions was assessed as the experimenter’s presence was gradually faded. Once the criterion for the meal routine was reached, the experimenter’s role was gradually faded. This allowed Kathy to demonstrate positive parent-child interactions during increasingly larger portions of the routine. Follow-up assessments for the meal routine were made after the experimenter’s presence had been completely faded. These assessments were conducted once a week for two weeks after training was complete. Kathy’s ability to complete all of the meal routine steps remained consistently high (see figure 1). Kathy’s positive verbal statements and positive affect remained consistently high (see figures 9 & 12). Additionally, her negative verbal statements and negative affect remained consistently low (see figures 10

& 12). Similarly, Marks positive verbal statements remained consistently high, while negative verbal statements remained consistently low (see figure 11). Follow-up assessments for the after school routine were also conducted once a week for two weeks after training was complete. Kathy successfully completed all of the after school routine steps independently during follow-up (see figure 13). Although higher than pretreatment levels, Kathy's positive verbal statements decreased slightly during the second week of follow-up observations (see figure 15). This was also associated with an increase in negative verbal statements. Due to a lack of follow-up data, it is unclear whether hear interactions during the after school routine stabilized. Kathy's positive affect remained consistently high throughout follow-up observations (see figure 16). Additionally, Mark's positive verbal statements remained consistently high, while negative verbal statements were absent throughout follow-up observations (see figure 14).

Unique Comparisons

One particularly unique aspect of the study was that the experimenter participated directly in a portion of the meal routine. As previously mentioned, this required the presence of additional independent observers so data could be gathered on the experimenter and participant's interactions throughout the routine. This data is helpful because it can be used as a comparison, representing a standard for parent-child interactions. Although there was no direct attempt to explore relationships of the interactions between the experimenter and research participants a few trends were anecdotally observed and explored graphically in this paper. One relationship that was explored involved potential relationships the quality and content of interactions between Mark and his mother. In order to insure a more direct relationship data was summarized

in to 5-minute intervals. This was done under the premise that the behavior of one individual was more likely to show a direct effect in the time immediately following it. Although Mark exhibited consistently less negative verbal statements during both routines, such statements were observed to peak during times when his mother's negative verbal statements increased (see Figure 15). Similarly, increases in positive interactions were generally associated with increases in Mark's positive verbal statements.

Separating data in to verbal statements that Mark made while interacting with his mother and those made while interacting with the experimenter also proved to be a unique way to examine potential contingent relationships between parent-child interactions. In general, Mark exhibited more negative verbal statements when interacting with his mother (see Figure 16). By comparison, he exhibited significantly less negative verbal statements when interacting with the experimenter (see Figure 17). Following instances where Kathy and Mark's interactions became especially negative, Mark was observed to exhibit more negative verbal statements when interacting with the experimenter. This observation may be due to the fact that the short observation interval (i.e. 5 minutes) and rapid alternations were not enough time for Mark to calm himself.

Implications for ADHD Research

This research did not attempt to directly address any of the ADHD symptoms Mark's behavior was associated with; both at school or home. Although behaviors typically labeled symptoms of ADHD were not directly targeted, a decrease in negative interactions for both parent and child were observed. Additional anecdotal reports from parents confirm that the severity of Mark's problem behaviors was reduced during training. This supports the outcomes of previous studies utilizing behavioral approaches

to dealing with the symptoms of ADHD (Matos, Bauermeister, & Bernal, 2009). While biological or genetic factors clearly influence or contribute to the establishment of problem behaviors, environmental factors may play a role in maintaining such behaviors. Despite the success of behavioral approaches to treating behaviors symptomatic of ADHD, pharmacological interventions continue to be the most widely accepted treatment (cite here). This study supports those researchers and practitioners who recommend behavioral interventions for ADHD. Additional research is needed regarding the measurement of behaviors associated with ADHD. A further understanding of behavioral aspects of ADHD will undoubtedly lead to a more effective measurement the antecedents and consequences that maintain problem behaviors. A clearer picture of variable that maintain behavioral symptoms of ADHD will lead to more effective interventions.

Comparisons to Parent-Child Interaction Therapy

This work adds to a growing body of research concerning behavioral interventions aimed at improving parent-child interactions (Patterson, 1975, Borrego, Urquiza, Rasmussen, & Zebell, 1999, Chaffin et al., 2004; Timmer, Urquiza, Zebell, & McGrath, 2005). There are many similarities between the approach to improving parent-child interactions outlined in this paper and the approach outlined in PCIT. Both procedures utilized parent child dyads. Both required parents to demonstrate a positive and proactive approach to child management. Both utilize a direct observation of behavior and measure progress toward behavioral goals using an interval system. Both place a focus on behavior change of both the child and adult. Both interventions are flexible, and allow the therapist to utilize a variety of teaching techniques (e.g. discussion, modeling, role-plays), and tailor the treatment based on their observations.

There are a few key features that make the approach outlined in this paper unique from others. Perhaps the most notable difference is that unlike many PCIT studies, the present research conducted all training sessions within the family home, during times of day that were particularly stressful. Conducting training within the natural environment where behavior occurs, such as the family's home is where the desired changes are most likely to be maintained and it is also more cost effective than conducting training in a treatment center. Unlike PCIT, modeling of positive approaches to parent-child interactions was a key component of this study. During PCIT sessions, therapists generally coach parents from another room, using an earpiece. At the time this research was conducted, Mark was 13 years old. Much of the research on increasing positive parent-child interactions includes younger children, with a limited verbal repertoire. Additionally, in the past negative parent-child interactions were severe, resulting in prior incidents of physical harm. Instead of focusing on directives like those taught in the PDI (Parent Directed Interactions) phase of PCIT, verbal interactions between Mark and Kathy typically took the form of a conversation. Kathy used techniques such as selective attention and redirecting conversation to manage Mark's behavior during training. Due to a history of coercive interactions between Mark and his mother restrictive child management techniques such as time out were not taught. Another unique feature of this research was that it attempted to determine the extent that parent-child interactions trained in one routine would generalize to additional times of day. This is an important consideration for any intervention that addresses parent-child interactions. If skills acquired in one context do not generalize to other interactions outside of the training setting they will not result in meaningful changes in parent-child interactions.

Limitations

One of the greatest limitations of this study is that only a limited amount of follow-up assessments were conducted. The extent that treatment gains made during training resulted in lasting changes in parent-child interactions over long periods of time (e.g. 6 months) is unknown. Recurrence of child abuse was also not assessed. Although recurrence is an important measure of the success of a treatment designed to reduce child maltreatment, it is difficult to measure accurately. It may be difficult to determine if the parent had additional reports of child abuse with another child not included in the study. If an individual other than the parent targeted perpetrated future acts of violence toward the child targeted, the treatment effectiveness may be unclear. While this may not be “recurrence”, it represents a failure of the parent to protect their child from additional harm.

There are a couple of reasons why the effectiveness of this treatment package should be interpreted cautiously. First, the use of a multiple baseline design does not allow verification of treatment gains through a reversal condition. Secondly, the stimulant medications used to treat Mark’s ADHD symptoms was changed several times throughout the study. Although the experimenter was informed when such changes were made, the relationship between specific levels of each medication and their effect on Mark’s behavior are unknown. It is possible that this may have reduced the overall stress Kathy experienced as a result of Mark’s challenging behavior. It is important to note that parent training, not a reduction in ADHD symptoms, was the focus of this study.

The partial interval recording system was a useful tool that allowed the content and quality of parent-child interactions to be assessed in many different contexts. Partial

interval systems measure any target behavior that occurs at any time during the interval. When two or more target behaviors occurred within the same interval they are all recorded. For this reason it is impossible to tell which behavior came before the other behavior in order to establish a contingent relationship between the behaviors. During many intervals both Mark's behaviors and adult behaviors were recorded during the same interval. Shortening the interval to less than 10 seconds may have made it less likely that multiple behaviors would be recorded in one interval. However, it would have also made data collection much more difficult. On many instances both parent and child behavior were recorded within the same interval. Altering the recording system to be more sensitive to conversational antecedents and consequences would provide a more specific understanding of the nature of parent-child interactions. Specific behaviors such as initiations and responses could then be recorded and used as intervention targets.

An additional limitation of the current research was that the behavior of only one parent was targeted. Limiting interventions to parent-child dyads may reduce the likelihood that skills acquired during training are maintained. If the behavior of all adults in the family home is targeted during intervention, it may result in target behaviors being implemented more consistently. In the instance where negative parent-child interactions result in child maltreatment it may also reduce the likelihood that another adult living in the home will victimize the child.

Conducting training in a variety of environments outside the family home (e.g. at a park or grocery store) may have increased the likelihood that target behaviors would generalize to other settings. Although training was necessary for the After School routine, it is important to note that this routine required Kathy to engage in a more

structured dialogue with Mark about his school day. The specific skills targeted during the meal routine (i.e. verbal statements and affect) did not require further training.

Measurement of the amount and type of modeling and feedback procedures used during training would have added to an understanding of which components and the frequency/intensity necessary to achieve lasting improvements in parent-child interactions. The minimum amount of the treatments doses needed to be effective is unknown.

Future Research

Additional research regarding parent-child interactions during stressful daily routines should be conducted in a various number of settings (e.g. home, community, etc.), with a greater number of subjects, and additional designs (e.g. multiple probe, alternating treatment, etc.). Through replication and continued application of behavioral treatment procedures, a better understanding of possible interactions between child behavior problems, coercive parenting, parent-child interactions, and the most effective treatments for these conditions will be determined. Additional research that utilizes behavioral treatments for ADHD should be evaluated. Future research should seek to evaluate which component(s) (e.g. modeling, routine training, child management, or parent feedback) are most effective at increasing parent-child interactions.

Additional research is needed to determine the relationship, if any, between conversational antecedent and consequences that contribute to negative parent-child interactions. This could be accomplished by coding reciprocal exchanges between the parent and child. Research and identification of specific antecedents and consequences

related to parent-child interactions will allow for the development of both effective and efficient interventions.

Summary

This study demonstrates the successful application of a behavioral treatment package aimed at addressing some of the variables that contribute to family dissolution (i.e. coercive interactions, challenging behavior, and a history of child abuse). It adds to previous research demonstrating the successful application of in-home behavioral training procedures as a means of improving problems that place a family at risk for dissolution. It also expands upon previous research on parent-child interactions by conducting training within the natural environment. Family preservation was achieved through a behavioral treatment package that included discussion, modeling, feedback, and role-plays.

Table 1

Interobserver Agreement Scores By Condition

Meal			After School		
Baseline	Training	Follow-up	Baseline	Training	Follow-up
83%	97%	100%	90%	100%	100%

Table 2

Average (%) Positive Verbal Statements By Condition

MARK			
Meal Routine			
Baseline	“Alternating”	“Simultaneous”	Follow-up
71%	72%	77%	83%
After-School Routine			
Baseline	Training	Follow-up	
35%	90%	100%	

Table 3

Average (%) Negative Verbal Statements By Condition

MARK			
Meal Routine			
Baseline	“Alternating”	“Simultaneous”	Follow-up
10%	10%	6%	0%
After-School Routine			
Baseline	Training	Follow-up	
8%	3%	0%	

Table 4

Average (%) Positive Verbal Statements By Condition

KATHY			
Meal Routine			
Baseline	“Alternating”	“Simultaneous”	Follow-up
57%	53%	57%	68%
After-School Routine			
Baseline	Training	Follow-up	
46%	89%	83%	

Table 5

Average (%) Negative Verbal Statements By Condition

KATHY			
Meal Routine			
Baseline	“Alternating”	“Simultaneous”	Follow-up
25	14	4	3
After-School Routine			
Baseline	Training	Follow-up	
23	6	9	

Table 6

Average (%) Positive Verbal Statements By Condition

KATHY			
Meal Routine			
Baseline	“Alternating”	“Simultaneous”	Follow-up
9%	4%	0%	0%
After-School Routine			
Baseline	Training	Follow-up	
0%	0%	0%	

Figure Captions

Figure 1. Percentage of intervals Mark exhibited positive verbal statements during the meal routine baseline and modeling. Closed circles indicate statements that occurred when Kathy was acting as the parent. Open circles indicate statements that occurred when the experimenter was acting as the parent. Data is summarized in to five-minute intervals.

Figure 2. Percentage of intervals Mark exhibited positive and negative verbal statements during the meal routine “simultaneous” interaction training and follow-up. Closed circles indicate positive verbal statements. Open circles indicate negative verbal statements. Data is summarized in to whole sessions.

Figure 3. Percentage of intervals Mark exhibited positive and negative verbal statements during after school routine baseline, training, and maintenance. Data is summarized in to whole sessions.

Figure 4. Percentage of intervals Mark exhibited negative verbal statements during the meal routine baseline and modeling. Closed circles indicate statements that occurred when Kathy was acting as the parent. Open circles indicate statements that occurred when the experimenter was acting as the parent. Data is summarized in to five-minute intervals.

Figure 5. Percentage of intervals Kathy and the experimenter exhibited positive verbal statements during the meal routine baseline and modeling. Data is summarized in to five-minute intervals.

Figure 6. Percentage of intervals Kathy and the experimenter exhibited positive verbal statements during the meal routine simultaneous interactions training. The amount of involvement the experimenter had in each meal was gradually faded to allow Kathy to demonstrate target behaviors during increasingly larger portions of the meal. The fading process began on 4/23, when the experimenter’s role was faded to 30%. On 5/28 the experimenter’s role was faded to 10%. Beginning 6/25 the experimenter did not interact with Kathy or Mark during the meal routine. Data is summarized in to whole sessions.

Figure 7. Percentage of intervals Kathy exhibited positive and negative verbal statements during after school routine baseline, training, and maintenance. Data is summarized in to whole sessions.

Figure 8. Percentage of intervals Kathy and the experimenter exhibited negative verbal statements during the meal routine baseline and modeling. Data is summarized in to five-minute intervals.

Figure 9. Percentage of intervals Kathy and the experimenter exhibited negative verbal statements during the meal routine simultaneous interactions training. The amount of involvement the experimenter had in each meal was gradually faded to allow Kathy to demonstrate target behaviors during increasingly larger portions of the meal. The fading process began on 4/23, when the experimenter's role was faded to 30%. On 5/28 the experimenter's role was faded to 10%. Beginning 6/25 the experimenter did not interact with Kathy or Mark during the meal routine. Data is summarized in to whole sessions.

Figure 10. Percentage of intervals Kathy and the experimenter exhibited negative affect during the meal routine baseline and modeling. Data is summarized in to five-minute intervals.

Figure 11. Percentage of intervals Kathy and the experimenter exhibited positive affect during the meal routine baseline and modeling. Data is summarized in to five-minute intervals.

Figure 12. Percentage of intervals Kathy and the experimenter exhibited positive affect during the meal routine simultaneous interactions training. Data is summarized in to whole sessions.

Figure 13. Percentage of intervals Kathy and the experimenter exhibited negative affect during the meal routine simultaneous interactions training. Data is summarized in to whole sessions.

Figure 14. Percentage of intervals Kathy exhibited positive and negative affect during after school routine baseline, training, and maintenance. Data is summarized in to whole sessions.

Figure 15. A comparison of the percentage of intervals Kathy and Mark exhibited negative verbal statements during the meal routine baseline and modeling. Data is summarized in to five-minute intervals.

Figure 16. Percentage of intervals Mark directed verbal statements towards Kathy during the meal routine baseline and "alternating" training. Closed circles indicate positive verbal statements and open squares indicate negative verbal statements. Data is summarized in to five-minute intervals.

Figure 17. Percentage of intervals Mark directed verbal statements the experimenter during the meal routine baseline and "alternating" training. Closed circles indicate positive verbal statements and open squares indicate negative verbal statements. Data is summarized in to five-minute intervals.

Figure 18. Percentage of meal routine steps Kathy completed independently during baseline, training, and maintenance.

Figure 19. Percentage of after school routine steps Kathy completed independently during baseline, training, and maintenance.

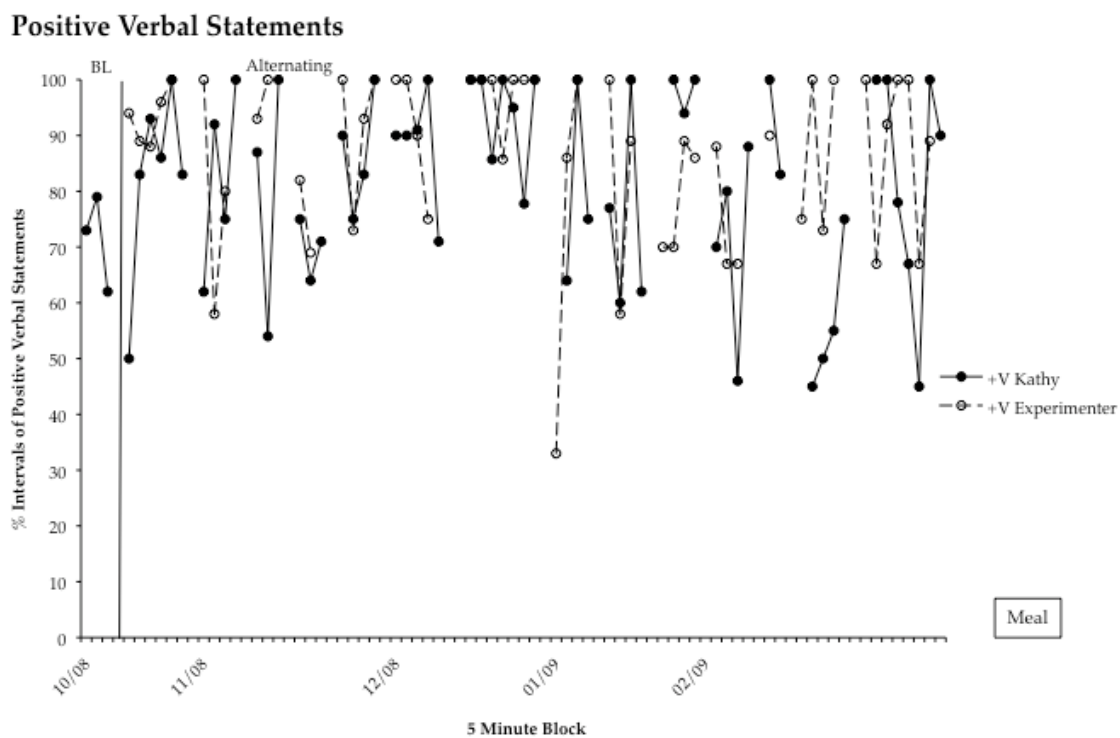


Figure 1. Percentage of intervals Mark exhibited negative verbal statements during the meal routine baseline and “alternating” training. Closed circles indicate statements that occurred when Kathy was acting as the parent. Open circles indicate statements that occurred when the experimenter was acting as the parent. Data is summarized in to five-minute intervals.

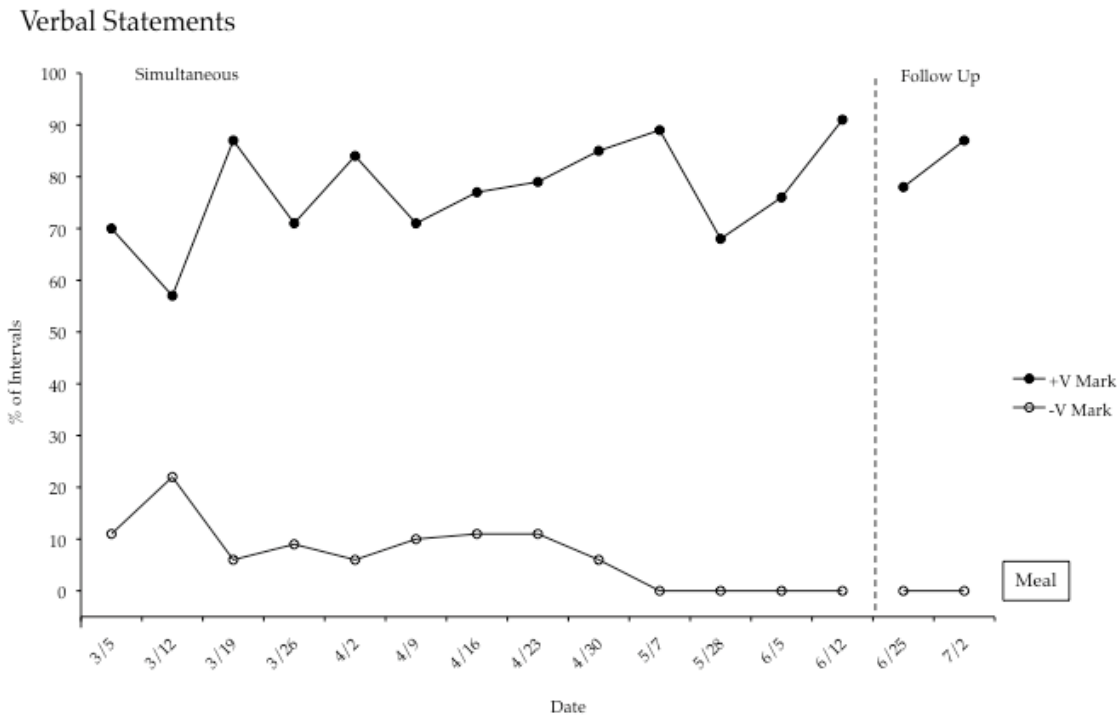


Figure 2. Percentage of intervals Mark exhibited positive and negative verbal statements during the meal routine “simultaneous” interaction training and follow-up. Closed circles indicate positive verbal statements. Open circles indicate negative verbal statements. Data is summarized in to whole sessions.

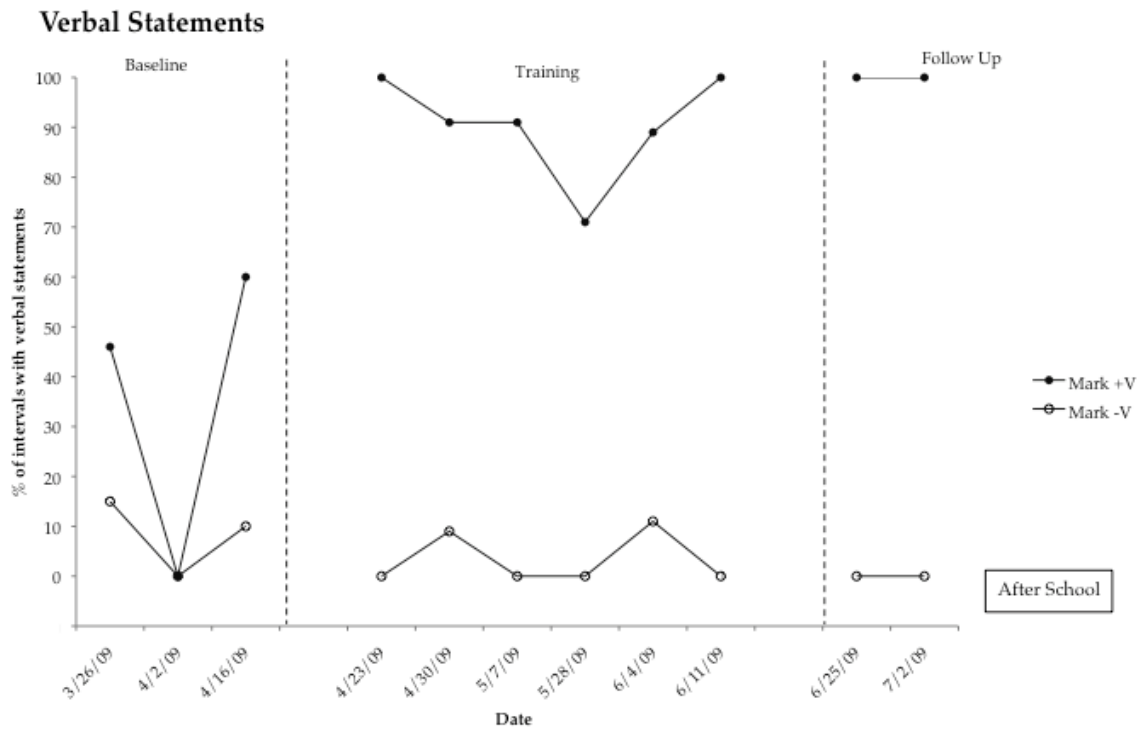


Figure 3. Percentage of intervals Mark exhibited positive and negative verbal statements during after school routine baseline, training, and maintenance. Data is summarized in to whole sessions.

Mark's Negative Verbal Statements

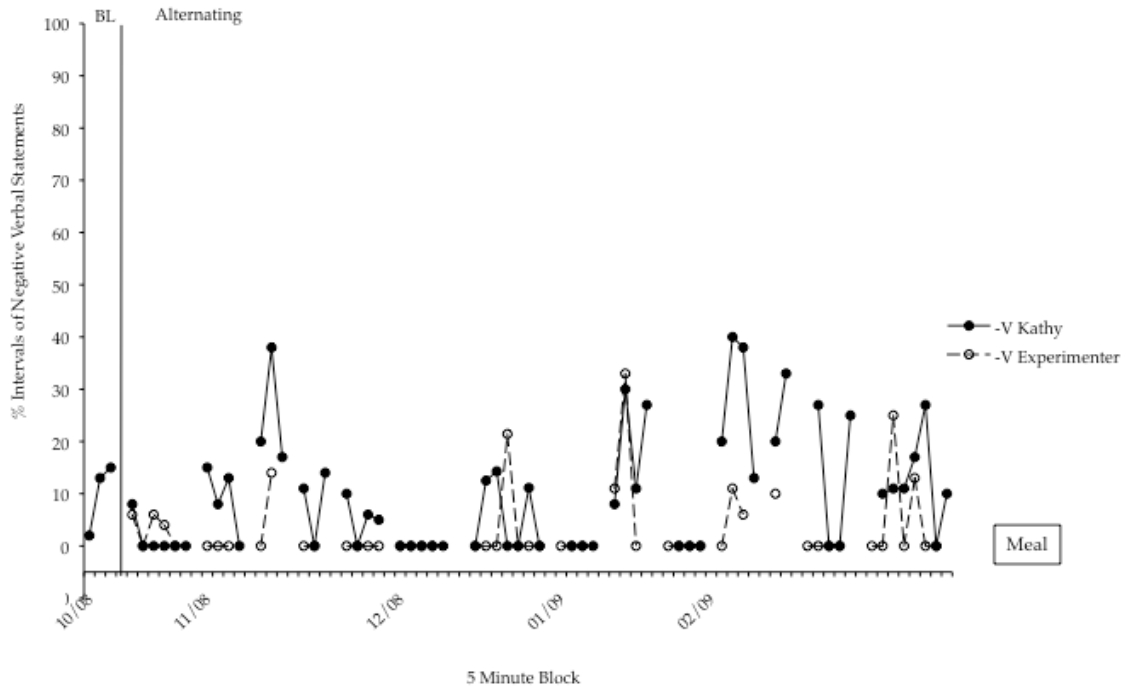


Figure 4. Percentage of intervals Mark exhibited negative verbal statements during the meal routine baseline and modeling. Closed circles indicate statements that occurred when Kathy was acting as the parent. Open circles indicate statements that occurred when the experimenter was acting as the parent. Data is summarized in to five-minute intervals.

Positive Verbal Statements

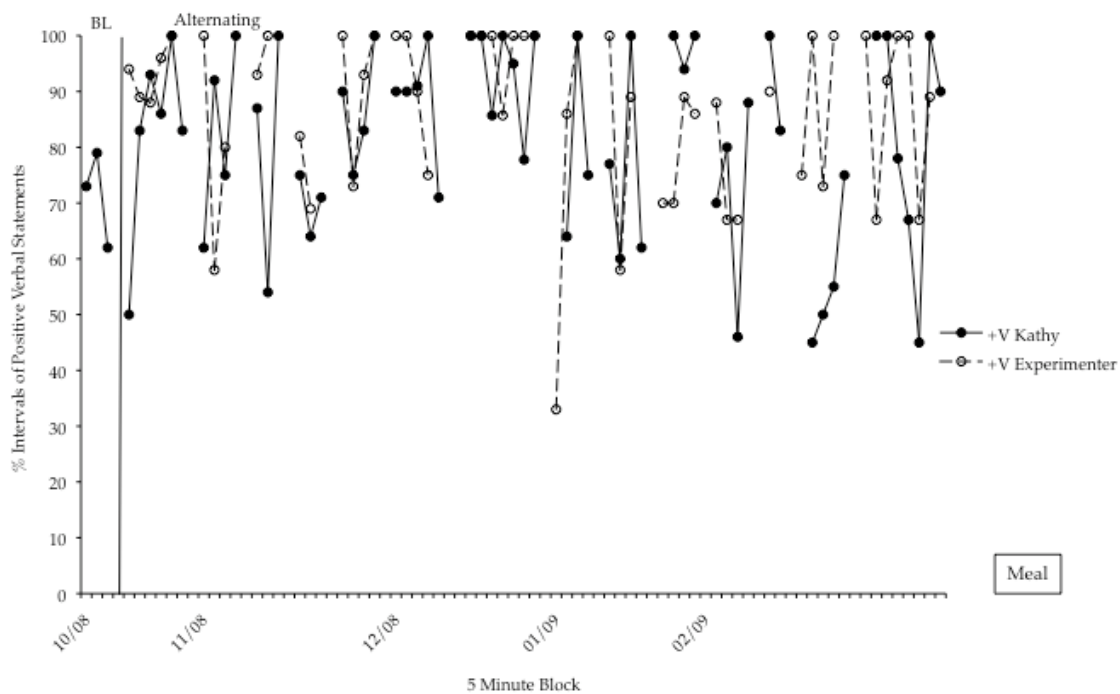


Figure 5. Percentage of intervals Kathy and the experimenter exhibited positive verbal statements during the meal routine baseline and modeling. Data is summarized in to five-minute intervals.

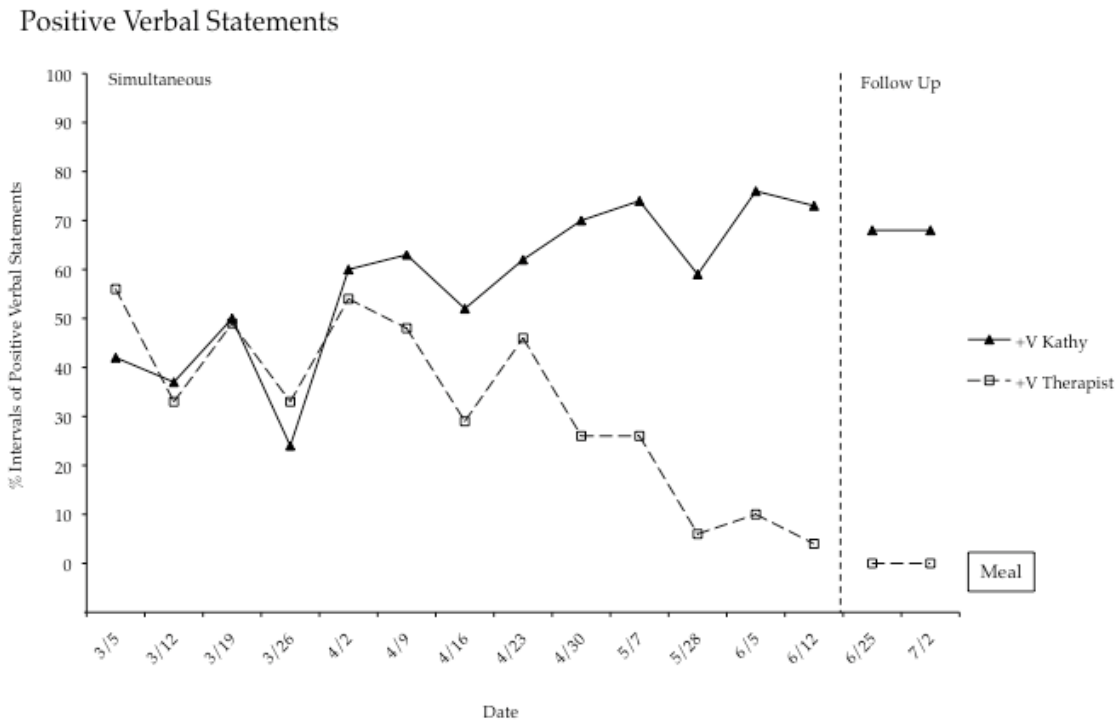


Figure 6. Percentage of intervals Kathy and the experimenter exhibited positive verbal statements during the meal routine simultaneous interactions training. The amount of involvement the experimenter had in each meal was gradually faded to allow Kathy to demonstrate target behaviors during increasingly larger portions of the meal. The fading process began on 4/23, when the experimenter's role was faded to 30%. On 5/28 the experimenter's role was faded to 10%. Beginning 6/25 the experimenter did not interact with Kathy or Mark during the meal routine. Data is summarized in to whole sessions.

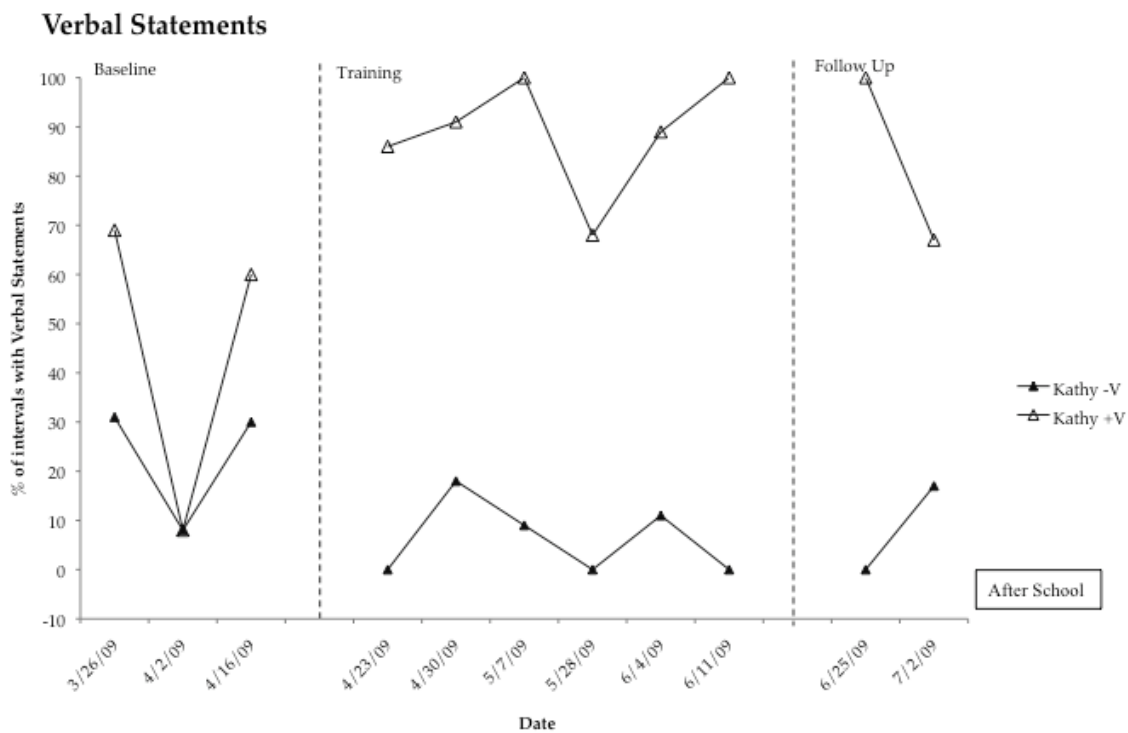


Figure 7. Percentage of intervals Kathy exhibited positive and negative verbal statements during after school routine baseline, training, and maintenance. Data is summarized in to whole sessions.

Negative Verbal Statements

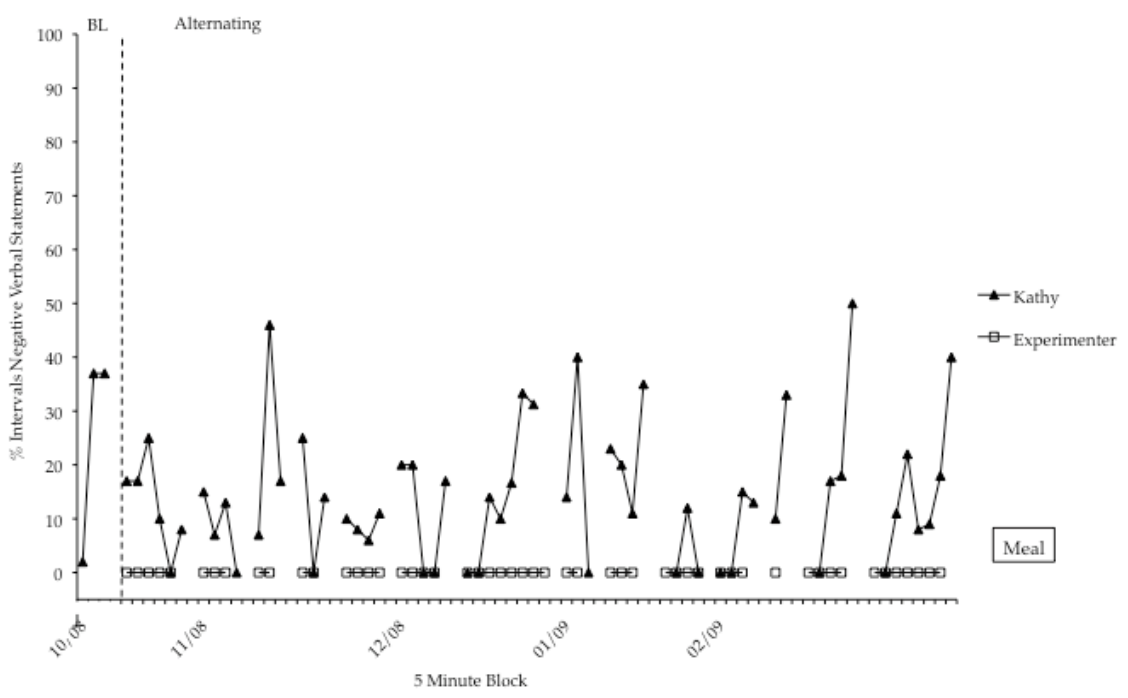


Figure 8. Percentage of intervals Kathy and the experimenter exhibited negative verbal statements during the meal routine baseline and “alternating” phases. Data is summarized in to five-minute intervals.

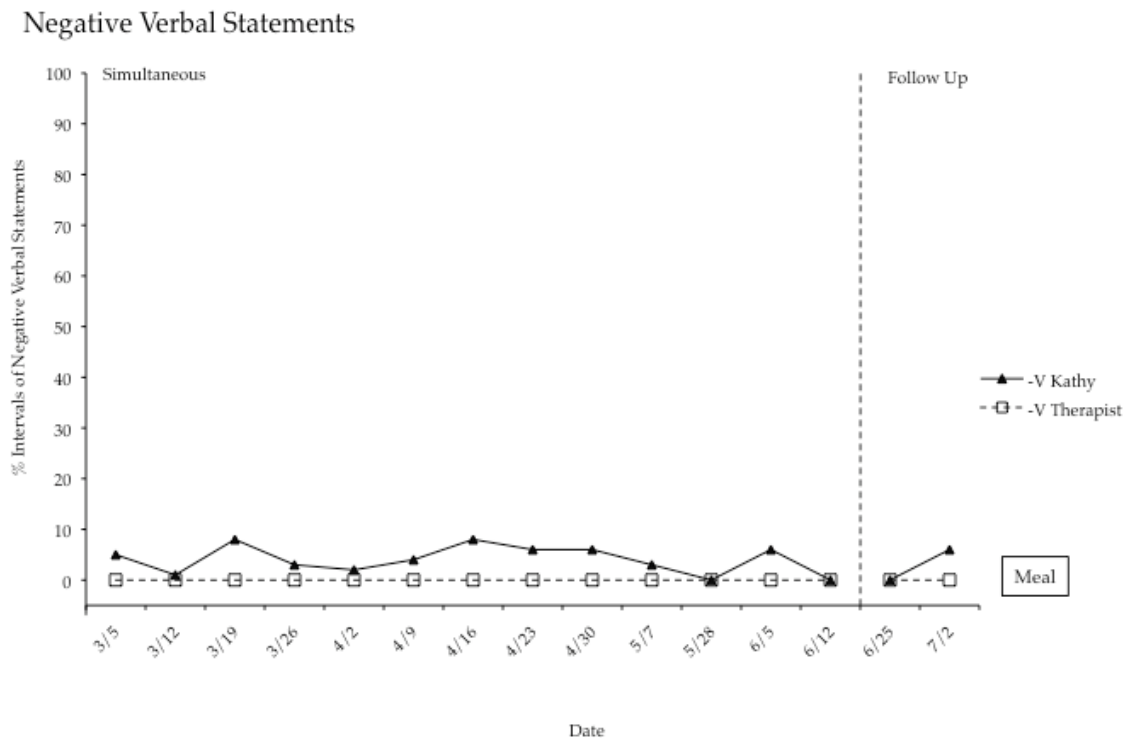


Figure 9. Percentage of intervals Kathy and the experimenter exhibited negative verbal statements during the meal routine “simultaneous” and follow-up phases. The amount of involvement the experimenter had in each meal was gradually faded to allow Kathy to demonstrate target behaviors during increasingly larger portions of the meal. The fading process began on 4/23, when the experimenter’s role was faded to 30%. On 5/28 the experimenter’s role was faded to 10%. Beginning 6/25 the experimenter did not interact with Kathy or Mark during the meal routine. Data is summarized in to whole sessions.

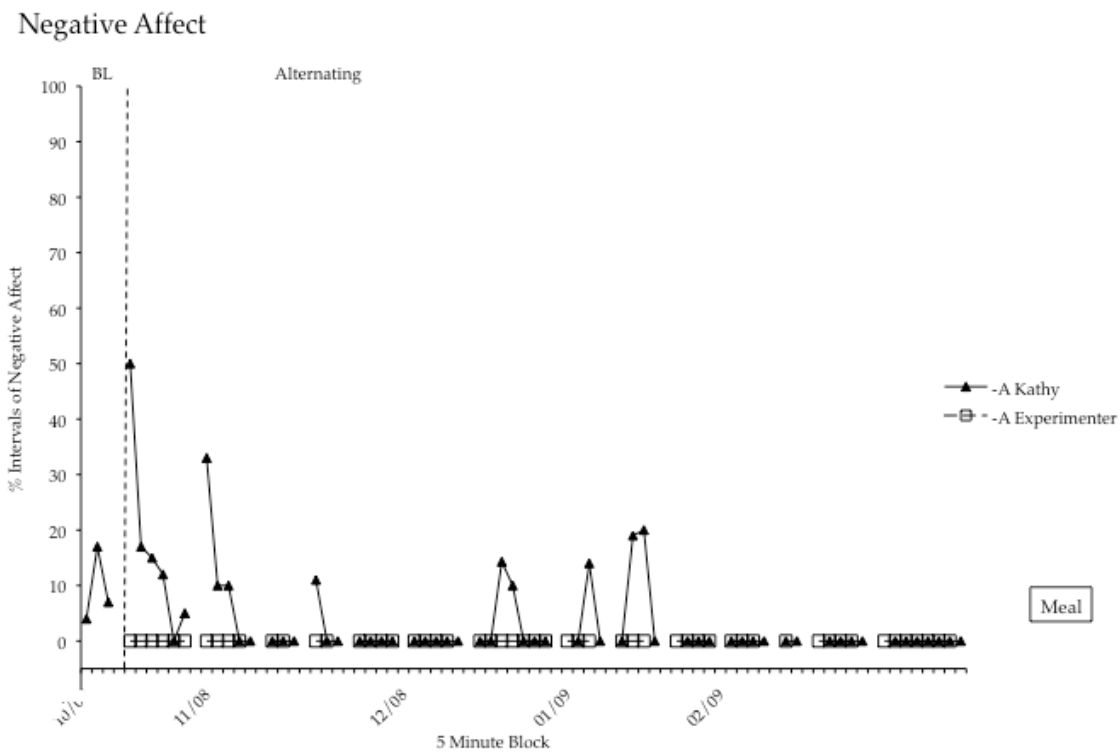


Figure 10. Percentage of intervals Kathy and the experimenter exhibited negative affect during the meal routine baseline and “alternating” phases. Data is summarized in to five-minute intervals.

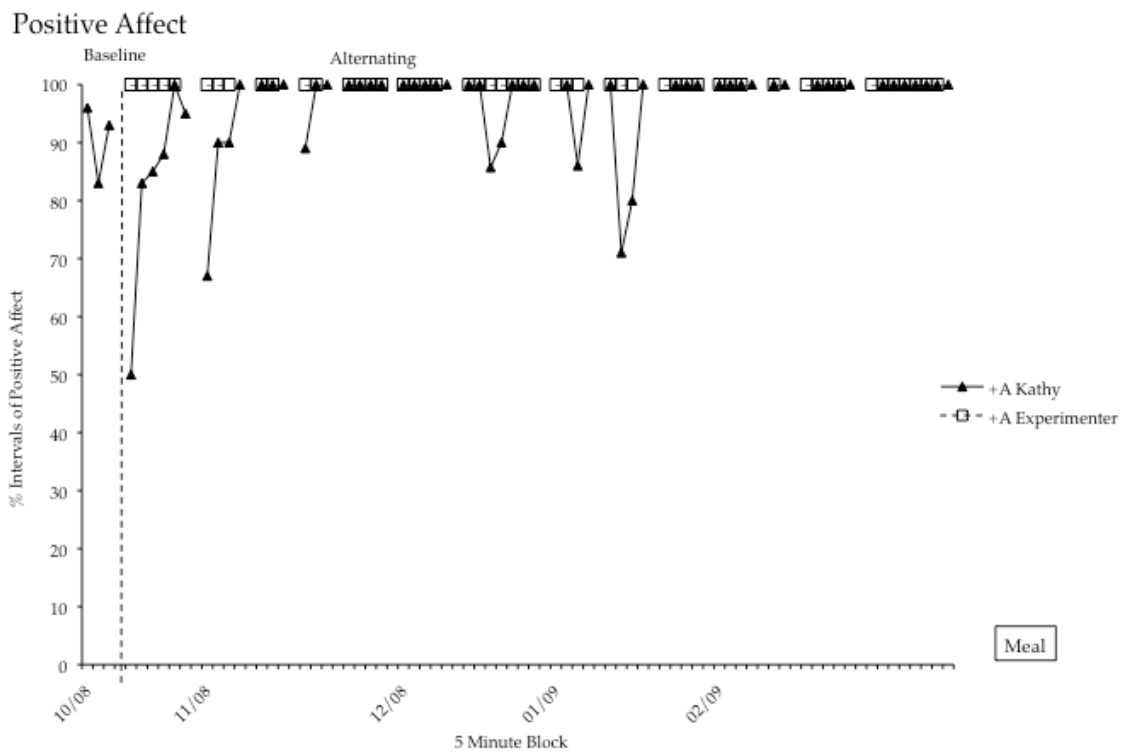


Figure 11. Percentage of intervals Kathy and the experimenter exhibited positive affect during the meal routine baseline and modeling. Data is summarized in to five-minute intervals.

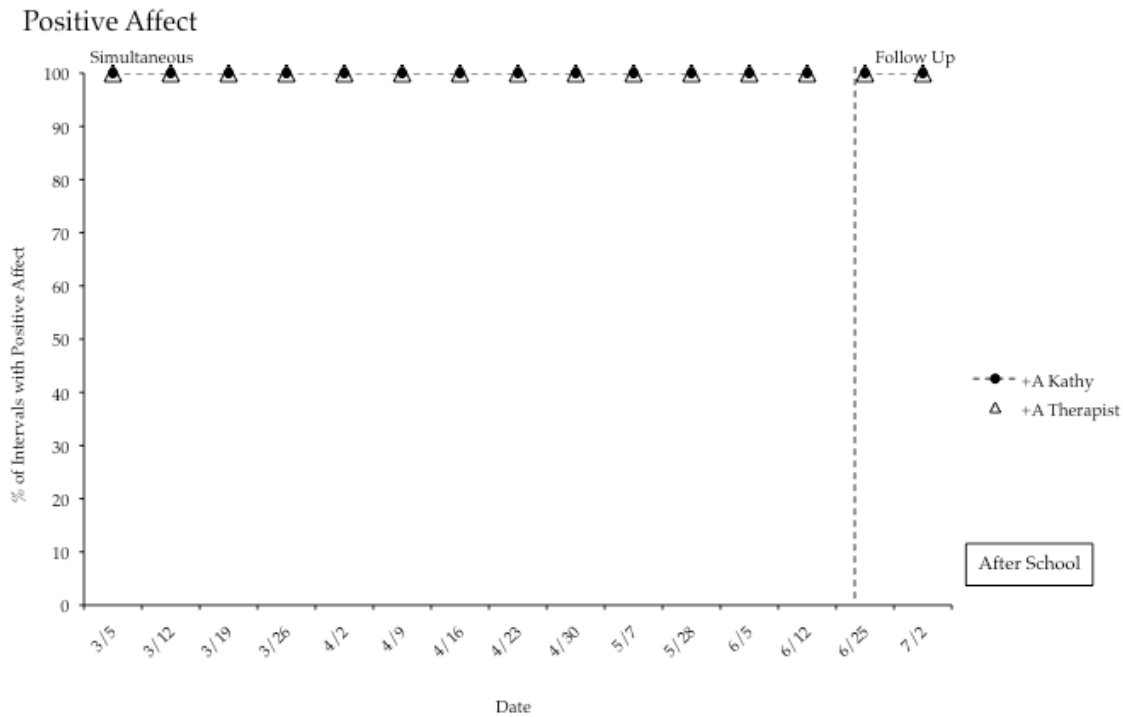


Figure 12. Percentage of intervals Kathy and the experimenter exhibited positive affect during the meal routine simultaneous interactions training. Data is summarized in to whole sessions.

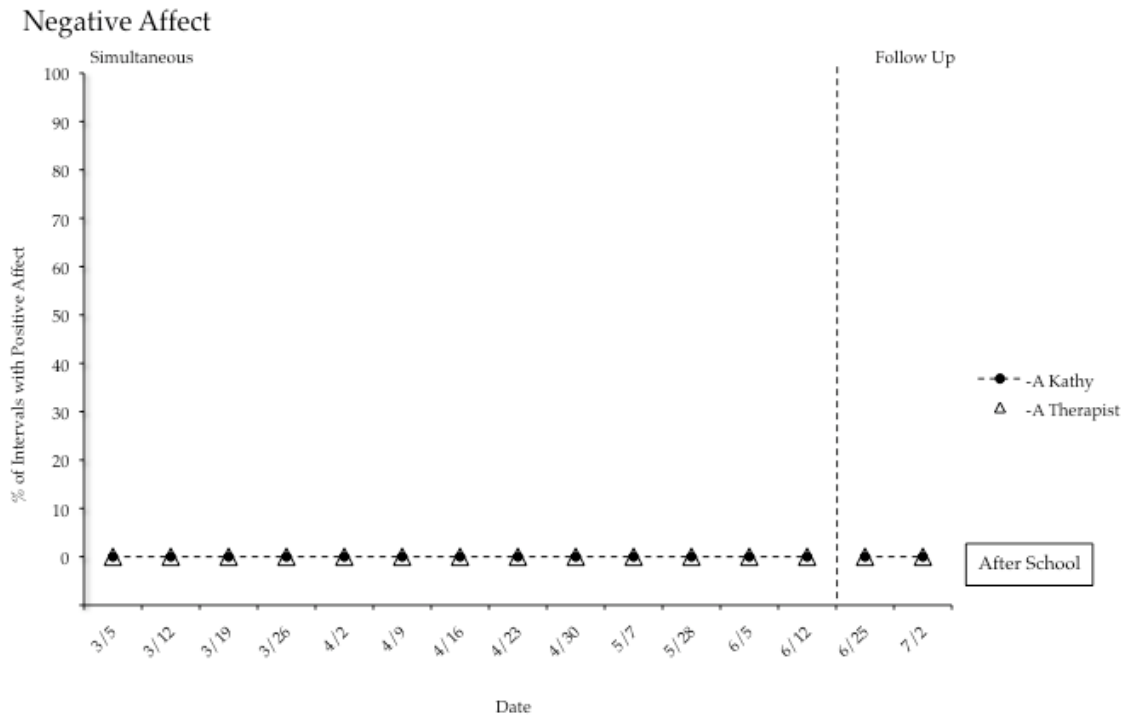


Figure 13. Percentage of intervals Kathy and the experimenter exhibited negative affect during the meal routine simultaneous interactions training. Data is summarized in to whole sessions.

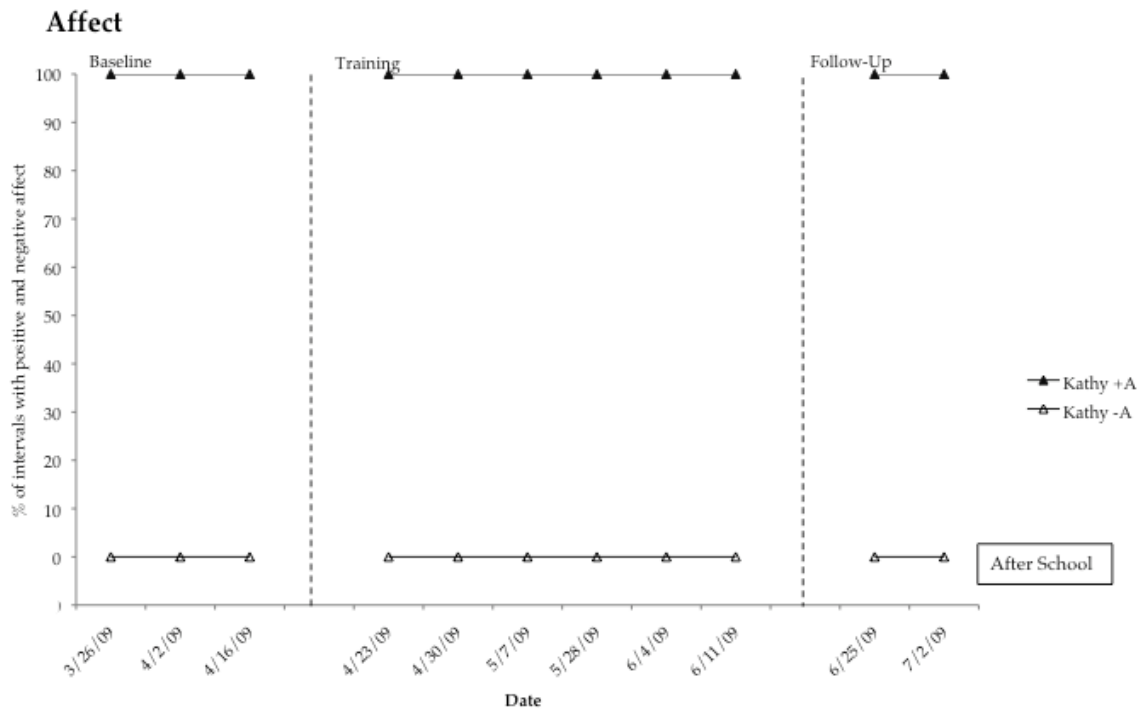


Figure 14. Percentage of intervals Kathy exhibited positive and negative affect during after school routine baseline, training, and maintenance. Data is summarized in to whole sessions.

Negative Verbal Statements

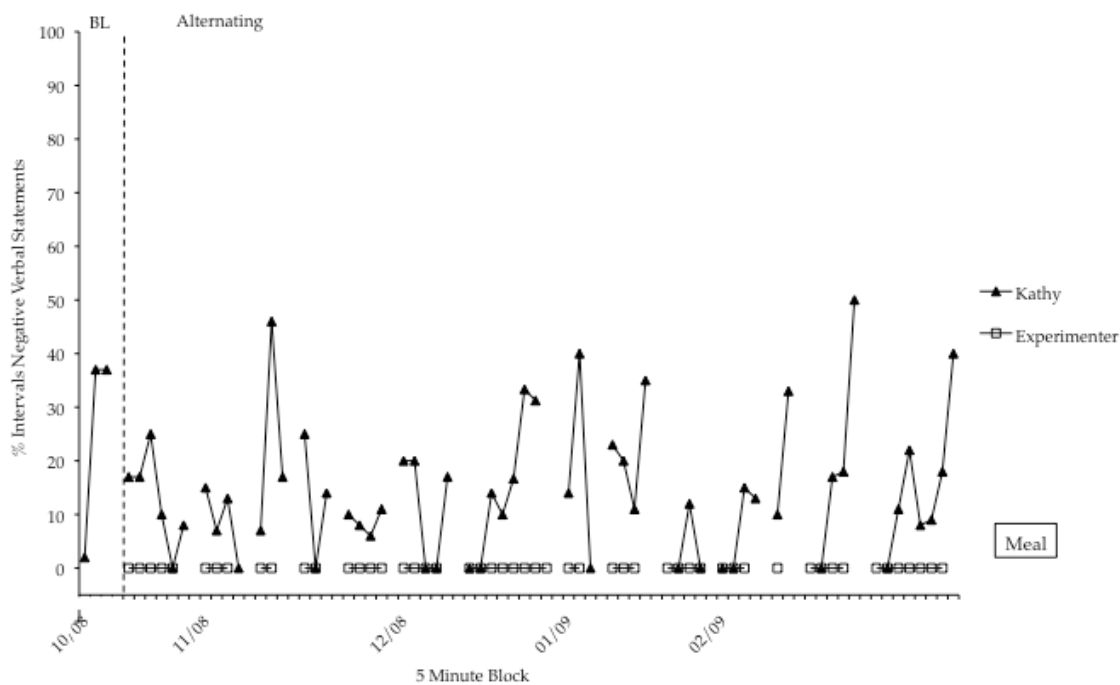


Figure 15. A comparison of the percentage of intervals Kathy and Mark exhibited negative verbal statements during the meal routine baseline and “alternating” phases. Data is summarized in to five-minute intervals.

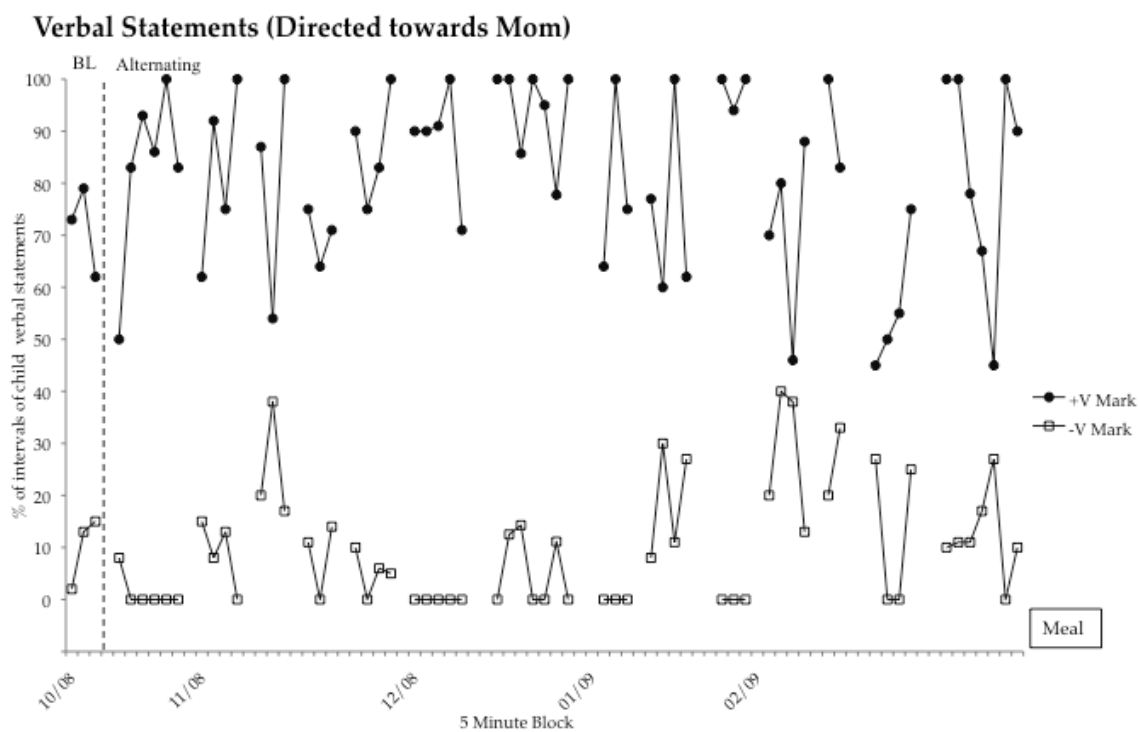


Figure 16. A comparison of the percentage of intervals Mark directed verbal statements towards Kathy during the meal routine baseline and “alternating” training. Closed circles indicate positive verbal statements and open squares indicate negative verbal statements. Data is summarized in to five-minute intervals.

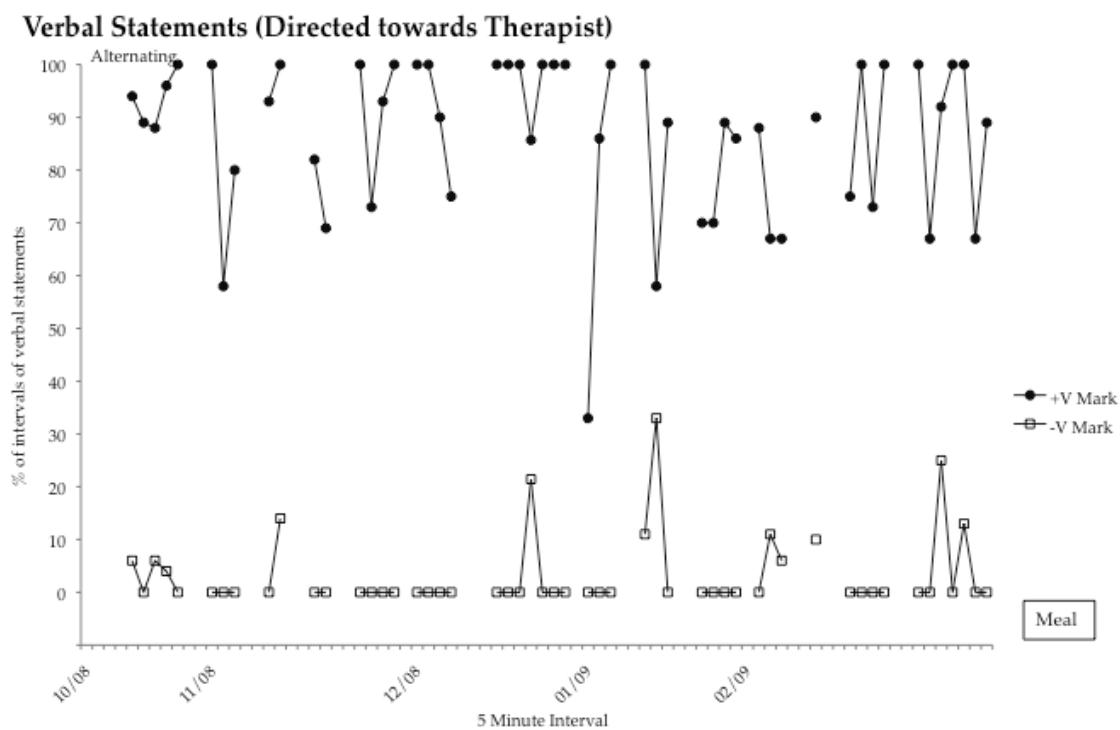


Figure 17. A comparison of the percentage of intervals Mark directed verbal statements the therapist during the meal routine baseline and “alternating” training. Closed circles indicate positive verbal statements and open squares indicate negative verbal statements. Data is summarized in to five-minute intervals.

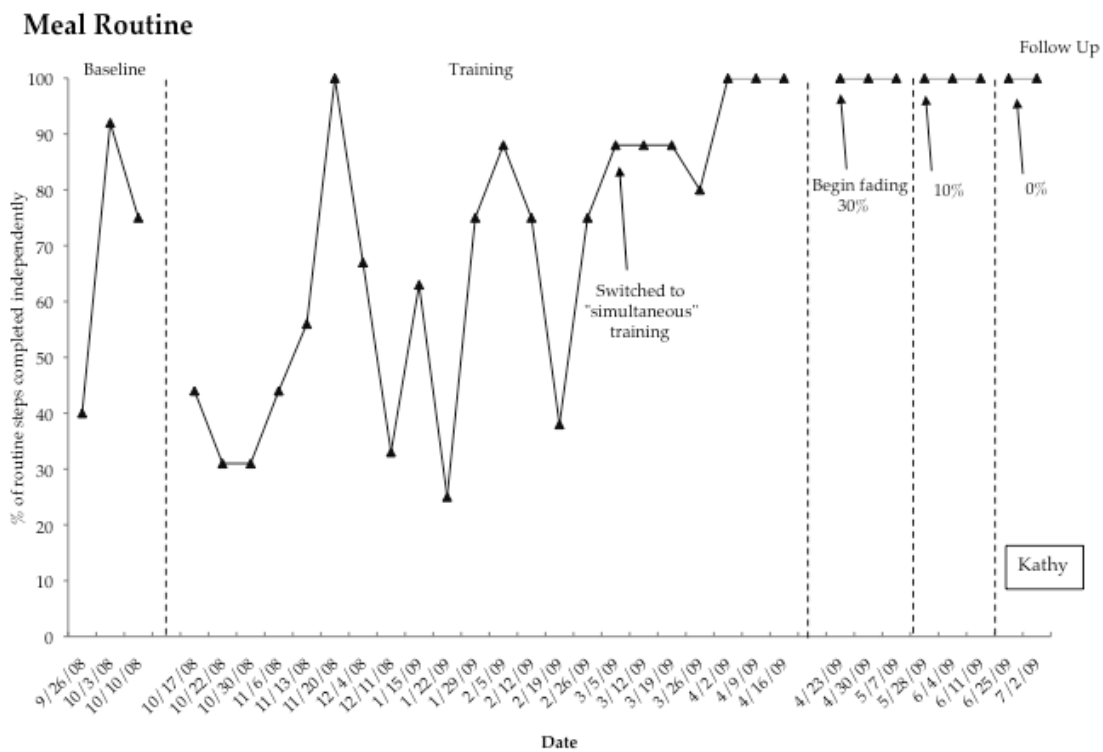


Figure 18. Percentage of meal routine steps Kathy completed independently during baseline, training, and maintenance.

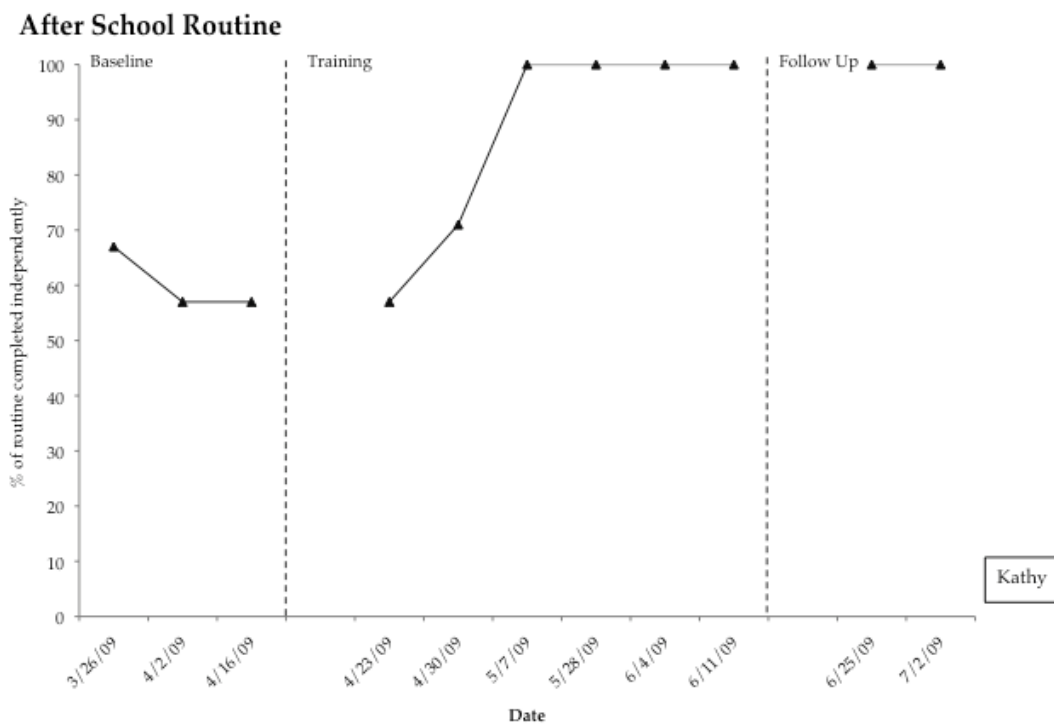


Figure 19. Percentage of after school routine steps Kathy completed independently during baseline, training, and maintenance.

REFERENCES

- Baker, B. L., Heller, T. L. & Henker, B. (2000). Expressed emotion, parenting stress, and adjustment in mothers of young children with behavior problems. *Journal of Child Psychology and Psychiatry, 41*(7), 907-915.
- Bell, S.K., Eyeberg, S.M. Parent-child interaction therapy. In L VandeCreek, S. Knapp, & T.L. Jackson (Eds.), *Innovations in clinical practice: A source book* (vol. 20, pp. 57-74). Sarasota, FL: Professional Resource Press. Retrieved June 2009 from www.pcit.org
- Brinkmeyer, M., & Eyeberg, S.M. (2003). Parent-child interaction therapy for oppositional children. In A.E. Kazdin & J.R. Weisz (Eds.), *Evidence-based psychotherapies for children and adolescents* (pp. 204-223). New York: Guilford.
- Borrego, J., Jr., Urquiza, A.J., Rasmussen, R.A., & Zebell, N. (1999). Parent-child interaction therapy with a family at high risk for physical abuse. *Child Maltreatment, 4*, 331-342
- Chaffin, M., Silovsky, J.F., Funderburk, B., Valle, L.A., Brestan, E.V., Balachova, T., Jackson, S., Lensgraf, J., Bonner, B.L. (2004). Parent-child interaction therapy with physically abusive parents: Efficacy for reducing future abuse reports. *Journal of Counseling and Clinical Psychology, 72*, 500-510
- Child Welfare Information Gateway (2007). Parent-child interaction therapy with at risk families. Washington, DC: U.S. Department of Health and Human Services.
- Crouch, J.L., & Behl, L.E. (2001). Relationships among parental beliefs in corporal punishment, reported stress, and physical child abuse potential. *Child Abuse & Neglect, 25*, 413-419

- Diller, L.H. (1998). *Running on Ritalin: A Physician Reflects on Children, Society, and Performance in a Pill*. New York, Bantam Books
- Dix, T., (1991). The affective organization of parenting: Adaptive and maladaptive processes. *Psychological Bulletin*, *110*, 3-25
- Dix, T., Reinhold, D.P., Zambarano, R.J. (1990). Mothers' judgement in moments of anger. *Merrill-Palmer Quarterly*, *36*, 465-486
- Eisenstadt, T.H., Eyberg, S., McNeil, C.B., Newcomb, K., & Funderburk, B. (1993). Parent-child interaction therapy with behavior problem children: Relative effectiveness of two stages and overall treatment outcome. *Journal of Clinical Child Psychology*, *22*, 42-51.
- Eyberg, S.M., & Pincus, D. (1999). *Eyberg Child Behavior Inventory and Sutter-Eyberg Student Behavior Inventory: Professional Manual*. Odessa, FL: Psychological Assessment Resources.
- Eyberg, S.M., & Robinson, E.A., (1981/2000). Dyadic Parent-Child Interaction Coding System Unpublished manuscript. (Available from S. M. Eyberg, Department of Medical Psychology, Oregon Health Sciences University, Portland, OR 97201.)
- Illinois Child Abuse and Neglect Statistics (2008). *Illinois Department of Child and Family Services*
- Karasazsia, B.T., Wildman, B.G. (2009). The mediating effects of parenting behaviors on maternal affect and reports of children's behavior. *Journal of Child and Family Studies*, *18*, 342-349

- Kurz, P.F., Chin, M.D., Rush, K.S., & Dixon, D.R., (2008). Treatment of challenging behavior exhibited by children with prenatal drug exposure. *Research in Developmental Disabilities, 29*, 582-594
- Lempers, J.D., Lempers-Clark, D., Simons, R.L. (1989). Economic Hardship, Parenting, and Distress in Adolescence. *Child Development, 60*, 25-39
- McElroy, E., & Rodriguez, C.M. (2008). Mothers of Children With Externalizing Behavior Problems: Cognitive Risk Factors for Abuse Potential and Discipline Style and Practices. *Child Abuse and Neglect: The International Journal, 32*, 774-784
- Mammen, O. K., Kolko, D. J., & Pilkonis, P. A. (2002). Negative affect and parental aggression in child physical abuse. *Child Abuse & Neglect, 26*, 407-424.
- Matos, M., Bauermeister, J.J., Bernal, G. (2009). Parent-child interaction therapy for Puerto Rican preschool children with ADHD and behavior problems: A pilot efficacy study. *Family Process, 48*, 232-252
- Patterson, G.R., Reid, J.B., Jones, R.R., & Conger, R. (1975). A social learning approach to family intervention: Parent Training, (Vol. 1). Eugene, OR: Castalia, 1975
- Patterson, G. R. (1976). The aggressive child: Victim and architect of a coercive system. In E. J. Mash, L. A. Hamerlynck, & L. C. Handy (Eds.), *Behavior modification and families* (pp. 267-316). New York: Brunner/Mazel.
- Mash, L. A. Hamerlynck, & L. C. Handy (Eds.), *Behavior modification and families* (pp. 267-316). New York: Brunner/Mazel.
- Patterson, G. R. (1982). *Coercive family process*. Eugene, OR: Castalia Publishing Co.

- Rodriguez, C.M., & Green, A.J. (1997). Parenting stress and anger expression as predictors of child abuse potential. *Child Abuse & Neglect, 21*, 367-377
- Timmer, S.G., Urquiza, A.J., Zebell, N.M., & McGrath, J.M. (2005). Parent-child interaction therapy: Application in maltreating parent-child dyads. *Child Abuse & Neglect, 29*, 825-842
- U.S. Department of Health and Human Services, Administration on Children, Youth and Families. *Child Maltreatment 2006* (Washington, DC: U.S. Government Printing Office, 2008)
- Wilson, S.R., Rack, J.J., Shi, X., Norris, A.M. (2008). Comparing physically abusive, neglectful, and non-maltreating parenting during interactions with their children: A meta-analysis of observational studies. *Child Abuse & Neglect, 32*, 897-911

VITA

Graduate School
Southern Illinois University

Mitchell D. Mast
mitchell.mast@gmail.com

University of Nevada, Reno
Bachelor of Arts, Psychology, May 2007

Research Paper Title: Effectiveness of a Staff Modeling Procedure On Increasing
Appropriate Interactions Between a Mother and a Child With Behavior Problems

Major Professor: Brandon F. Greene