A Preliminary Investigation of The Acceptability and Effectiveness of Computer-Based Adjunctive Parent Training for Child Noncompliance

Dwayne M. Munneke
Western Michigan University

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A PRELIMINARY INVESTIGATION OF THE ACCEPTABILITY AND EFFECTIVENESS OF COMPUTER-BASED ADJUNCTIVE PARENT TRAINING FOR CHILD NONCOMPLIANCE

by

Dwayne M. Munneke, Ph.D.

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Submitted to the
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A PRELIMINARY INVESTIGATION OF THE ACCEPTABILITY AND EFFECTIVENESS OF COMPUTER-BASED ADJUNCTIVE PARENT TRAINING FOR CHILD NONCOMPLIANCE

Dwayne M. Munneke, Ph.D.
Western Michigan University, 2000

Noncompliance with parent requests is a commonly reported behavior problem for clinic-based child referrals. Parent skills training has been empirically demonstrated as an effective treatment for helping parents increase positive child behaviors and decrease negative behaviors. Unfortunately, many therapists and agencies are unable to implement parent-training programs due to limited therapist training, limited economic resources, or long waiting lists.

Adjunctive, computer-based, treatment programs have become increasingly popular in both research and clinical settings for facilitating psychological assessment and intervention. This project involved the development and preliminary investigation of the effectiveness and acceptability of a computer-based program designed to supplement therapist-delivered parent training. The computer-based parent-training adjunct uses video-based skills training scenarios, graphics, text, video and audio presentation to present target concepts and procedures and assess user skills and knowledge acquisition.
A multiple-baseline, across families design was used to collect probe data regarding program effectiveness as measured through in-home parent-recorded child behavioral observations. Additional measures used to investigate potential program effectiveness and acceptability included: (a) written knowledge quizzes, (b) observations of parent behaviors in a clinic-based role-play procedure, (c) a computer-based video scenario quiz, and (d) a consumer satisfaction questionnaire.

Parent-recorded child behavior observations indicated a significant decrease in child noncompliance following introduction of the computer-adjunctive intervention. Written and computer-delivered measures of target concepts and procedural knowledge suggest effective teaching and modeling of parent training principles. However, parents demonstrated varied performance on an in-clinic role-play procedure. In a limited experimental sample, probe data suggests high consumer satisfaction with the computer-based adjunctive program.

These preliminary results support continued development of computer-based clinical adjuncts that may provide economical, effective, and socially valid supplements to therapist-delivered interventions.
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Lastly, I cannot express enough the love and appreciation for my wife, Diane, for her many years of sacrifice, unending support, and patience. In addition, I couldn’t have completed this project without the love and support of my parents, family and friends.

Dwayne M. Munneke

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CHAPTER I

INTRODUCTION

Parenting in the 21st Century

Raising children in today's cultural era may be as difficult as it has ever been in the history of humankind. Recent survey research indicates that, in the United States, parents echo this sentiment regardless of race, socio-economic status, or marital status (National Commission on Children, 1991). Today's parents are reporting that child rearing is significantly more difficult than it was for their parents or generations preceding their parents although, ironically, we currently enjoy a technological age where innovation in communication, engineering, and transportation has undoubtedly reduced the physical effort required to perform most occupational, household, and leisure activities (Taafe-Young, Davis, & Schoen, 1996). Nevertheless, while technology continues to reduce many of the physical demands associated with everyday drudgery, effective parenting today appears to remain founded upon a parental commitment to providing frequent and consistent high quality child interactions.
A variety of current socio-economic, political, demographic, cultural, and technological trends are likely contributing to the increased challenge of parenting today as opposed to generations past. Today's children face an "accelerated" cultural and physical environment influenced significantly since the advent of video games, cable television, computers and other emerging technologies (e.g., the Internet). Newspaper headlines, research publications, census data and national statistics describe the rapidly evolving characteristics of our cultural environment and the impact these technological and lifestyle changes have upon families facing the challenges of raising children.

Child Behavior Development and Externalizing Behavior Disorders

Parental interactions and their associated influences upon child development has been the research focus of Clinical and Developmental Psychology for many years. Developmental theory has evolved from the simplistic notions of mutually exclusive influences, nature versus nurture, to more integrated conceptualizations of child development such as developmental contextualism. Developmental contextualism uniquely emphasizes the presence of a diverse and complex system of ever-changing environmental, biological, and contextual relationships and its respective influence upon the child.
Developmental contextualism identifies multiple operating factors including culture, genetics, biology, environment, and politics as critical influences to all aspects of child development (Lerner, 1996).

Lerner (1986) suggests that the changes occurring within families, communities, individuals, and society significantly influences behavioral development. Etiological studies of child behavior disorders also point to factors of biology, genetics, environment, information processing, culture, and a variety of other related factors (Frick, 1998). Behavioral disorders are most currently conceptualized as being influenced and, ultimately, expressed as an artifact of the interaction of many factor (Webster-Stratton & Dahl, 1995; Johnston & Ohan, 1999).

The term externalizing behavior disorder describes a heterogeneous collection of aversive behaviors emitted from early to late childhood including aggression, noncompliance, tantrums, and other oppositional behaviors (Webster-Stratton & Dahl, 1995; Achenbach 1991; Frick, 1998). Children who demonstrate high frequency or high intensity levels of externalizing behaviors often receive psychiatric diagnoses such as: Oppositional Defiant Disorder, Conduct Disorder, Bipolar Disorder, Attention Deficit Disorder with
Hyperactivity and Pervasive Developmental Disorder. Usually, the expression of these behaviors is more commonly characterized as acting-out, antisocial, disinhibited, or undercontrolled behavior (Johnston & Ohan, 1999; Barkley 1997).

When children demonstrate an increased frequency or intensity of these undesirable or problematic behaviors, parents often seek professional diagnostic and treatment services as they would for any "purely" physical based symptom such as coughing, headache, stomachache, or fever. Of all behavioral referrals to medical and psychological clinical settings, children symptomatically described as defiant, aggressive, oppositional, and inattentive represent the most frequent presenting complaints (Webster-Stratton, 1993; Barkley 1997). These children most often receive diagnoses of conduct disorders, oppositional defiant disorders, or attention deficit hyperactivity disorder (externalizing disorders) and are subject to an increased risk of encountering a wide range of negative developmental experiences including physical abuse, peer isolation and peer rejection (Patterson, 1974; Dodge, 1985; Patterson, 1993). In addition, children who exhibit aggressive and oppositional behaviors are more likely to be described negatively by peers and significant adults (McMahon & Forehand, 1981; Dodge 1985).
When these children mature to adolescence and adulthood, their predicted outcome is not encouraging considering that they are much more likely to experience a host of serious negative outcomes including higher rates of: (1) substance abuse, (2) antisocial or criminal behaviors, (3) psychiatric impairment (4) occupational dysfunction and (5) physical problems in adolescence and adulthood (Robins, 1966, 1991; Dodge, 1985; Barkley 1987; Ollendick, Weist, Borden & Green, 1992; Kazdin, 1995).

The presence of positive peer relationships and positive adult interactions during school age has been identified as a critical factor for child socialization and cognitive development (Rubin & Coplan, 1992). Children who manifest high levels of negative behavior (e.g., aggression, backtalk, arguing, etc.) with peers and important adults in their social environment are at significant risk for developmental difficulties in social, academic, and emotional functioning. These primary social relationships in addition to factors of temperament, stress, cultural influence, and child/family social support have been posited to be the core influences in the development of social skills, social competence, and future positive social relationships (Rubin & Coplan, 1992). Furthermore, Rubin and Coplan (1992) describe the
critical nature of parental contribution to their children's social competence:

Once socially competent behavior is demonstrated by the child and recognized by the parent, the secure parent–child relationship will be nurtured and maintained by the dialectic between (a) the child who is willing to benefit social-cognitively and socially from peer interactive experiences and (b) a competent parent who is emotionally available, sharply attuned to social situations and to the thoughts and emotions of her or his child, able to anticipate the child's behaviors and the consequences of the child's actions, and able to predict the outcomes of her or his own actions for the child. This secure relationship system serves both parent and child well, and, barring any undue circumstances, an outcome of social competence can be predicted.

Rubin and Coplan (1992) rehash a rather ubiquitous notion that parents play a significant role in the development of a child’s social and cognitive behavioral development. Other researchers, perhaps, take this argument a step further in the fundamental notion that a child’s behavior directly reflects the various events taking place in his or her natural environment (Patterson, 1976, 1982; Forehand, 1981; Dangel and Polster, 1984, 1987). Patterson (1976, 1982) discusses the complex processes of aggressive behavior exchange that occurs familial dyads such as parent-child, sibling, or peer interactions. He also describes the impact that these behavioral exchanges and consequences have upon the development and
maintenance of strong negative behavior exchange patterns within families, including parent-child relationships.

Parental Requests and Child Noncompliance

Negative child behavior symptoms are commonly reported during most clinical referral sessions. One behavior in particular, however, tends to be the most common behavior problem reported during these referrals, child noncompliance with parental requests or directives (Forehand, 1977; Forehand & McMahon, 1981; Patterson, 1982; Richman et. al., 1991). Noncompliance with parental requests has been described as the primary problem of children described as hyperactive, impulsive, and inattentive (Barkley, 1981). Numerous studies have supported Barkley’s notion indicating that children described as hyperactive tend to demonstrate more aversive behavior and less child compliance with parental instructions (Gomez & Sanson, 1994). Some researchers and clinicians have gone as far as to identify noncompliance with parental requests or directive as the underlying problem for the majority of all deviant child behavior (Forehand & McMahon, 1981).

Gomez and Sanson (1994) found that children with comorbid diagnoses of ADHD and Conduct Disorder were more likely to demonstrate defiant noncompliance (an unwillingness to follow...
instructions) as opposed to hyperactive children who appear to have an "inability" to comply with parental requests (i.e., failure to establish rule-governed behavior related to self control and initiation of behavior (Barkley, 1990). The diagnosis and assessment procedures that delineate child's behavior as unwilling to comply with a parental request from an inability to comply with a parent request may be an avenue for future research. Most current research, however, often focuses on a functional definition of noncompliance that involves a latency measure such as latency to task initiation following a parental request (Houlihan, Sloane, Jones, & Patten, 1992; Shriver & Allen 1997).

Most parent training protocols currently define child noncompliance as the failure to initiate a response to a parental request within a time limit following the request (e.g. 10 or 15 seconds post parental request) (Patterson, 1975; Forehand & McMahon, 1981; Webster-Stratton, 1993; Armstrong, 1996). Barkley (1987) suggested three categories of noncompliant behavior (a) initial behaviors within a reasonable time following a command given by an adult, (b) sustain compliance until the requirements specified in the command are fulfilled, and (c) follow previously taught rules of conduct in a situation. Forehand has also suggested that noncompliance be
defined as the failure to follow an established household or parental rule (Forehand & McMahon, 1981).

Nevertheless, most studies operationally define compliance by a response latency criterion contingent upon the request or command specifications being met. Surprisingly, there appears to be a dearth of research investigating normative temporal parameters around general child noncompliance, however, recent research does indicate that 98% of clinic and non-clinic referred children (boys and girls) initiated general tasks within 14 seconds or less (Shriver & Allen, 1997). Other research indicates that normal task initiation latencies (mostly in boys) roughly range roughly from 1.5 seconds to 19.6 seconds depending upon the age of the children in the study sample. Ironically, parent-training researchers have historically selected a noncompliance latency criterion between 5 and 15 seconds (Patterson, 1975; Forehand 1981; Armstrong, 1996). It is unclear whether researchers studying the treatment of noncompliance have operationally defined their criteria on empirical bases. Although the latency to task initiation criterion provides an operational definition for noncompliance, it does not describe the process in which pervasive negative or noncompliant behavior develops within children.
High rates of child noncompliance have been postulated to develop following a historical series of negative parent-child interactions. These negative parent-child interactions often involve "coercive processes" or "negatively reinforcing reciprocal interactions" (Patterson 1974, 1976, 1982). Patterson (1976, 1982) refers to these "negatively reinforcing reciprocal interactions" as coercive family processes. Coercive family processes describe a cycle of negatively reinforcing behavioral events that surround a parent and child request situation. The coercion occurs as one person's behavior is reinforced by the termination of another person's deviant behavior (Kazdin, 1987).

It has been suggested that these negative cycles of parent-child interaction are likely to develop over the course of thousands of interactions across numerous weeks, months, or years (Patterson, 1982; Barkley, 1991). Patterson has suggested "glacial movement" as a metaphor for the likely processes that lead to the significant development of socialized childhood aggression and noncompliance. From a social learning perspective this appears to be a viable explanation for the development of childhood aggression and high frequency noncompliant behavior, however, there remain unanswered
questions and unclear data that suggest how coercive processes develop and are maintained (Wahler, Williams, & Cerezo, 1990).

While the negative reinforcement model seems to strongly present a logical explanation for the maintenance of coercive interactions, Wahler, Williams and Cerezo (1990) suggest that aversive child behavior may manifest as a function of decreasing maternal indiscriminate attention and increasing predictable attention (through aversive interactions). They posit that, often, the occurrence of the coercive child-mother social exchange may be the primary "goal" of the parent-child interaction. This is an interesting hypothesis especially considering additional research suggesting that early stage noncompliant behavior in (toddlerhood) may reflect a deficit in the child's social interaction skills (Kuczynski & Kochanska, 1990). They propose that noncompliance may develop as an artifact of a skills deficit early on where children may not demonstrate appropriate "resistive" skills during the developmental period where child autonomy is normally expressed.

Many studies have detected the presence of maternal depression as a significant risk factor for the development of child noncompliance (Rickard et. al., 1981). Webster-Stratton (1988) found that depressed or stressed mothers tended to issue a higher frequency
of requests and a high frequency of criticisms toward their children. Odershaw, Walters, and Hall (1986) have found that in abusive mother-child dyads, the mothers issue significantly more commands and are much more inconsistent in the manner that they consequate their child's inappropriate and appropriate behavior. Thus, questions remain as to the etiology of child noncompliance. Nevertheless, child noncompliance has clearly been identified as a precursory developmental marker for the emergence of much more serious behavior problems (Loeber, 1982).

Patterson's (1974, 1976, 1982) research in the area of child noncompliance and aggression has been fundamental to the development of many current parent training interventions designed to ameliorate high rates of child aggression and noncompliance. In fact, over the past 20 years, treatments involving parent training for child behavior management have become the most popular and successful non-pharmacological treatment for decreasing noncompliant and aggressive behavior (Wright, Stroud, & Keenan, 1993). Behavioral interventions such as parent training have long been strongly recommended adjuncts to pharmacological treatment for behavioral and attention disorders (PDR, 1997).
Parent Training Interventions for Child Noncompliance

Parent training has been a prevalent form of child behavior modification since the late 1960's and early 1970's (Schaefer & Briesmeister, 1989; Graziano & Diament, 1992). As psychoanalytic and psychodynamic approaches to child psychotherapy were challenged to demonstrate their effectiveness, parent training emerged as a more naturalistic and empirically supported treatment for a variety of behavior and conduct problems. In contrast to the psychoanalytic and psychodynamic traditions, empirical literature supporting the efficacy of parent-focused strategies for addressing child behavior disorders dates back as early as 1958 for child tantrums and 1970 for child noncompliance (Williams, 1958; Hanf, 1970). In addition to the paradigmatic shift influenced by the empirical focus of behavior analysis and behavior modification, clinicians also found that it was also more effective to train parents as behavior change agents considering the great amount of time parents and children spend together (Green, Budd et. al, 1976; Anastopoulos & Barkley, 1989).

From these early studies, parent training research has become the largest body of research related to child conduct disorders (Webster-Stratton, 1991). Consequently, most current parent training
programs for child conduct problems are based on principles of behavior analysis, social learning theory, and cognitive behavioral therapy specifically targeting noncompliance and aggression, focus upon teaching parent an empirically driven set of core skills for monitoring and modifying their child's behavior. Rogerian-based approaches parent training programs have been developed and empirically evaluated, however, results have not supported their general effectiveness particularly when compared to behavior analytic approaches (Rinn & Markle, 1977; Dubey, O'Leary, & Kaufman; 1983).

Current Parent training programs teach parents to implement a systematic method of introducing basic behavior management principles and strategies into their everyday parent-child interactions. The goal of treatment is for parents to increase their child's positive, prosocial behaviors and decrease negative behaviors through these parent-child interactions and parent-child relationships (Newby, Fischer, & Roman, 1991; Webster-Stratton & Herbert, 1993). Several researchers have developed and extensively researched comprehensive parent training programs targeted to noncompliance and aggression (Eyeberg, 1974; Patterson, 1974; Forehand, 1981; Barkley 1981, 1987; Webster-Stratton, 1988). Each of these protocols
demonstrate commonalities and overlap in their content of core skills modules that instruct parents on effective means for monitoring target behaviors, issue requests, reinforce pro-social behavior, and decrease negative behaviors such as noncompliance, defiance, aggression, or tantrums.

**Elements of Parent Training Programs: Overview**

The following sections provide more detailed description of the core parent training program components. The elements discussed in this section are based on the most extensively empirical research and models of parent training developed by Patterson (1974; 1975; 1982), Forehand (1981); and Webster-Stratton (1984, 1988b, 1993b).

**Issuing Requests**

Forehand and McMahon (1981) report that most parent training programs focus upon modifying parent's behavior consequent to the present of child noncompliance, thus de-emphasizing the antecedent stimulus event, the issuance of parental commands or requests. Because the goal of parent training is to establish or strengthen the function of a parental request as a discriminative stimulus, it follows that parents should be trained to emit stimuli that better define the opportunity for their children to obtain reinforcement. To facilitate
this training, Forehand and McMahon (1981) have classified commands in two categories: Alpha and Beta.

Alpha commands are requests that are simple, direct, and specific. Several antecedent behaviors the parent should establish prior to issuing commands are also identified such as: a) establish eye contact with the child, b) speak slightly louder than normal, c) state the request in a "do" manner as opposed to a "stop" or "don't" manner, d) specifically state what is desired rather than adding excess verbal information (e.g., rationale), and e) when appropriate, add overt behavioral cues such as pointing, gesturing, etc. to facilitate communication of parental intent. Beta commands, on the other hand, are characterized by McMahon and Forehand (1984) in five categories: Chain commands or multiple commands, Vague commands, Question commands, Let's commands, and Rationalized commands. Parents who commonly issue Beta commands are likely to be particularly frustrated with their children. Table 1 provides an example of each type of Beta command and the probable outcomes associated with each type of request from the perspective of the parent and child's point of view.
Table 1
Beta Request Examples and Possible Outcomes

<table>
<thead>
<tr>
<th>Type of Request</th>
<th>Example</th>
<th>Parent:</th>
<th>Child:</th>
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<tbody>
<tr>
<td>Chain/Compound</td>
<td>&quot;Pick up your toys, brush your teeth, fold your clothes, and comb your hair...&quot;</td>
<td>a) Becomes frustrated because command is not &quot;completed&quot; by child&lt;br&gt;b) Difficult to determine what is compliance due to multiple tasks</td>
<td>a) May be overwhelmed with attempting to remember each task&lt;br&gt;b) Becomes frustrated because cannot identify correct response</td>
</tr>
<tr>
<td>Vague</td>
<td>&quot;Don't do that&quot;; &quot;Stop&quot;; &quot;Be careful&quot;</td>
<td>a) Becomes frustrated because child does not comply&lt;br&gt;b) Perceives request as clear</td>
<td>a) Has difficulty associating vague descriptors with current behavior&lt;br&gt;b) Becomes frustrated because cannot identify correct response</td>
</tr>
<tr>
<td>Question</td>
<td>&quot;Would you like to rake leaves?&quot;&lt;br&gt;&quot;How about carrying in the groceries?&quot;</td>
<td>a) Becomes frustrated because expects compliance&lt;br&gt;b) Creates a problematic situation where child can appropriately respond &quot;no&quot;</td>
<td>a) Perceives request as optional&lt;br&gt;b) Becomes frustrated when question retracted and command issued</td>
</tr>
<tr>
<td>Let's Commands</td>
<td>&quot;Let's go take a bath&quot;&lt;br&gt;&quot;Let's clean your room now&quot;</td>
<td>a) Intends for child to comply independently not collaboratively</td>
<td>a) Feels tricked when parent does not collaborate in the task&lt;br&gt;b) Delays task completion, escalates</td>
</tr>
<tr>
<td>Command followed by a rationale</td>
<td>&quot;Put your shoes on because we're going to the store and you have to have shoes on in the store because those are the store rules&quot;</td>
<td>a) Obfuscates the original command&lt;br&gt;b) Creates opportunity for the child to play the &quot;why&quot; game and delay</td>
<td>a) Has difficulty discriminating task or storing all information in working memory&lt;br&gt;b) Becomes frustrated because cannot identify correct response</td>
</tr>
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Defining and Monitoring Child Misbehavior

Teaching parents to monitor their child’s misbehavior targets two primary objectives. First, parents are presented with a skill component that focuses upon teaching parents to become more accurate observers of their children’s behavior. Second, parents establish the habit of emitting a behavioral response consequent to their child’s behavioral. Requiring parents to observe, categorize and record their child’s behavior increases the likelihood that the parent will consistently consequate their child’s behavior. Patterson (1976) provides parents a detailed summary of the benefits associated with observing, counting and recording child misbehavior. In order to reliably and accurately monitor their child’s behavior, the clinician emphasizes an operational definition of child compliance in accordance with the parent (Newby, Fischer, and Roman, 1991). Patterson (1976) might describe this process to a parent as pinpointing the problem behavior. This discussion is easily transitioned to a rationale for establishing a baseline of noncompliant or specific problem behaviors.

Most programs based on Patterson’s approach operationally define child compliance as initiating a response to an adult request within 15 seconds of the request (Armstrong, 1996). A 10-15 second
response initiation latency criterion allows children sufficient time to stop what they are doing, process the request, and initiate the request. Compliance, therefore, is defined as *initiating a response to a parental request within 15 seconds*. Noncompliance entails not *responding within the 15 second latency period or demonstrating coercive behavior consequent to the parental request* (Armstrong, 1996).

After defining and discussing the operational aspects of compliance and noncompliance, the therapist and parent engage in discussions about the most common verbal, motor, and passive topographies of naturally occurring noncompliant child responses to parental requests. Practice ensues and when parents demonstrate reliable and accurate classification and recording of naturally occurring child behavior in the clinic, they are a "homework assignment" of monitor their own child's behavior at least once a day for a one-hour interval at a time when high frequency parent-child interactions or parent demands are likely to occur. These times usually occur at dinnertime, bedtime, or mornings before school).

An interesting aspect to the Armstrong (1996) treatment program is the contingency established between parent and clinician that parents must record their child's behavior for at least 5 of the 7
days between clinic sessions in order to for treatment to progress to the next phase of treatment. The parental record of behavior serves as a clinical baseline of compliant and noncompliant child behavior. Throughout treatment, an analysis of the parent's compliance with the therapist's contingency for advancing through treatment creates the opportunity to maintain an awareness of client or child characteristics that lead to attrition or delayed treatment progress such as parental distress (Brody & Forehand, 1985; Holden, Lavigne, & Cameron, 1990).

**Increasing Positive and Prosocial Behavior**

After the parent has successfully monitored child behavior and establishes baseline rates of child noncompliance, parents are introduced to procedures that are targeted to: a) increase parental attending to positive and prosocial child behaviors, and b) increase the probability that the child demonstrates future compliant behavior. The clinician discusses with the parent the methods for setting up a token and social reward system customized to their child's particular reinforcer preferences. The opportunity to reinforce compliant behavior is created by having the parent identify one or two simple household chores that can be assigned daily and broken down into four to six simple tasks (correspondent to simple parent requests).
The parents are instructed to explicitly teach, demonstrate, and practice the chore tasks with their child to ensure that the child comprehends the tasks and is competently able to complete each task. The planned parent-child chore interaction establishes a parent-child demand situation that provides a structured opportunity for: (a) the parent to explicitly issue praise and token rewards as well as additional effective feedback for positive child behavior, (b) a parent opportunity to more easily monitor noncompliance, and (c) a parent to provide Alpha requests in a multiple-task demand situation. At the end of each day, the child may exchange his or her tokens for predetermined social and tangible reinforcers customized to child preference. Social reinforcers involve some kind of activity that promotes positive parent-child child interaction while tangible reinforcers entail consumable objects such as food, money, video games, etc.

At the end of the increasing positive behavior phase of treatment, parents are instructed to continue monitoring child noncompliance but, in addition, monitor the number of completed chore tasks, token reinforcers assigned, and record of reinforcer selection.
**Decreasing Negative Behavior: Time-Out**

Time-out is a response-contingent technique widely prescribed by clinicians targeted to decrease noncompliance and aggression by removing positive reinforcement (Hobbs, Forehand, Murray, 1978). Timeout has consistently been shown to reduce child deviant behavior and demonstrates higher efficacy rates when compared to differential reinforcement procedures (Hobbs & Forehand, 1977; Hobbs, Forehand, & Murray, 1978; Roberts et al, 1981; Walle, Hobbs, & Caldwell, 1984). Parent training programs for noncompliance implement time-out as a means of establishing an association between child noncompliance or negative behavior and the removal of reinforcement or decrease in the probability that reinforcement will be obtained.

Patterson (1975) describes a time-out procedure where the child is removed from the situation where reinforcement occurs frequently and is placed in a new situation where few reinforcers are available. The child is required to comply with the time-out request for a duration of five minutes, else, the time-out duration will be extended for up to 10 minutes. Patterson selects these time-out durations based on research indicating that five minutes of time-out duration is equally effective to 20 or 30-minute time-out durations (Patterson &
White, 1969). Hobbs and Forehand (1977) empirically confirmed the increased efficacy of using contingent release time-out based on the child’s behavior as opposed to a fixed, non-contingent method of time-out release. Hobbs, Forehand, and Murray (1979) provide evidence that four-minute time-out durations were more effective in decreasing noncompliant behavior as compared to one-minute or ten second time-outs. An analysis of the gains of time-out effectiveness occurring between one-minute time-out durations and ten-second time-out durations revealed diminishing gains as time-out duration increased. These findings provide further support to Patterson’s early studies regarding the relative effectiveness of different time-out durations.

During clinical interviews, parents frequently report that they have used time-out prior to entering the parent training sessions, however, research utilizing home observational data reveals that parents seldom accurately employ time-out techniques that functionally removes their children from the opportunity to obtain reinforcing activities (Patterson, 1982). Considering that the crux of the parent training process is to increase parents’ discriminations of the opportunities to effectively consequate their child’s compliant and noncompliant behaviors, it may be beneficial to present families with an introduction to various behavior topographies to increase their 

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ability to identify discriminative stimuli emitted through noncompliant behaviors.

**Parent Training: Cost Effective Solutions for Intervention**

As Wright, Stroud and Keenan (1993) suggest, the cost-effective qualities of current treatment methods are growing in importance given today's economically reforming health care system. Traditional parent training programs for increasing child compliance have been previously shown to demonstrate cost effectiveness through their using group administration, showing videotapes, and relying more on treatment delivery by paraprofessional providers supervised by licensed psychologists or other qualified health service workers. Wright, Schaefer, and Solomon (1979) estimated that 1 hr of professional time devoted to a potential client can translate to roughly 500-800 hrs of different experiences for children while the consultations are being conducted.

**Parent-Training – Adjunctive Materials**

To combat the high cost of parent training services, address therapist supply issues and enhance the effectiveness of traditional parent training, several media adjuncts have been used in the delivery of parent training programs. These adjuncts have typically included
books, handouts, audiotapes, and videotapes.

**Written materials**

There are many books available that discuss the management of child behavior, parent techniques, and child rearing suggestions. Few of these publications are targeted to present parents with a specific program for increasing child compliance. McMahon and Forehand (1981) authored a text for clinicians that present empirical foundations and clinical suggestions for the delivery of a standard parent-training program for increased child compliance. Several additional texts (i.e., Patterson, have been written for parents to teach basic principles of behavioral observation and intervention strategies (Patterson, 1976; Christophers3n, 1988; Clark, 1996). Although written materials are commonly used in conjunction with traditionally delivered parent-training programs their effective utility in promoting significant behavior change has been found to be limited at best (Webster-Stratton, 1988b). Nevertheless, Webster-Stratton (1981, 1988b) notes that written materials can be useful in reducing clinician time devoted to the delivery of parent training. Sloane, et al. (1991) evaluated the use of self-instructional booklets to help parents increase compliance rates in 3-8 year olds. They observed a 46% median increase in child compliance for 14 of 17 children. Although
parents reported that the program was useful, many indicated that
the self-instructional booklet was moderately difficult to use. Parents
did report, however, that they would use the booklets again.

**Videotape**

A videotape modeling technique assisting a traditionally
delivered parent training program for aggressive and noncompliant
children was developed and evaluated by Carolyn Webster-Stratton
(1980). Webster-Stratton (1980) found that using videotape
presentation of skills training in conjunction with group discussion
resulted in significant decreases of child misbehavior. Webster-
Stratton (1982) observed that 32 out of 33 families who completed the
1980 study reported significant reductions of behavior problems upon
one-year follow-up measurement. A review of maternal questionnaire
data revealed that these former clinic-referred children were rated as
being behaviorally similar to non-referred peers.

Webster-Stratton (1990) completed a follow-up study of
adjunctive videotape use in parent training for conduct-disordered
children. A comparison of wait-list control group, standard therapist-
delivered parent training, and parent training enhanced with the use
of videotape modeling. Data analyses revealed that those families who
received the videotape-enhanced parent training produced more
significant decreases in child behavior than the standard therapist-delivered treatment.

The Adjunctive use of Computers in Clinical Psychology Settings

Computers are becoming a ubiquitous fixture in many medical, clinical, and educational settings. The power of computing technology is being utilized in varied applications within the psychological and psychiatric research and applied areas. Although it may appear that these contributions have occurred in the recent past, the vision of computer technology in these settings was realized as long as 20 years ago.

Wagman (1980) introduced the Dilemma Counseling System (DCS), a computerized counseling-type program. DCS was programmed to run on a mainframe operating system and, through a text-based interface, was intended to train its users to improve their descriptions of life problems to facilitate their ability to better generate possible solution alternatives to their described life problems. The computer program instructed its users to rank-order their solutions based on desired outcome. Even with such a primitive user interface, Wagman found that those persons who used DCS reported significant reductions in problem severity as compared to a control group.
(Wagman, 1981). Another particularly interesting finding was that DCS users reported that they enjoyed using a computer procedure significantly more than a written instrument or than going to the campus-counseling center to address their problem. Despite these impressive findings, Lawrence (1986) reported that only 20% of the students could formulate a problem that could be used by DCS. Furthermore, no independent assessments were conducted to evaluate the effects of using DCS. Considering the more recent developments in Internet technology and trends in leisurely socialization and self-help through "chat rooms" this finding may not be as initially surprising as it was in 1980. Wagman should, however, be credited with implementing one of the first computerized psychotherapeutic adjunctive programs in the field.

As personal computers became more prevalent during the decade of the 1980's and computer technological capabilities increased, one might expect that more research and development of computer assisted psychological intervention would occur. However, even ten years ago, relatively few clinicians and researchers were using computerized psychotherapeutic tools outside the area of neuropsychological cognitive rehabilitation (Schwartz, 1990). Despite the relative non-use of such technological adjuncts, researchers and
clinicians began to recognize the prospective potential computer mediated interventions might have for the provision of psychological services within a variety of applied clinical settings.

Despite the limited availability of widely published clinical software tools during the 1980's, several researchers began to advocate and conduct initial investigations of clinical adjuncts (Griest, 1980; Wagman, 1980b; DeMuth, 1984). As the capabilities of computers began to increase markedly and the presence of the "personal computer" became a technological and economically feasible reality, early advocates began to propose more sophisticated computerized solutions for monitoring physiological data (for biofeedback), brain activity, language and speech analysis, and for more precise means of capturing data and delivering more variance free protocols than their predecessors in the 60's and 70's such as Weizenbaum (1966, 1976) may have conceived (Lawrence, 1986; Bloom 1992). The 1990's was the decade where computer facilitated psychotherapy and behavioral consultation rapidly increased in development.

During the most recent decade, computer technology and development increased exponentially in terms of the wide range of stimulus presentation capabilities (e.g., clipart, video, animation, 3D,
virtual domains), data storage, and connectivity (Internet, intranet, extranet). Researchers and clinicians have taken advantage of these technological advances to develop innovative applications of computer technology to clinical settings. Recent accomplishments in this area have seen the development of computer applications for the treatment of obesity, smoking cessation, social skill assessment, acrophobia, and parenting (Irvin et. al, 1992; Burnett, Taylor, Agras, 1992; Burda, Starkey, Dominguez, & Vera, 1994; Hester, 1997; MacKenzie &, Hilgedick, 1999; Kacir & Gordon, 1999).

The technological increases that have occurred in the 1990’s perhaps occurred so rapidly that by the time a computerized protocol had been adequately researched, developed, and implemented, its features were virtually antiquated. Nevertheless, the past decade of technological development provided the capability to conduct some exciting and innovative techniques for adjunctive computer interventions.

Introduction to Method

The effectiveness, social validity, and efficiency of parent training based child management programs have been empirically documented over the past 25 years. One general conclusion regarding adjunctive therapeutic materials such as audiotapes,
videotapes, and workbooks is that they make treatment more cost effective and time efficient. Materials that ultimately reduce the amount of clinician time required for treatment delivery also provide benefits to clients and mental health agencies. Reduced in-session allows clinicians to maintain larger clinical caseloads, thus leading to an increased accessibility to clinical services. Adjunctive treatment materials promote cost-effectiveness as well as broaden opportunities for consumers to independently acquire and rehearse skills. Cost-effective qualities of current treatment methods are no longer unimportant in today's economically driven and reforming health care system (Wright, Stroud, & Keenan, 1993). The advent of managed care has propelled the issue of cost-effectiveness to the forefront of all health care, particularly mental health service delivery.

Computer technology has rapidly advanced over the past ten years. Researchers have only recently begun to utilize the benefits that computers can provide in facilitating skill acquisition and skill rehearsal. Computerized training has been conducted in various occupational, academic, and domestic settings. Computer multimedia, the presentation of various types of media such as full-motion video, high quality photographic images, animation, and high-fidelity sound, is frequently used to supplement presentations,
demonstrations, and provide interactive training in many settings such as occupational, rehabilitative, and academic. Computer-delivered multimedia training programs possess several unique advantages over alternative adjunctive methods such as audiotape, videotape, or written materials: (1) interactive, customized teaching based on users responses to content presentation, (2) on-line collection of assessment data related to content presentation (pre-session data printouts may facilitate therapists' assessment of protocol knowledge), and (3) increased opportunities for content remediation and practice. There have been few studies examining the benefit of interactive computer based training applications for the use specifically in clinically applied settings.

This study involved the design, development, and delivery of a computer based adjunct to clinician delivered parent training. We also probed into issues prospective acceptability, efficiency, and effectiveness of using computer-based parent training interventions within a clinical environment. The 20-30 minute computerized interactive didactic adjunct presented the definitions, concepts, and procedures involved in the delivery of a time-out procedure. The computer program utilized full-motion video, clipart images, narrated text, and animation to introduce the clinical content. The computer
program did not function as a therapist but rather introduced parents to basic skills of implementing time-out.

Effectiveness and acceptability of the computer-adjuncted program was conducted using a multiple baseline across-subjects design to probe into the following issues: (1) the impact upon child noncompliance rates, (2) efficacy of the computer-based adjunct as a teaching medium for child management skills, and (3) consumer satisfaction and acceptability of the computer adjuncted treatment program.
CHAPTER II

METHOD

Participant and Setting Characteristics

Setting

This study took place at a small non-profit counseling center serving a Midwest metropolitan area of approximately 250,000 people. The counseling center is located in the facilities of a church. Referral sources to the counseling center typically consist of clergy, school personnel, medical professionals, and representatives of local community agencies.

Participants

Four participant families were recruited for this study. One family dropped out prior to the first week of the study. Recruitment consisted of the distribution of flyers to local physicians and clergy (Appendix A).

Three families with children between the ages of seven and eleven years old participated in this study. Of the three families, two boys and one girl were the primary individuals targeted for clinical
intervention. Two of the three families were single-parent families and the third was a blended family. All parents and identified patients participating in this study were Caucasian.

The first family’s child was James, an 11-year-old male in the fifth grade; the second family’s child was Jessie, a 7-year-old male in the second grade; the third family’s child was Susie, an 8-year-old female in the second grade. None of the participant children in this study had been identified with learning difficulties or received special education services. None of the participant children had prior DSM diagnoses and none took any prescription medication for psychiatric or behaviorally oriented symptoms. In families 1 and 3, fathers were not present in the household and were unavailable for participation in the study. In family 2, a stepfather was present in the household but chose not to participate in the intervention or study. The biological father of the child in family 2 was unavailable to participate in treatment.

Each family’s primary referring complaint was their child’s noncompliance with caregiver requests. In addition, each parent reported a history of limited aggressive behavior and social skills difficulties. None of the children who participated in this study had previously been diagnosed with any medical or psychiatric disorders.
and none were receiving any medical treatments for noncompliance or aggressive behavior. None of the children had any prior history of receiving psychotherapeutic services.

Eligible participants were provided with a written general description of the study prior to their consent and subsequent inclusion in the study (Appendix B). All participants were offered treatment regardless of participation in the study and there was no charge for services provided as part of this study. A signed informed consent statement (Appendix C) was obtained from each participant family after they had the opportunity to read the study description and verbally acknowledge prior to inclusion in the study sample.

Standard demographic data were collected prior to the commencement of treatment.

**Apparatus**

**Computer Hardware**

The majority of program development and delivery was conducted using a variety of Intel Pentium® class computers. The primary development computer had the following specifications: a 100 megahertz Intel Pentium® central processing unit (CPU), a Mitsumi® quad-speed CD-ROM drive (model FX-400), 32 megabytes (MB) of
random access memory (RAM), a Western Digital® hard disk drive (model AC 31000; 1.2 gigabyte capacity), a Dell® 17" video monitor (model VS17), a Reveal® 16-bit audio card, and an Iomega® Zip drive (external parallel port version). During computer program development, digitized full-motion video files were captured using a Panasonic Super VHS videotape recorder connected to an Apple PowerPC® computer. The Apple Power PC computer used to capture and create digital video files had the following specifications: an Apple® 15 inch video monitor, a Moose® external hard drive (4.0 gigabytes capacity), a Jazz® video capture card, and an Iomega® Zip drive (external SCSI version).

The computer assisted parent-training program was delivered using an IBM® PC compatible computer. The computer used to deliver the multimedia program has the following specifications: an 200 MHz Intel Pentium® MMX CPU, 64 megabytes of random access memory; A Dell® SVGA, 17 Video display monitor, a Microsoft® Intellipoint mouse, a Mitsumi four speed CD-ROM drive, and a SoundBlaster AWE 64 audio card. This computer had two hard drives: a WD AC 31000 (1.2 gigabytes hard disk capacity) and a WD AC2850 (850 megabytes of hard disk capacity).
**Computer Software**

The multimedia computer program was authored using the Asymetrix Toolbook® multimedia authoring software program (Version 3.0a). Asymetrix Toolbook® was also the platform software used to deliver the computerized parent training program. Full motion video clips were captured using Adobe Premiere® video editing software (Version 4.0). Full-motion digital video files were compressed using Intel Indeo® (version 3.2) video compression software to minimize file storage space and maximize performance. Video clips were saved using the Apple® QuickTime® (version 2.1) file format to enable video presentation using the Apple QuickTime Movie Player. Microsoft® Sound Recorder for Windows 95® was used to record and edit all narrative audio clips used in the program. Clipart images and various text images presented in the program were edited, created, and re-sized using Corel Draw® (version 6.0). Microsoft Windows 95 was used as the desktop computer operating software.

**Computerized Intervention Program Development**

At the time of program conception through development (1994-1997), computer technology was relatively primitive and cost prohibitive as compared to today's capabilities and hardware cost.
The initial concept for this project was to take advantage of the increases in computer technology since the early 1990's and develop a highly interactive program that would facilitate parents' in their ability to learn, practice, apply and generalize parent training treatment manual content. At the time, the presentation of video via computer was in its infancy, however, our goal was to take advantage of the benefits of video presentation with the additional bonuses that a computer program could provide including: (a) response specific feedback, (b) learner controlled pace of information presentation, and (c) capability of the system to provide clinician with pre-post session assessment data.

Stage One: Research Technological Capabilities

One of the first tasks involved was to begin a thorough investigation of the available computer equipment and software capabilities able to meet the demands of the development goals. Much of the first year of project conceptualization and development involved researching the availability and capability of computer hardware and software. The project required hardware and software with the capability of delivering reasonable quality video, graphics, voice-over audio, and data capture. We employed the assistance of several campus departments to facilitate our knowledge of the
available technologies, however, because the technology for digital
video and computer based training authoring tools was so new and
rapidly changing, we found that, at times, we were more
knowledgeable than many of the resident technology experts in
certain areas of PC multimedia.

Several issues determined our commitment to a computer
hardware platform (e.g., Apple versus PC type): a) hardware capability,
b) software capability, c) access to available resources, and d) the
presence of platform within target settings (clinics, mental health
departments, and medical facilities). After weighing the issues, we
decided to develop our program for the PC based upon available
resources and the fact that, at the time, PC type hardware and
software were an increasing part of the market share versus Apple
machines making it more likely that our program could potentially be
widely distributed to our target audience.

Next, we explored a variety of software options available for
developing our program. At the time, Computer Based Training (CBT)
software was extremely expensive because this software was also
being used to develop commercial quality kiosks and, in many cases,
the software had been custom developed. In our discussions with the
campus technology consultants, we were pointed to a new piece of
software designed for academic use and learning applications called Asymetrix Toolbook®. Asymetrix Toolbook® is a software product that allows the user to create CBT programs with a variety of features including audio, video, and animated graphical content. Asymetrix Toolbook® uses the metaphor of a book flipping "pages" to orient users to its software. Much of the interactivity and advanced features require the user to learn the proprietary scripting language called OpenScript.

Now that we had identified our hardware and software needs, we were ready to design and develop our program.

Stage Two: Design and Develop Program

Because our program was based on a treatment manual, the task of identifying goals and objectives had already been specified. We began by outlining our content and breaking the content down into discrete concepts and chunks of information. Many professionals in the instructional design field refer to this process as repurposing instructional content. One common caution when repurposing content from human-delivered or paper-based content is to attempt to force a paper-based format upon the computer delivered medium. Perhaps the best example to illustrate the differences is the contrast between a book and movie adaptation of that book. We became aware
of this issue during the design and development phase and identified some strategies to organize our content while facilitating the development process. Overall, the design and development phase consisted of several major tasks.

Our first task was to organize the content into discrete elements that would facilitate user comprehension and retention. Ultimately, we were able to map the program content to a screen-by-screen script. This script or blueprint (Appendix D) was incredibly useful because it served several functions: (1) it kept the content organized in a logical flow, (2) it served as a guide for identifying adjunctive media (clipart, graphics, animated text) in structuring the program, and (3) it literally became the script used to record the voice-over audio clips for each screen of the program. Once we had this script, we were able to continue the design and initiate development. This was, perhaps, the first milestone in program design/development.

Our second task was to develop the content, script, actors, and location for shooting the video scenarios. Upon developing some sample scenario scripts, we employed some assistance from students and faculty in the video production department. The video production experts were able to take our written scripts and create storyboards for the scenarios by adding camera angles, video shot sketches, and
lighting/setting details (Appendix E). We proceeded to shoot the video in the university television studio and, afterward, were able to take a copy the video to the media services center and convert the analogue tape to digital format. We were now 2/3 of the way to having the design complete and material ready for development.

The third task entailed identifying practice and quiz content. The practice and quiz section of the program is characterized by the presentation of video scenario clips with corresponding quiz questions. One of our primary learning goals was to provide users with response specific feedback in a multiple-choice quiz type format. Because we chose this format, it required that we develop independent audio clips and graphics to provide user specific feedback. Because the feedback offered question specific content, we were required to record unique content specific to each answer option. To organize this process, we developed an independent script to organize the practice/quiz content and audio recordings (Appendix F).

Stage Three: Programming and Testing

After the design and content development process was complete. We were ready to begin programming and testing. Our application was somewhat unique in that it involved the complexity of
using up to three different types of media (graphics, video, audio) within the same Toolbook “page.” The major challenge at this stage of program development was to overcome such obstacles and take the program script, audio, video, and graphics, and create the code to make it work as designed. This was often an arduous process complicated by the fact that Toolbook was relatively new on the software market and there was a dearth of publications available outside of the user manuals.

Nevertheless, upon completing the programming, the task at hand was to conduct thorough program testing to ensure that none of the computer program “branches” would create errors. Any errors in the program would certainly cause major impact to upon the data collection and completion of this study. Luckily, the program was small enough that the task of testing each program branch was manageable in a reasonable amount of time.

This provides an overview of the strategy, tasks, and magnitude of the development process associated with computer-based multimedia.
Measures

Child Behavior: Descriptive Measures

Child Behavior Checklist

The Child Behavior Checklist (CBCL; Achenbach 1991) is a 118-item parent questionnaire that was used to obtain clinically descriptive information from the study sample. The CBCL profile yields several indices of clinical child behavior across three domains: Child Activities, Social Involvement, and School Performance. The CBCL uses a standardized T-score scaling system (M=50; SD=10).

The CBCL demonstrates adequate levels of test-retest reliability (Achenbach, 1991). Validity studies have demonstrated that the CBCL accurately identifies children with clinically significant behavior problems (Mash & Johnson, 1983).

HSQ

The Home Situations Questionnaire (HSQ; Barkley, 1981) is a 16 item instrument used to indicate the presence and severity of problem behaviors occurring in situations where a parent or caretaker is likely to issue requests and desire compliant child responses. The presence of behavior problems in five areas suggests a clinical level of
behavioral disturbance. This instrument will be used to provide demographically descriptive information as well as facilitate analogue content for the clinic-based parent skills analogue measure.

Child Behavior: Dependent Measures

Target Behavior: Children

Child noncompliance was defined within the treatment program as a failure of the child to initiate a response to a parental request within 15 seconds of the request. Additionally, a noncompliant response was also coded if a child engaged in backtalk or arguing upon the issuance of a parental request. If the child initiated a response to a task but failed to complete the task, a noncompliant response was coded.

During the first treatment session, parents were introduced to the coding criteria and trained to collect home noncompliance data using a coding sheet. The first treatment session focused upon training the parent observer to operationalize, identify, discriminate, and record noncompliant child behavior. Parents were instructed to collect compliance data for at least one hour per day (which could be divided into two 30 minute intervals). The data collection, pre-intervention, served as baseline estimates of a child's noncompliance.
in the home. This data was collected through the first four weeks of the intervention.

**Parent Behavior: Dependent Measures**

**Target Behaviors: Parents**

**Clinic-Based Parent Skills Role Play Procedure.** The Clinic-Based Parent Skills Role Play procedure (CBPSRP; See Appendix G) was developed for the purposes of obtaining an in-clinic estimate of parents' performance in discriminating and applying the skills and techniques presented in session to a simulated parent-child interaction. The CBPSRP consisted of eight simulated parent-child request interactions where the therapist role-played a child response to a parental request and the parent was required to accurately apply strategies and techniques of the parent training protocol to address the child's (therapist) response to the parental request. Parents were given practice sheets for tracking child behavior and instructed to respond to each parent-child interaction as they would respond in an actual parent-child request situation. The therapist role-played and interaction and recorded parental responses on data collection sheets at each phase of the intervention (Tracking behavior and making requests, Increasing positive behavior, Decreasing negative behavior). In an attempt to provide more realistic interactions, the therapist pre-
assigned each simulated parent-child interaction with a particular child outcome (e.g., compliance or noncompliance). To further challenge and assess each parent's ability to discriminate between compliant and noncompliant behavior, different topographies of compliant and noncompliant child responses were assigned to each outcome. For example, a delayed compliant response might be a response where the child initiates a response to the parental request 13 seconds subsequent to the request as opposed to one second subsequent to the request.

This instrument was constructed directly from the material presented in the Parent Training manual so that it demonstrates face and content validity. No additional reliability or validity data are available for this measure.

**Parent Knowledge of Parent Training Protocol**

**Parent Skills Knowledge Quizzes.** Following each of the three phases of treatment, Parent-Skills Knowledge Quizzes (Appendix H) were administered. Each quiz is comprised of 10 open-ended items based on the content of each treatment phase. McGrath (1997) developed the skills assessment instruments for the treatment intervention. While no reliability data have been reported, the quizzes
demonstrate sensitivity to treatment effects and demonstrate content validity (Channell, 1997).

**Computer Based Time-Out Quiz.** The Computer-Based Time-Out Quiz is a 10 item multiple-choice quiz that was presented subsequent to the content presentation of the multimedia parent-training program. The computer-based quiz presented a novel video-based vignette of a parent-child interaction broken down into segments. At the end of each video segment, the parent was required to select the response that accurately corresponded to the prescribed protocol technique taught during the training and interactive feedback portion of the multimedia program. The user’s response selections were stored within the program and retrieved by the therapist upon client completion of the computerized training program. This instrument was developed along with the computer-based parent-training program. No reliability or validity data are currently available for this measure, however, it was based directly upon the content in the multimedia program and demonstrates content and face validity.

**Parent Consumer Satisfaction**

**Computer Rating Questionnaire.** The Computer Rating Questionnaire is a 20 item self-report instrument used to obtain
feedback from the user regarding quality and acceptability of the multimedia parent-skills training program (See Appendix I). The questionnaire also assesses the acceptability of adjunctive computer use as opposed to exclusive therapist delivered treatment. The investigator developed this instrument for this study so no reliability or validity data are available. However, it is consistent with other satisfaction measures developed for unique parent training programs.

Procedure

At the initial clinic visit, parents completed the consent form, HSQ, and CBCL. Parents completed a full diagnostic interview and developmental history. The Parent Training Program consisted of three major phases of treatment (request making and tracking, positive point program and time-out) conducted over four sessions. Subsequent sessions focused upon issues of maintenance, generalization, and addressing idiographic behaviors of each child (e.g., parent directed social skills training). The Armstrong (1996) parent-training manual may be found in Appendix J.
The tracking and request-making phase of treatment was introduced during the second session of treatment. Parents were presented information about effective request making and techniques for monitoring child compliance and noncompliance in their homes during the week. Following the instructional discussion of the session, parents completed the first written knowledge quiz and role-play procedures prior to the end of the session. Feedback and review was provided and then parents were asked to track their child’s behavior for at least one hour each day for the duration of the treatment program. Parents were informed that treatment would not be able progress until at least five out of seven days of data had been recorded.

Once the tracking/request-making phase has successfully completed, the positive point program was implemented. This phase of treatment was designed to teach parents how to increase desirable behaviors (i.e., compliance with parental requests and independent completion of chores) by using a daily token-reward.
The positive point program commences at the third session and continued for one to two weeks through the fourth session. The positive point program first involved teaching the parents to generate a list of tangible and social reinforcers that could be delivered on a daily basis. Second, in order to acquire the social and tangible rewards, the child earns tokens (points) for demonstrating compliant behavior to parental requests. The therapist and parent set a minimum total daily compliance point criterion to which the child must earn compliance points to receive a choice of tangible or social rewards at the end of the day.

To facilitate the compliance training process, the parents introduce one or more chores (identified by the therapist and parent(s)) so that the children and parents create more frequent opportunities to provide/receive reinforcement during a parental request – child noncompliance situation and practice Alpha requests and facilitate discrete task completion.

Parents were specifically instructed to provide positive verbal feedback to the child (e.g., “Good job. That’s a point!”) and record the cumulative number of compliance points acquired by their child each day. At the end of each day, the cumulative point total (for the day)
was compared with a minimum criterion point total in order for the child to earn access to a choice of reinforcers.

The CBPSA was conducted following this session to assess the parents' ability to apply this procedure. Parents also completed the second written knowledge quiz in the clinic at the end of this session.

**Time-out (Adjunctive Computer Program)**

After successful completion of the requirements for the positive point program, the fourth session introduced a standard time-out protocol for noncompliant behavior via the computerized adjunctive program. Parents were presented with the computerized parent skills training program and completed the Computer-Based Parent Skills Quiz. Parents subsequently met with the therapist to review the program content and clarify the specific time-out procedure. Parents were requested to record child compliance, child noncompliance, points earned and frequency of time-outs and/or backup punishers that occur. Parents completed the CBPSA, the third written knowledge check, and the Computer Rating Quiz at the end of this session.
Remaining Treatment Sessions

The remaining treatment sessions, up to and including the sixth session focused upon maintenance and generalization issues. Additional strategies were introduced to address the use of time-out away from home or to discuss management techniques with other caretakers or in other settings.
CHAPTER III

RESULTS

Data presented in this section provide a qualitative and quantitative summary of the effects of the various phases of parent training intervention on the children and on the parents. Treatment acceptability data are also presented.

Target Behaviors: Children

Parent Recorded Child Noncompliance Rates

Figure 2 illustrates the results of introduction of each phase of intervention program for parent-recorded child behavior observations across the three child participants in this study. Mean baseline rates of noncompliance were variable across child participants: James, 59% (range: 40-78%); Jesse 70% (range: 50-100%); Susie 70% (range: 36-87%).

At phase I of the intervention, James’ rates of noncompliance were, on average, actually higher than his baseline rates of noncompliance although his rates of noncompliant responses were stable over phase I measurement: James 67% (range: 63-74%). Jesse
and Susie both demonstrated more variability in their noncompliant behavioral responses: Jesse 62% (range 33-74%); Susie 68% (30-93%). Both Jesse and Susie appeared to significantly decrease noncompliance upon the first observation post phase I intervention.

Upon the implementation of phase II (Time-out procedure presented via computer adjunct), each child’s rate of noncompliance decreased dramatically: James 7% (range: 0-18%); Jesse 27% (range: 0-43%); Susie 7% (range 0-50%). Jesse’s rates of noncompliance following phase II of the intervention were generally higher than either James or Susie’s rates of noncompliance.

Target Behaviors: Parents

In-Clinic Behavioral Observations.

Clinic Based Parent Skills Role-Play Procedure

Table 2 reveals the percentage of correct parent responses for the Clinic Based Parent Skills Role Play procedure. Results suggest that all parents were able to demonstrate the appropriate parent responses in the analogue situation at baseline: James mother 100%; Jesse’s Mother 100%; Susie’s mother 100%. At phase I, performance
Figure 1. Parent recorded percentages of noncompliant responses to parental requests per observation session.
was not perfect, however, each mother demonstrated good
performance: James mother 85%; Jesse’s mother 94%; Susie’s mother
88%. At phase II, James mother demonstrated perfect performance
100% and Susie’s mother demonstrated adequate performance 75%.
Jesse’s mother had a difficult time accurately identifying appropriate
responses during the analogue 41%.

Table 2

Post-Session Clinic-Based Role Play Procedure

<table>
<thead>
<tr>
<th>Family</th>
<th>Percentage of Correct Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
</tr>
<tr>
<td>James</td>
<td>100</td>
</tr>
<tr>
<td>Jesse</td>
<td>100</td>
</tr>
<tr>
<td>Susie</td>
<td>100</td>
</tr>
</tbody>
</table>

Parent Knowledge of Protocol Content

Post-Session Written Skills Quizzes

The following table (Table 3) displays the percentage of correct
answers for the written Skills Quizzes during each phase of
intervention. Based on written quiz scores, each parent appeared to
demonstrate superior knowledge of protocol content at each phase of intervention.

Table 3
Post-Session Written Quiz Scores

<table>
<thead>
<tr>
<th>Family</th>
<th>Percentage of Correct Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
</tr>
<tr>
<td>James</td>
<td>100</td>
</tr>
<tr>
<td>Jesse</td>
<td>90</td>
</tr>
<tr>
<td>Susie</td>
<td>100</td>
</tr>
</tbody>
</table>

Computer Delivered Video-Scenario Quiz

Table 4 displays the percentage of correct answers for the computer-delivered video scenario quiz administered at the conclusion of the computer-based skills training program. Based on percentage correct, each parent appeared to demonstrate adequate knowledge of protocol content at each phase of intervention. Results suggest that all parents were, in a novel scenario, able to identify the appropriate parent behaviors that should be emitted in based on the phase II protocol content.
Table 4
Post-Session Computer-Based Video Scenario Quiz Scores

<table>
<thead>
<tr>
<th>Family</th>
<th>Percentage of Correct Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>James</td>
<td>100</td>
</tr>
<tr>
<td>Jesse</td>
<td>100</td>
</tr>
<tr>
<td>Susie</td>
<td>100</td>
</tr>
</tbody>
</table>

Total Time to Complete Computer Program

Table 5 displays the total elapsed time for each family to complete the computer program. Average time for all participants to complete the program including the final video-based scenario quiz was approximately 33 minutes (range: 29-37 minutes).

Consumer Satisfaction

Computer Satisfaction Rating Questionnaire

Table 6 displays the total score on the consumer satisfaction rating scale. Results suggest that each parent rated the computer-based adjunct highly in terms of acceptability. Also of note was that
two of the three participants rated themselves as advanced level computer users (Jesse and Susie's mothers) while James' mother

Table 5
Total Elapsed Time to Complete Computer Program

<table>
<thead>
<tr>
<th>Family</th>
<th>Elapsed Time to Complete Program (Includes Video-Based Scenario Quiz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>James</td>
<td>39</td>
</tr>
<tr>
<td>Jesse</td>
<td>32</td>
</tr>
<tr>
<td>Susie</td>
<td>29</td>
</tr>
</tbody>
</table>

Table 6
Total Scores on the Computer Satisfaction Rating Questionnaire

<table>
<thead>
<tr>
<th>Family</th>
<th>Total Acceptability Score (ceiling score - 105)</th>
</tr>
</thead>
<tbody>
<tr>
<td>James</td>
<td>95</td>
</tr>
<tr>
<td>Jesse</td>
<td>92</td>
</tr>
<tr>
<td>Susie</td>
<td>91</td>
</tr>
</tbody>
</table>
rated herself as an intermediate level computer user.

**Anecdotal Qualitative Data**

Observations of each of the participants while they used the program provided some interesting anecdotal data about the program. Unexpectedly, none of the participants had any questions nor appeared to have any difficulty regarding usability or navigation through the computer program. Users appeared to flow through the program with virtually no difficulty whatsoever. It was observed that

<table>
<thead>
<tr>
<th>Question</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>What did you like most about the computer program?</td>
<td>• It gave examples</td>
</tr>
<tr>
<td></td>
<td>• Realistic examples and repetition</td>
</tr>
<tr>
<td></td>
<td>• Concise expression of ideas</td>
</tr>
<tr>
<td>What did you like least about the program?</td>
<td>• Nothing</td>
</tr>
<tr>
<td></td>
<td>• It's not what happens at my house</td>
</tr>
<tr>
<td>How was using the program different from your initial expectations?</td>
<td>• I thought it would be much more text-based and I prefer the examples and film presentation</td>
</tr>
<tr>
<td></td>
<td>• Not different</td>
</tr>
<tr>
<td></td>
<td>• Good to see examples</td>
</tr>
<tr>
<td>How could the computer program be changed to make it more acceptable or effective</td>
<td>• I thought it was effective and easy to use as it is</td>
</tr>
<tr>
<td></td>
<td>• I don’t think it needs to be changed</td>
</tr>
</tbody>
</table>

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the option to replay video and audio samples within each screen was a beneficial feature as mothers were observed replaying and reviewing computer-delivered protocol content. Users seemed intrigued with the interactive video examples and correspondent practice opportunities. Two of the participants smiled, chuckled and appeared amused with the clipart and video examples, yet still appeared to seriously and intently focus upon the content and presentation during the program. The other participant, Jesse's mother, became quite frustrated three sessions following the implementation of the phase II intervention and did not return for additional sessions. She was heard to make sarcastic and cynical remarks such as “Yeah right, that’s not how it the situations end in our house” or “Oh yeah, you should see what Jesse does in this situation.” This was a particularly interesting observation and will be addressed in the discussion section.
CHAPTER IV

DISCUSSION

This purpose of this study was to conduct a preliminary investigation into the feasibility and prospective acceptability of computer based multimedia adjuncts for use in clinical outpatient settings. The results suggest that future research into the development of computer-based parent training adjuncts is warranted considering the computer program’s ability to effectively present parent training content as well as offer demonstration, allow for practice, and collect assessment data. The following sections provide a more detailed discussion of this study’s findings. Recommendations are made for future research directives in the area of computer-based clinical adjuncts.

Target Behaviors: Children

Parent Recorded Child Noncompliance Rates

Perhaps the most important evidence yielded by this study was that the adjunctive use of the computer program appeared to demonstrate significant clinical effectiveness for the small number of included
families. This was reflected by the changes in parent-recorded child behavior data collected following the presentation of the time-out protocol. Decreases in child noncompliance rates subsequent to the intervention indicate that the computer program, in conjunction with the therapist, was effective in its ability to deliver parent skills training content. The parent-recorded child behavior data suggests that not only were parents able to increase their knowledge of the procedures presented during phase two of the treatment program, they were also able to apply these techniques where and when applicable in the natural setting.

The use of the multiple baseline across subjects approach in this study suggests that the demonstration of changes in the dependent variable are, at least, strongly influenced and show consistent changes when a systematic presentation of the independent variable occurs across all subjects. Richards, Taylor, Ramasamy and Richards (1999) identify several critical issues or criteria for using the multiple baseline across subjects design: a) selection of individual participants who display the same target behavior in the same setting, b) selection of individuals who are similar enough to one another to expect each would change his or her behavior in response to the same intervention and yet not likely to
change his or her behavior until the intervention is specifically implemented to treat his or her behavior, c) a reasonable expectation that the same variables will exert the same influence on each of the subjects, d) selection of an independent variable that is likely to have a similar effect on each subject, e) a consistent recording procedure for all subjects' behavior and a criterion level for decision making, f) confidence that the resources will be available to maintain data collection and intervention across the life span of the study. A consideration of these criteria as they apply to the current study appears that the selection of this design strategy was appropriate for investigating the computer program's prospective effectiveness.

Although the findings of child behavior changes appear to be significant, several limitations of this study should be noted and addressed in future research. First, although many studies have demonstrated that parent-training interventions have long-term effects after treatment, this study did not employ any systematic follow-up measure of child rates of noncompliance (Strayhorn & Weidman, 1991; Webster-Stratton, 1990). The parent-recorded behavioral measures collected in this study continued from approximately one and half to three weeks following the computer-based intervention. Long-term stability of behavioral measures post-
treatment should be considered a target for future research related to computerized parent training adjuncts.

Anecdotal follow-up data each of the families actually suggested that at least two out of the three families did experience maintenance of treatment gains over time. A thank-you note was received approximately from Susie's mother approximately 12 weeks after treatment was completed. Her comments in the note indicate that Susie's rates of noncompliant behavior remained at a fairly low rate following treatment.

A telephone call to James' mother also yielded qualitative information that James had been engaging in more prosocial behavior and had been demonstrating many fewer behavior problems at home, especially with parental requests.

Jesse's case, however, raised several issues and questions regarding the effectiveness of the computerized adjunctive treatment package. As mentioned in the Results section, Jesse's mother discontinued treatment after the fifth session. At the fifth session, Jesse's mother appeared quite distressed because Jesse's noncompliant behavior began to increase. Jesse's mother expressed frustration about the hassle and stress associated with implementing the time-out procedure. The focus of the fifth session was to then
review the significant past treatment gains and encourage Jesse's mother to "hang in there" and continue with the treatment plan. She was assured that Jesse was likely to improve and an additional session was scheduled.

Jesse's mother failed to attend session six, and, when telephoned, reported that she was going to seek medical (psychostimulant) treatment as a means to help suppress her son's behavior problems. She was invited to continue treatment and she stated that she would call to schedule another appointment. She did not attend any additional appointments and no additional information about Jesse's behavior subsequent to session five was available. It is doubtful yet unknown whether his mother continues to use the parent training strategies at home.

A review of Jesse's post-time out behavioral data does indicate that his rate of noncompliance did not decrease as much nor remain as stable as the other two children in this study. All things considered, it may question the validity and reliability of Jesse's and the other children's data as well as the possibility that demand characteristic may have influenced responding on parent-recorded observational data. Although the procedure for parent-recorded measurement of child compliance is fairly simple, it is also subject to
potential biases such as social desirability and susceptibility to faking (Foster, Bell Dolan, Burge, 1988).

A review of the role-play procedure data revealed that Jesse’s mother only completed 41% of the correct responses during the role-play. Although following this measure, informal feedback and discussion regarding parent performance and protocol details ensued, formal in-clinic remediation was not conducted. Ensuring that Jesse’s mother’s behavioral competence with the protocol reached mastery may have prevented the escalated frustration and, premature termination of treatment by Jesse’s mother.

**Target Behaviors: Parents**

**In-Clinic Behavioral Observations**

**Clinic Based Parent Skills Role-Play Procedure**

One of the strategies used to address these potential biases was to implement multiple measures of the parent-training protocol knowledge measure and the additional quasi-behavioral measure of parent performance in the Parent Skills Role Play Procedure. Performance during the Baseline phase (Initial treatment session) of this measure, which required the parents to correctly issue commands and accurately record behaviors, suggests that each of the
three parents were particularly adept at the procedure in a role-play situation. One obvious threat to the validity of this measure, however, was that the therapist participated as the primary observer. Foster, et.al. (1988) state that nonparticipant observers are clearly more appropriate when continuous observation is required and if the observation process itself conflicts with the observer’s normal routine. Second, the presence of merely a single observer, who was a participant observer, does not allow for a measure of data reliability and validity to be calculated through interobserver agreement. Unfortunately, the nature of the treatment delivery site did not permit this accommodation.

**Parent Knowledge of Protocol Content**

**Post-Session Written Skills Quizzes**

One area where the computer program appeared to clearly demonstrate effectiveness was in the systematic presentation of the issues and skills involved in implementation of the time-out procedure. Although some of the parents had difficulty implementing the skills within the Parent Skills Role Play exercise, nearly all parents achieved perfect scores on the paper-and-pencil and video based measures of their knowledge of intervention content. One potential
criticism of these measures might be the fact that no pre-intervention measures were conducted in the area of protocol knowledge. During the development of this study, it was decided that pretest measures would not be used in this study due to the unique nature of the content. We did not expect that participants would have any knowledge of the detailed procedures from the training manual, and, thus, decided not to risk the chance that participants may be discouraged with poor performance on a pre-treatment measure.

**Consumer Satisfaction**

**Computer Satisfaction Rating Questionnaire**

Throughout the conceptualization and development of this program, one of the most burning curiosities of the experimenter was how acceptable participants might rate the computer program as part of the treatment. Overall, the quantitative ratings and qualitative comments on this questionnaire were quite positive suggesting that the participants found the computer program highly acceptable. The participants particularly liked the video-based demonstrations and ability to practice the content with novel video scenarios. One participant provided feedback that the video scenarios portrayed behavior much less intense than occurred in her home. All
participants requested or commented that they would prefer that the program have more scenarios and more opportunity to practice their skills.

One should be cautioned in interpreting these acceptability results too broadly considering the particularly small sample size. The participants in this study rated their computers as intermediate and above. Persons with less adept skills or “computer phobia” may not find the computer an acceptable method for adjunctive psychotherapeutic treatment. In addition, clients’ expectations of what constitutes “therapy” or psychological intervention may be strongly influenced by the cultural definition, which suggests it is a social interaction involving humans, not sitting down and interacting with a computer. Some clients may perceive the notion of receiving their “treatment” or “therapy” from a computer as being a less valid treatment considering that the computer cannot listen, build rapport or respond dynamically to other issues that may impact the client’s functioning or reasons for seeking treatment. There is much to be learned regarding the social validity of the computer as an integral aspect of treatment delivery as well as investigating client’s perceptions and expectations for treatment when the computer plays an integral role in session content delivery.
Future Research Directions

This demonstration study yielded an innovative approach to delivering psychological treatment and important prospective data regarding the development and implementation of adjunctive computer programs in clinical settings. Due to the limited sample size and focus of this investigation, however, it would be premature to conclude that computerized interventions are acceptable for all clinical problems or all prospective clients. Future studies should utilize large-scale sample sizes and focus on more powerful means of assessing both behavior change and the stability of treatment effects through the use of observational data collected in the home and follow-up measurements.

It has been discussed how the computer might potentially complicate treatment considering its’ “non-human” qualities. However this demonstration study revealed that the computer may significantly enhance the capacity of a human therapist in presenting ecologically valid situations (e.g., video scenarios) and breaking down instructional content into discrete teaching events (via video segments) which enable parents to better identify noncompliance in a variety of behavioral topographies. Moreover, a more comprehensive and thoroughly designed computer intervention could present user
response driven feedback to explicitly focus on the parent’s ability to identify target behaviors, identify appropriate parental responses based on the protocol and apply these techniques across a wide variety of behavioral topographies, parent-child interaction contexts, and settings.

Specifically, the next study to be conducted in the area of computer-assisted parent training might comparatively look at multiple dependent variables across a single factor, adjunctive treatment presentation modality. Levels of the single factor would be therapist only, therapist plus written instructional materials, therapist plus videotape, and therapist plus computer). Control groups permit comparison of the characteristics of delivery medium (e.g., content absent computer or video interaction). Effectiveness and acceptability data would be collected after each phase of parent training. A well designed study of this nature would not merely be a “which one is best” type of study but, rather, could contribute important information concerning which phases of the treatment protocol may be best delivered by a human, workbook, videotape, or computer program. “Best” would depend upon the level of emphasis placed upon a particular phase of treatment in combination with a thorough analysis of the relationship between multiple dependent variables. I
would focus on selecting an array of dependent variables that would involve measures of clinical utility, program efficiency, instructional effectiveness, and social validity of various adjunctive clinical tools. The prospective study would emphasize a more comprehensive method (including more measures having demonstrated reliability and validity metric) of assessing knowledge and behavior change. Other important information to collect would include estimated or actual development costs, therapist acceptability, pre-experimental assignment attitudes (e.g., attitudes about computers delivering psychological services), generalization, and efficiency of knowledge and behavior change (rate and accuracy of acquisition). These types of multivariate data would allow some key comparisons and future hypotheses to be tested regarding the development of the most cost-efficient and effective method of providing treatment.

Considering the everyday emergence of new computer technologies, future study investigating the effectiveness and social validity of computer programs for clinical application should prove to be a fertile research area. Comparative group studies should yield important information regarding therapist only versus therapist-computer adjunctive therapies. A major benefit regarding the delivery of content via a computer-based program involves the ability to reduce
variability in the intervention. This would address issues of poor therapist reliability related to treatment manual adherence or variability due to the possible "nonspecific effects" associated with therapist attributes. Computer delivered treatments may further positively impact the ability of researchers to clearly identify isolated effects of independent treatment variables.

**Ethical Considerations and Final Comment**

Early on in the conceptualization of this project, the reality that computers would become a ubiquitous fixture in most settings fueled our passion. However, we were not without concerns about potential abuses in clinical settings where a computer might be the only treatment provided to a client. Matarazzo (1986) identified critical ethical and professional issues regarding the development of computerized psychological assessment and scoring programs during peak development times in the mid-eighties. He cautioned psychologists to quickly address issues around technology, society, and the impact to the profession. The development of computerized interventions will likely increase in the near future, a corresponding need will develop for reviewing the impact of computerized interventions from professional and ethical perspectives. This
research is essential to the ethical and professional use of computerized treatment adjuncts.

There will domain-specific ethical concerns across psychological treatments if computer-delivered adjuncts are further developed. For example, treatment programs that attempt to use “Time-out” procedures to lessen aggressive behavior will sometimes inadvertently (although predictably) exacerbate the aggressive behavior even if only for a short period of time. This exacerbation can cause treatment dropouts, treatment failures, and of course negative outcomes for the target child and family. When therapists are actively involved in supervising implementation of “Time-out” procedures, the therapists can warn clients to expect the exacerbation and to help those for whom it occurs. If no therapist was involved and a client was to rely exclusively upon a computerized adjunct for dealing with a child’s aggressive behavior, preventable problems would occur. This is one of the reasons that it would be unethical to offer aggression reduction treatment packages without therapist oversight. Clinical researchers who develop adjunctive programs in various areas should remain vigilant to the possibility that misuse (or even use) or the programs could lead to problems that should be overseen by a live therapist.

Conducting technology-based intervention research is
complicated by the rapid changes in computer technology. What may be considered innovative one week is superseded by a newer and more powerful technology the following week. The field of computer-based instruction also is an evolving technology. Currently, the task of authoring a computer-based course that utilizes video and audio is much easier than it was at the initiation of this demonstration study.

As the Internet matures and database capabilities increase, the Web may be another avenue for future research regarding adjunctive psychological treatment. Many businesses are now taking a "hybrid" approach between Web-based and instructor-led instructional or training interventions. The delivery of many psychological interventions may be very conducive to this model as it would allow for pre-session assessment data collection and 24 hour a day/7 days a week data collection and asynchronous communication capabilities (clients could journal or exchange information with the therapist via a secure server and email or private message board for the therapist). A hybrid Web-based adjunct could be an additional method of delivery to be included in the prospective study mentioned earlier in this section.

Technology impacts all facets of our lives at home, work, and leisure. As technology has significantly impacted the practice of
medicine and teaching, it will undoubtedly affect the practice of psychology. Computers have become such powerful data collectors that the integration of computers into everyday practice will allow for a much more practical means of collecting data for program evaluation. There are limitless innovative applications in the assessment, treatment, maintenance, and follow-up within applied psychological settings. As new and exciting capabilities emerge, the temptation and perhaps demand to both develop and distribute computerized treatment adjuncts will be great. It should be considered that the development of these approaches warrants careful consideration of a variety of professional and ethical issues. Maintaining an emphasis of empirically driven development, design, and validation should serve as the foundation for future work in this area. Should current trends in computerized instruction, treatment supplementation and assessment continue, research will facilitate the assurance of reliable and valid methods for providing “non-human” clinical content.
Appendix A

Protocol Clearance From the Human Subjects Institutional Review Board
Date: August 7, 1995

To: Munneke, Dwayne M.

From: Richard Wright, Chair

Re: HSIRB Project Number 95 01-06

This letter will serve as confirmation that your research project entitled "An evaluation of computer assisted parent training for managing child noncompliance" has been approved under the exempt category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you must seek specific approval for any changes in this design. You must also seek reapproval if the project extends beyond the termination date. In addition, if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: Aug. 7, 1996

cc: Armstrong, Kevin, PSY
Date: 26 September 1997

To: Malcolm Robertson, Principal Investigator
   Dwayne Munneke, Student Investigator

From: Richard Wright, Chair

Re: Extension and Changes to HSIRB Project Number 95-08-06

This letter will serve as confirmation that the extension and changes to your research project "An Evaluation of Computer Assisted Parent Training for Managing Child Noncompliance" requested in your memo dated 2 September 1997 have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 26 September 1998
Date: 20 November 1997
To: Malcolm Robertson, Principal Investigator
Dwayne Munneke, Student Investigator
From: Richard Wright, Chair
Re: Changes to HSIRB Project Number 95-08-06

This letter will serve as confirmation that the changes to your research project "An Evaluation of Computer Assisted Parent Training for Managing Child Noncompliance" requested in your electronic mail message sent 9 November 1997 have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 26 September 1998
Appendix B

Fliers Used in the Recruitment of Participants
Attention Parents -

IS YOUR 6-11 YEAR OLD CHILD
DEMONSTRATING NONCOMPLIANT, DEFIANT, OR OPPOSITIONAL
BEHAVIORS?

In conjunction with the Psychology Department at Western Michigan University, we are conducting a study aimed at investigating the effectiveness of a 6 to 8 session intervention which focuses on teaching parents systematic strategies for increasing child compliance to parent requests and decreasing defiant, noncompliant, or oppositional behaviour. Sessions will be scheduled so that all parents living at home can attend. The program will be offered Fall 1997.

If you would like additional information about participating in this program, please contact:

Dwayne Munneke, MA
(219) 277-0274
At

Samaritan Counseling Center
17195 Cleveland Rd.
South Bend, IN 46635
Attention Physicians

DO YOU HAVE 6-11 YEAR OLD PATIENTS PRESENTING WITH NONCOMPLIANT, DEFIANT, OR OPPOSITIONAL BEHAVIOR?

In conjunction with the Psychology Department at Western Michigan University, we are conducting a study aimed at investigating the effectiveness of a 6 to 8 session intervention which focuses on teaching parents systematic strategies for increasing child compliance to parent requests and decreasing defiant, noncompliant, or oppositional behaviour. The Parent Training Program Sessions will be held at times so that all parents living at home can attend. The program will be offered fall 1997.

If you would like additional information about this program, please contact:

Dwayne Munneke, MA
(219) 277-0274
At
Samaritan Counseling Center
17195 Cleveland Rd.
South Bend, IN 46635
Appendix C

Participant Information and Consent Form
Dear Participant(s):

Your treatment will include training in parenting strategies from our clinic. We are asking that you consider agreeing to participate in a computerised instruction of the basic skills used in this treatment program. This component is experimental. We are asking your permission for evaluating the computer program and completing a form called the Computer Rating Questionnaire as part of a dissertation research project. The goal of this additional component is to develop an efficient, acceptable, and effective tool for delivering a parent training program. The computer program does not differ in content from a traditional therapist delivered program.

There are no known associated risks to participants of this study. You will be working with staff from the Clinical Psychology Doctoral Training Program at Western Michigan University, Kalamazoo, Michigan. All training will be supervised by a doctoral level clinical psychologist and will be conducted by qualified doctoral students. Participation is completely voluntary and may be terminated at any time without prejudice or penalty to either yourself or your child. You may still receive the regular parent-training program should you choose not to help evaluate the computer adjunct.

All information collected throughout the parent training program will be kept strictly confidential in a locked file drawer. No data from any individual case will be released unless specifically requested by the parents to do so (e.g., sharing results with the child’s school or pediatrician). If we publish the results or share the results at a professional meeting, no names or identifying information will be used. Our master research file matching names and id numbers will be destroyed after final data analyses to further ensure confidentiality of your information. However, your clinical file will be kept in accordance with standard clinical practice so that case information will be available if you need it later.

If you have any questions please call Dr. Kevin Armstrong at (601) 325-7657. Participants may also contact the Chair, Human Subjects Institutional Review Board at (616) 387-8293 or the Vice President for Research at 387-8298 if questions or problems arise during the course of study.

PLEASE COMPLETE THE NEXT PAGE IF YOU WISH TO PARTICIPATE.
PLEASE READ EACH STATEMENT AND CHECK YES IF YOU AGREE TO THE ITEM. IF YOU CHECK NO TO ANY STATEMENT, DATA FROM YOUR CHILD'S TREATMENT WILL NOT BE INCLUDED IN THE TREATMENT EVALUATION PROJECT.

1. I/we understand that I/we have been asked to participate in an evaluation project designed to evaluate a computer assisted training tool as part of a parent training program. YES____ NO____

2. I/we understand that I/we will be asked to complete an additional paper and pencil questionnaire. YES____ NO____

3. I/we understand that I/we may experience some mild distress from completing the questionnaire. If such distress were to occur, appropriate therapeutic support or a referral to another clinic would be offered. YES____ NO____

4. I/we understand that Dr. Armstrong will answer any questions I/we have about participating in this evaluation study if I/we call 387-4472 YES____ NO____

5. I/we understand that all information collected will be kept strictly confidential. YES____ NO____

6. I/we voluntarily give permission for me/us to participate in this program. YES____ NO____

As in all research, there may be unforeseen risks to the participant. If an accidental injury occurs, appropriate emergency measures will be taken; however, no compensation or treatment will be made available to the subject except as otherwise stated in this consent form.

Signature of Parent(s) ____________________________

Date ____________________________

Witness ____________________________

Date ____________________________
Appendix D

Computer Program Script
How to decrease unwanted behavior:

Page 1

Voice: When parents have to find a way to help children to stop and listen, they need a strategy that can be used even when adults are tired (picture of tired parent) or busy (picture of a parent on the telephone). Unfortunately, when parents are tired or busy, it is easy to resort to making threats, yelling (example of common yell), spanking, or even overlooking a child's misbehavior. This is a problem because inconsistent punishment can actually be worse than no punishment at all.

Page 2

When parents punish inconsistently, kids may learn that they can get out of doing things by stalling, ignoring, or arguing with their parents. (Voice of parent request; Graphic of child with thinking balloon: "Hmm do I really have to do this?") After a while, instead of just doing what they are told, the kids become more interested in escaping from the request. If the parents allow the child to escape a task, the child wins that round and it becomes even harder for the parent to be successful the next time they ask the child to do something.

Page 3

Time-out is a non-physical, non-hassle punishment (Bulleted text) that can be used consistently. You can use it when you are tired, on the telephone (Re-display tired parent and parent on the phone) or even sitting in an easy chair reading the newspaper. You may have tried other forms of time-out before but the kind we will teach you next is the most effective kind we have seen.
**Page 4**

Time-out is designed to remove a child from any kind of attention or from access to toys or other activities whenever the child doesn’t mind their parents. *Picture of child in the bathroom serving T/O.* Our goal is to teach your child that undesirable behavior *picture or clip of child misbehaving* will lead to a consequence of being bored *picture of child in T/O.*

**Page 5**

Brief time-outs help children to reduce problem behaviors. Another benefit for the family is that time-out helps prevent parents and children from getting into arguments that can easily escalate into yelling or worse. Instead of arguing, the child told to go to time-out will simply leave and go into a safe, boring room - this keeps things from escalating. Here’s how we’ll do it.

**Page 6**

Tools you will need *program screen text*:

You will need to purchase one crucial piece of equipment: a timer that dings *picture of timer and tick-ting sound*. The timer will indicate when time-out is over *audio “ding”*. This helps everyone avoid arguments or discussions about when time-out is over. This is important because any interaction during time-out provides attention to the child and decreases how boring the time-out can be. Time-out must be boring to work.

**Page 7**

Where to do it:

You will need to find a very boring place for your child to sit – preferably a room with a door *Picture of bathroom*. Often, parents choose the main floor bathroom because it is close to where the family spends most of its time. By the way, it’s important that you remove toys, medications, poisons, breakables, etc. from the room before you use it for time-out *Picture of these with a red verboten symbol through them*. This makes time-out boring and safe.
How long to do it:

Research shows that the ideal length of time-out is about 5 minutes \{Five minutes shaded on a clock\}. Five minutes is long enough to be boring but is not too disruptive. Research also suggests that anything over 10 minutes is not effective \{11 minutes shaded with a verboten sign - “Too Long!”\}.

What is it used for?:

Time-out will be used when your child doesn’t mind you - that is, your child will earn a time-out for not complying with a request. So, starting today, every compliance equals a point \{Clip with compliance and assigned point from parent\}, and every noncompliance equals a time-out \{Clip illustrating common noncompliance and consequent time-out\}. By the way, DO NOT take away points or rewards your child has already earned. If your child earns their reward they should get it. You may not take away rewards or points as this would be breaking your contract with your child.

What to say when giving a time-out:

For each noncompliance you can say, “That’s not minding. Take a time-out.” \{Show clip of assigning time-out\}. You are trying to teach that it is better to go to time-out than not to go. Your child should get up and walk to the time-out room and close the door quietly \{Show clip of a child going to time out\}. So, you will set the timer, 5 minutes later it will ding, and then time-out is over \{Show clip of timer dinging, child exits time-out\}.

Now, you may be thinking, “But my kid won’t go to timeout - at least not without a fight.” \{Show clip of child resisting time-out\} Let’s talk about what to do when your child resists time-out.
Page 12

Parent's have two options when their child refuses to go to time-out (Show clip of child refusing time-out). Let's talk about the first option. When your child refuses to go to time-out, argues, or tantrums, you can add extra minutes, one at a time. You can add up to 5 extra minutes. Let's watch some examples:

a) Let's say you ask your child to wash his hands:  (Show video clip of request)

b) He says "I don't want to" or whines "Nooo":  (Show clips of each response)

c) You assign a time-out:  (Show video clip segment)

d) He says "I'm not going"  (Show video clip segment)

e) You would say...  (Show video clip segment (add minute))

f) Now your child stomps his foot.  (Show video clip segment)

g) You would say...  (Show video clip segment)

h) Your child sasses back.  (Show video clip segment)

i) You would say...  (Show video clip segment)

j) Then he goes to time-out and slams the door  (Show video clip segment)

k) What do you say?  (Show video clip segment)
Let's watch that whole interaction again: {Show entire scenario}

Now you might be thinking, “What if my child refuses to go to time-out even if he earns all the way up to 10 minutes?” {Show segment where child refuses time-out upon reaching 10 minute limit} This is where your second or “backup” punisher should be used.

If you get to 10 minutes, you are to say, “That's ten minutes, if you don’t go to time-out out now, you lose blank ______”. Your child will have to face losing a toy, privilege, or whatever you decide - this is what we call the “backup punisher” or “backup” for short. {Show video clip}

The backup punisher must sound worse than going to time-out. The child should think it would be absolutely horrible to get the backup punisher! Remember, if your child refuses to go to time out even after you have tried adding minutes then you assign a backup punisher {Show video clip of assigning backup punisher}.

Let's review some examples of backup punishers. Here are some popular ones that other parents have found effective:

No television for the rest of the day
No Nintendo or electronic games for the rest of the day
Half hour early bedtime
No playing with bike, skates, skateboard for the rest of the day.
Forbid playing in some room.
Backup punishers should be used only for the rest of the day rather than for any longer (Show video clip). The reason for this is that your child should be able to start each day with the opportunity to have a “good” day. An exception is that if the punishment is earned at bedtime you can assign the backup punisher for up to the entire next day (Show video example). However, you should not use a backup punisher for longer than a 24 hour period for children using this program.

Remember, if you assign a backup punisher, you have to follow through. If you don’t, your child will begin to waste time trying to guess when you are serious. Children try to distract parents by arguing or using other stall tactics. The bottom line here is that you need to follow through enforcing backup punishers. If you don’t, unwanted behaviors will probably increase.

If you issue a backup punisher, follow through! Don’t let your child distract you

Knowledge Check

Ok, now don’t be nervous but we are going to do a little check to see how well this program teaches the basics of using time-out. Hope you’re ready - here we go....

**Do you want to add a Review button here? Perhaps allow them to go to part of an outline of the basics?

1) What crucial piece of equipment do you need before using time-out. (Hint: It removes the argument about when time-out starts and ends)  a) A wall clock  b) A kitchen timer  c) A notepad and pencil  d) A video recorder  (Use pictures and text for each option....If wrong, add a hint, return to question and unhighlight that option this applies to all questions)
2) Say you make a request of your child and they are noncompliant. What should you do?
   a) take away points  b) ignore their behavior  c) issue a time-out  d) take away TV for the rest of the night (use a backup punisher)  
   {Use clips from a new video scenario...film each response alternative}

Page 22

3) Say that you issue a time-out and your child walks into the bathroom and quietly closes the door {Show video segment}. How long do you set the timer? a) five minutes  b) ten minutes  c) one hour  d) fifteen minutes.

Page 23

4) Say that you just issued a time-out and your child refuses to go. {Show video segment} What do you do next? a) Assign a backup punisher  b) Give a warning  c) increase time-out to 15 minutes  d) Say “that’s one more minute - now you’re up to .6 minutes”
   Review: {Video clip segments for each of these}

Page 24

5) What is the maximum time you could ultimately give your child for time-out?
   a) five minutes  b) 30 minutes  c) ten minutes  d) twenty minutes
   {Picture or video clip for each of these}
6) Once you have given minute all the way up to the ten minute maximum, you must say to your child

“That’s ten minutes, if you don’t go to time out now ________?

a) mention the backup punisher b) say, “I’ll add another minute” c) [Don’t say anything else, just carry them to time-out] d) Don’t say anything more, just stand them and stare

7) If your child refuses to go to time-out what do you do?

a) spank them b) carry them to time-out c) offer your child 10 points if he/she will go to time-out d) Say “Ok, you just earned the backup punisher”

8) Say you ask your child to wash his hands and he says “I don’t want to!” You tell him “that’s a time-out” and he says, “I don’t care!” What do you say?

a) Ok, forget time-out, no blank for the rest of the day b) “That’s one more minute, that six _______ minutes” c) You’ll earn one point if you go to time-out d) That’s 10 minutes, go to time-out now or no blank.

9) Say that you have had to add one extra minute because your child didn’t go when assigned to time-out. Now your child stomps his foot. What do you say?

a) “That’s one more minute, seven minutes” b) Go to time-out now or you earn the backup punisher c) force or carry him into the time-out room d) Just wait for your child to go to time-out
10) Let's say that you have to add minutes all the way up to ten minutes. What do you do next?
   a) “That's one more minute, 11 minutes” b) If you don't go to time-out now, you will earn the backup punisher c) Go to time-out now or you will lose all your points d) I will count to three and you better go to time-out

Let's review the whole scenario again: Watch...
Appendix E

Video Scenario Script
Scenario Script

Scenario I (Introduction Script)

Segment Ia:
STEVE sitting on couch or chair watching television
MOM walks in from kitchen, MUM TALKS OUT
Mom: Steven, wash your hands and come to the dinner table
STEVE: ignores mom, continues to watch TV
MOM walks in the room again
Mom: Steven I asked you to wash your hands, please do it now or its a time-out.
END segment I

— Segment Ib:
Steven: No, I'm watching a good show, I don't want to eat now!
END

Segment Ic:
Mom: Ok Steven, that's not minding, go to time-out
END

— Segment Id:
Steven: I don't care, I want to watch this show!
END

Segment Ie:
Mom: That's another minute. Please go to time-out now
END
Segment IC: Ste..en: No, I'm watching this show!

END

Segment Ic:

Mom: That's another minute, that's seven minutes

END

Segment Ii:

Mom: Shut's another minute

END

Segment Ii:

Steven: Shut's another minute

END

Segment Ii:

Mom: Shut's another minute

END

Segment II:

STEVEN goes to time-out and slams door

END

Segment Il:

Mom: One more minute for slamming the door

MOM sets timer for 9 minutes. Places timer outside the bathroom door

END

Segment Il:

Timer dings...STEVEN exits time-out.

END

Project #2

5/13/96
Segment II:
ALTERNATE ENDING
Steven: I'm NOT going to time-out. You can't make me
END

Segment Ia:
Mom: That's ten minutes, if you don't go to time-out now there will be no TV for the rest of the night.
END

Segment Ib:
Steven: I said I'm not going!
END

Segment Ia:
Mom: Ok, no time-out but there will be no TV for the rest of the night.
Steven sulks, frowns or other disappointed affect.
ALTERNATE ENDING 2 (Compliance)
Steven Ok. Mom
STEVEn turns off TV; goes into bathroom

Scenario II (Teaching script)
Segment Il:
MOM picking up in the living room preparing for company
DAVID in living room sitting on floor playing video game.

Mom: David, the Flanders will be here in twenty minutes. Turn off the game and put your toys in your room please.

WAIST-UP
DAVID continues to play game

Mom: David, I asked you to turn off the game and put your toys in your room, please do it now or that's a time-out.

END

Segment llb:

David (Annoyed): No, Wait! I have to finish this level!

END

Segment llc:

Mom: Ok David, that's not minding, go to time-out.

END

Segment lld:

David (whining): I have to get past this level!

END

Segment lle:

Mom: That's another minute. Please go to time-out now.

END

Segment llf:

DAVID throws down game controller

David: You never let me finish this game. I wanna play it!

END

Segment llg:

Mom: That's another minute, that's seven minutes.

END

Segment lhh
David: I hate time-out, I don't want to go!

END

Segment III
Mom: That's another minute. That's 9.

END

Segment III
DAVID goes to time-out and shuts door

END

Segment III
MOM sets timer for 8 minutes. Places timer outside the bathroom door.
(Maybe Mom says to self: 'That's 8 minutes while setting timer')

END

Segment III
Timer dings...DAVID exits time-out.

END

ALTERNATE ENDING:
Segment IIIa
David: I'm finishing this game!

END

Segment IIIb
Mom: That's another minute, nine minutes.

END

...
Segment Ia:

Mom: That's ten minutes, you can go to time-out now or you'll go to bed one half-hour early tonight.

Segment Ib:

David: Go away!

Segment IIIa:

MOM putting full grocery bags on the kitchen counter

Tommy sitting on floor playing with toys.

Mom: Tommy, please come help me carry in the groceries

END

Segment IIIb:

Tommy (Annoyed): I don't want to, I'm busy!

END
Segment IIIa:

Mom: Tommy, I asked you to help me carry in groceries, please do it now or that's a time-out.

END

Segment IIIb:

Tommy: No!

END

Segment IIIc:

Mom: Ok Tommy, that's not minding, go to time-out

END

Segment IIId:

Tommy kicks toys

Tommy: I don't wanna bring in the stupid groceries!

END

Segment IIIe:

Mom: That's another minute

END

Segment IIIf:

Tommy: Why!!!! Why did I get a time-out...that's not fair

END

Segment IIIg:

Mom: That's another minute, that's seven minutes
Tommy goes to time-out, closes door, opens door and asks: How long do I have to be in here?

Mom: That's one more minute.

MOM sets timer for 8 minutes. Places timer outside the bathroom door.

(Maybe Mom says to self: Um, that's 8 minutes while setting timer)

Timer dings... Tommy exits time-out.

ALTERNATE ENDING:

Tommy: I don't have my shoes on, you carry them in!

Mom: That's another minute.

Tommy: Hmmph!

END
Mom: That's another minute, that's nine minutes

Tommy: Mom, you never let me do anything

Mom: That's ten minutes, you can go to time-out now or there will be no television for the rest of the day

Tommy: I don't care

Mom: Ok forget timeout but no more TV for the rest of the day

ALTERNATE ENDING 2

Tommy: Ok, Mom

Tommy helps mom carry the groceries

**Prugs:**
- Grocery Bags
- Toys
- Newspapers
- Dusting equipment
- Video game
- TV Set
- Blankets to be folded
- Vacuum

**Setting:**
- Groceries
- Counter

**Props:**
- Grocery Bags
- Video game
- Toys
- TV Set
- Blankets to be folded
- Vacuum
Appendix F

Quiz/Practice Script Sample
Review Outline and Script: "RSCRIPT4.DOC"

"Now we have learned how parents can use the time-out program to respond to their children's behavior. Let's review what we've seen by looking at a new situation. Let's see if you can figure out what needs to be done in the following screens. We'll start with a parent making a request."

1) Parental Request (video clip)
   Audio/Text Question 1) A parent has now made a request. According to this program's strategies, once parents make a request, how long should they wait for their child to comply?

<table>
<thead>
<tr>
<th>Choices</th>
<th>Pop-up screen/audio</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) 2 seconds</td>
<td>&quot;That's not quite right. Children need a little more time to bookmark what they are doing. Try again. (Note that 2 seconds wouldn't be too long for emergency (italics) type requests.)&quot;</td>
</tr>
<tr>
<td>b) 30 seconds</td>
<td>&quot;That's not it. That may be too much time for many children. Waiting that long may result in the child getting distracting by something else.&quot;</td>
</tr>
<tr>
<td>c) 2 minutes</td>
<td>&quot;That's too long for parents to wait. Parents wouldn't want to make a request and then stand there for 2 minutes before the child is expected to respond. Try again.&quot;</td>
</tr>
<tr>
<td>d) 15 seconds</td>
<td>&quot;That's right. That time period allows the child to bookmark what they are doing but is still brief enough that the child won't forget what they were asked to do.&quot;</td>
</tr>
</tbody>
</table>

Segue between clips: "OK, we know that 15 seconds is the limit for how long parents should wait before expecting their child to respond. What should parents do when the following happens?"
2) Refusal (video clip)
   Audio/Text Question 2) The child refuses. What should the mom do first?

<table>
<thead>
<tr>
<th>Choices</th>
<th>Pop-up screen/audio</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Issue a backup punisher right away because the child was so defiant.</td>
<td>“No, that's not it. Backup punishers are only used when time-outs are refused. Try again.”</td>
</tr>
<tr>
<td>b) Issue a T/O.</td>
<td>“That's the best answer. You could also give up to one warning first if you feel the child needs it. But remember that under no circumstances should you give more than one warning. That would just encourage your child to use stalling or arguing as a way to escape having to do the things you ask.”</td>
</tr>
<tr>
<td>c) Give a warning.</td>
<td>“That is an acceptable answer, but it’s not the best one. Remember that you should never give more than one warning. The more you use warnings, the more your child will expect them. If you make a practice out of giving warnings, your child may learn to mind you only when you ask things more than once.”</td>
</tr>
<tr>
<td>d) The parent can do the task for the child.</td>
<td>“This happens a lot when parents want to avoid a fight or want to save time. Unfortunately, this only teaches the child that if they stall long enough, their parents will take care of things for them. Try again.”</td>
</tr>
</tbody>
</table>
3) Issue time-out (video clip)

Audio/Text Question 3): A time-out has been issued. What's the first thing you do once you've assigned a time-out?

<table>
<thead>
<tr>
<th>Choices</th>
<th>Popup screen/audio</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Carry her daughter to time-out</td>
<td>You should never have to physically take your child to time-out. Remember, this time-out program is designed to work without you having to be physical with your children. Try again.</td>
</tr>
<tr>
<td>b) Remind her daughter that she gave her a time-out</td>
<td>Once you have assigned a time-out, you shouldn't give any more reminders. Try again.</td>
</tr>
<tr>
<td>c) Get timer and wait 15 seconds to see if the child goes to time-out voluntarily)</td>
<td>Good. Once you have given a time-out your job is to get the timer. Your child has up to 15 seconds to start moving.</td>
</tr>
<tr>
<td>d) Discuss with your daughter about the importance of going to time-out</td>
<td>Arguing simply delays the time-out. Once you have given a time-out, the only talking you should do is to add minutes or, later on, assign the backup punisher. Try again.</td>
</tr>
</tbody>
</table>
4) Child goes to time-out (video clip)

Audio/Text Question 4): Let's say that things go smoothly and the child goes to the time-out room. What should the mother do next?

<table>
<thead>
<tr>
<th>Choices</th>
<th>Audio/screen popup</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Once the door closes, say “Yeah, you better go to time out or I'll add another punishment”</td>
<td>“There's no need to threaten. Your child has already gone into the time-out room. Try a different answer.”</td>
</tr>
<tr>
<td>b) Set the timer, when it dings, time-out is over</td>
<td>“That’s good. Once your child is in the time-out room, there should be no more talking. When the bell rings, time-out is over.”</td>
</tr>
<tr>
<td>c) Ask Molly how long time-out should last</td>
<td>“Time-out always starts at 5 minutes for older children. Minutes are added for noncompliance with the time-out and that’s it. Remember that 10 minutes is the longest a time-out should last before going to your second line of defense.”</td>
</tr>
<tr>
<td>d) Wait until your child is tired of being in time-out and let him/her come out when he/she is ready</td>
<td>“The timer is crucial to avoiding unnecessary arguments and unnecessarily long time-outs. When the timer goes off, the time-out is over and your child can come out on their own. Try a different answer.”</td>
</tr>
</tbody>
</table>

Segue between clips: **Ok, that was a best-case example. But what if the child puts up a fight and doesn't want to go to timeout? What would mom do if this were to happen?**
5) Refuses timeout (video clip)

Audio/Text Question 5): “Hmmm, it looks like the child isn’t going. What should the mother do now?”

<table>
<thead>
<tr>
<th>Choices</th>
<th>Audio Screen popup</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Remind her daughter that a timeout was issued</td>
<td>“No, there’s no need to give a reminder once you have assigned a time-out. Try again.”</td>
</tr>
<tr>
<td>b) Say “that’s another minute” (six minutes total for the timeout now)</td>
<td>“That’s right. Keep it simple. This is your first line of defense. Don’t say anything else besides, That’s another minute.”</td>
</tr>
<tr>
<td>c) Carry her daughter to timeout</td>
<td>“It’s best to avoid getting into physical struggles with your children during time-out. Try a different answer.”</td>
</tr>
<tr>
<td>d) Issue a backup punisher</td>
<td>“No, it’s too early in the time-out to assign the backup punisher. Those are assigned later. Try again.”</td>
</tr>
</tbody>
</table>

6) Refuses timeout (video clip; 7th minute)

Audio/Text Question 6): **It looks like the child is still not going. What should the mother do now?**

<table>
<thead>
<tr>
<th>Choices</th>
<th>Audio screen popup</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Now she should carry her to timeout</td>
<td>“It’s best to avoid physical contact during the time-out procedure. Try a different answer.”</td>
</tr>
<tr>
<td>b) Issue the backup punisher</td>
<td>“No, it’s still too early to give the backup punisher. You should save the backup as your second line of defense. You can mention the backup punisher if the time-out gets up to 10 minutes.”</td>
</tr>
<tr>
<td>c) Say “That’s another minute, that’s seven minutes</td>
<td>“That’s right. Keep it simple. Just add the minute and see what they do next.”</td>
</tr>
<tr>
<td>d) Discuss with her child how disappointed she is that they are not going.</td>
<td>“It’s too late for discussion. A time-out has already been issued so discussion just helps the child avoid the time-out. Try a different approach.”</td>
</tr>
</tbody>
</table>
7) Adds seventh minute (video clip)
   Audio/text summary: “O.K., that’s 7 minutes so far. What will happen in the next 15 seconds?”

Refuses timeout (video clip 8th minute)
   Audio/text question 7) Now what should mom do?

<table>
<thead>
<tr>
<th>Choices</th>
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</tr>
</thead>
<tbody>
<tr>
<td>a) Remind Molly that a timeout was assigned.</td>
<td>“No reminders are needed here. Try a different response.”</td>
</tr>
<tr>
<td>b) Issue a backup punisher.</td>
<td>“No, it’s still too early to issue the backup punisher. Save that for later.”</td>
</tr>
<tr>
<td>c) Discuss with Molly that 8 minutes is ridiculous and that she should go to timeout now.</td>
<td>“No discussion is needed here. Try something else.”</td>
</tr>
<tr>
<td>d) Say “that’s another minute” and add one more minute to the timer.</td>
<td>“Very good. Even though the child is escalating, it will be most effective to just add minutes for now.”</td>
</tr>
</tbody>
</table>

Audio/text summary/segue Now we are at 8 minutes: what happens next?

Refuses timeout (video clip 9th minute)
   Audio/text question 8) So, what should mother do now?

<table>
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<tbody>
<tr>
<td>a) Remind Molly that a timeout was assigned.</td>
<td>“No reminders are needed here. Try a different response.”</td>
</tr>
<tr>
<td>b) Issue a backup punisher.</td>
<td>“No, it’s still too early to issue the backup punisher. Save that for later.”</td>
</tr>
<tr>
<td>c) Discuss with Molly that this is ridiculous and that she should go to timeout now.</td>
<td>“No discussion is needed here. Try something else.”</td>
</tr>
<tr>
<td>d) Say “that’s another minute” and add one more minute</td>
<td>“Very good. Even though the child is escalating, it will be most effective to just add minutes for now.”</td>
</tr>
</tbody>
</table>
Audio/text summary/segue: So now the child is up to 9 minutes. What will happen next?

Refuses timeout (video clip 10th minute)

Audio/text question 9) The child is still not going. What should happen next?

<table>
<thead>
<tr>
<th>Choices</th>
<th>Audio/Screen Popup</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Say “That’s ten minutes, go to time out now or you lose ___ for the rest of the day.”</td>
<td>“That’s right. This is when you first mention the backup punisher. At ten minutes, the child is given the choice between time-out and losing some privilege or some thing for the rest of the day.”</td>
</tr>
<tr>
<td>b) Ask Molly to please go to timeout. Otherwise she will be grounded for the week.</td>
<td>“Remember that backup punishers should be given for the rest of the day or up to a 24 hour period only. You shouldn’t have to assign a backup punisher for any longer than that with children of this age. Try again.”</td>
</tr>
<tr>
<td>c) Discuss with Molly that 9 minutes is way too long to delay, and she should go to timeout now</td>
<td>“This probably isn’t a good idea because it may just teach the child to delay punishment by starting discussions with you. Try again.”</td>
</tr>
<tr>
<td>d) Say “that’s another minute “ that’s ten minutes.” and wait 15 seconds to see if Molly will go to timeout.</td>
<td>“That’s not quite right. Once you reach 10 minutes you have to mention your second line of defense. Try again.”</td>
</tr>
</tbody>
</table>

Segue: So if the child still won’t go to time-out, what happens?

Mom assigns backup punisher (video clip)

Audio segue: “What if the child chooses to go to timeout?”

Child goes to time-out (video clip)
Audio/Text Question: 10) What should mom do now?

<table>
<thead>
<tr>
<th>Choices</th>
<th>Audio screen popup</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Set the timer, when it dings, time-out is over</td>
<td>That’s correct. You set the timer and when it dings, timeout is over (audio ding! video clip of child leaving timeout)</td>
</tr>
<tr>
<td>b) Discuss with the child how long time-out should last</td>
<td>Once a time-out has been assigned there should be no discussion. Try again.</td>
</tr>
<tr>
<td>c) Wait until your child is tired of being in time-out and let him/her come out when he/she is ready</td>
<td>Time-out should end only when the specified time is up. Try a different answer.</td>
</tr>
<tr>
<td>d) Say “yeah, you better go to time out or I’ll add another punishment”</td>
<td>Don’t add any threats – once the child goes to time-out, just wait for it to be over before you talk any more with your child. Try again.</td>
</tr>
</tbody>
</table>

The child is given a choice between the backup and the time-out. The child doesn’t go to time-out (video clip)

Audio/Test Question 11) What if the child doesn’t go to time-out? What should mom do then?

<table>
<thead>
<tr>
<th>Choices</th>
<th>Audio screen popup</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Give your child another time-out.</td>
<td>You don’t need to give more than one time-out. Try again.</td>
</tr>
<tr>
<td>b) Send your child to their room.</td>
<td>Remember that time-out should be boring and that most children have interesting things in their room. Try a different answer.</td>
</tr>
<tr>
<td>c) Give your child a time-out and take away the backup punisher, too.</td>
<td>You just gave your child a choice between the time-out and the backup punisher. Your child chooses which punishment they will receive. Try again.</td>
</tr>
<tr>
<td>d) Say, “O.K., forget time-out. Instead, you lose X for the rest of the night.”</td>
<td>That’s right. By not going to time-out, the child chose the backup punisher. You then drop the time-out and immediately assign the backup punisher. Let’s watch what happens then.</td>
</tr>
</tbody>
</table>

Show video (if we have it) of parent assigning back-up punisher.
Segue: “OK, you have now finished reviewing how the time-out strategy works. You can choose to go through the review again if you like. If you feel you understand it, you can click “Next” to go on to your final quiz. Remember, once you are done you will be able to speak to a therapist about any remaining questions you may have. Good luck.”

End Review
Appendix G

Clinic Based Parent Skills Role Play Procedure
Role-play practice measure

Instructions: Listed below are some activities that Dwayne is going to determine how well he is teaching these strategies. It will also provide you with the opportunity to practice some of the techniques we reviewed before you try them at home. When prompted, begin with the first item and do what you would do if Dwayne was your child and you were monitoring at home.

1) Ask Dwayne to put the toy on the desk.  
2) Ask Dwayne to bring you his homework.  
3) Ask Dwayne to turn off the lamp.  
4) Ask Dwayne to put the paper in the trash.  
5) Ask Dwayne to stop what he is doing.  
6) Ask Dwayne to leave the room.  
7) Ask Dwayne to stop what he is doing.  
8) Ask Dwayne to bring you the orange book.
Role-play practice measure – Session I

1) Ask Dwayne to put the toy on the desk. Compliant, delayed
2) Ask Dwayne to bring you his homework. Compliant, immediate
3) Ask Dwayne to turn off the lamp. Noncompliant, backtalk
4) Ask Dwayne to put the paper in the trash. Noncompliant, backtalk
5) Ask Dwayne to stop what he is doing. Compliant, immediate
6) Ask Dwayne to leave the room. Noncompliant, passive
7) Ask Dwayne to stop what he is doing. Compliant, delayed
8) Ask Dwayne to bring you the orange book. Noncompliant

<table>
<thead>
<tr>
<th>Req Type</th>
<th>LAC?</th>
<th>Rec</th>
<th>C/I</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>A/B</td>
<td>Y/N</td>
<td>A/B</td>
</tr>
<tr>
<td>2)</td>
<td>A/B</td>
<td>Y/N</td>
<td>A/B</td>
</tr>
<tr>
<td>3)</td>
<td>A/B</td>
<td>Y/N</td>
<td>A/B</td>
</tr>
<tr>
<td>4)</td>
<td>A/B</td>
<td>Y/N</td>
<td>A/B</td>
</tr>
<tr>
<td>5)</td>
<td>A/B</td>
<td>Y/N</td>
<td>A/B</td>
</tr>
<tr>
<td>6)</td>
<td>A/B</td>
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<td>A/B</td>
</tr>
<tr>
<td>7)</td>
<td>A/B</td>
<td>Y/N</td>
<td>A/B</td>
</tr>
<tr>
<td>8)</td>
<td>A/B</td>
<td>Y/N</td>
<td>A/B</td>
</tr>
</tbody>
</table>
Role-play practice measure

Instructions: Listed below are some activities that Dwayne is going to determine how well he is teaching these strategies. It will also provide you with the opportunity to practice some of the techniques we reviewed before you try them at home. When prompted, begin with the first item and do what you would do if Dwayne was your child and you were monitoring at home.

1) Ask Dwayne to pick-up the toys
2) Ask Dwayne to bring you the paper
3) Ask Dwayne to turn off the light
4) Ask Dwayne to put the paper in the trash
5) Ask Dwayne to stop what he is doing
6) Ask Dwayne to open the door
7) Ask Dwayne to stop what he is doing
8) Ask Dwayne to bring you the book.
Role-play practice measure – Session II

1) Ask Dwayne to pick-up the toys  
2) Ask Dwayne to bring you the paper  
3) Ask Dwayne to turn off the light  
4) Ask Dwayne to put the paper in the trash  
5) Ask Dwayne to stop what he is doing  
   (kick couch)  
6) Ask Dwayne to open the door  
7) Ask Dwayne to stop what he is doing  
   (bouncing ball)  
8) Ask Dwayne to bring you the book.

<table>
<thead>
<tr>
<th>LAC?</th>
<th>Award</th>
<th>Praise</th>
<th>Rec</th>
<th>C/I</th>
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</thead>
<tbody>
<tr>
<td>1)</td>
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<td>Y/N/NA</td>
<td>Y/N</td>
<td>C/I</td>
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<tr>
<td>2)</td>
<td>Y/N</td>
<td>Y/N/NA</td>
<td>Y/N</td>
<td>C/I</td>
</tr>
<tr>
<td>3)</td>
<td>Y/N</td>
<td>Y/N/NA</td>
<td>Y/N</td>
<td>C/I</td>
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<tr>
<td>4)</td>
<td>Y/N</td>
<td>Y/N/NA</td>
<td>Y/N</td>
<td>C/I</td>
</tr>
<tr>
<td>5)</td>
<td>Y/N</td>
<td>Y/N/NA</td>
<td>Y/N</td>
<td>C/I</td>
</tr>
<tr>
<td>6)</td>
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<td>Y/N/NA</td>
<td>Y/N</td>
<td>C/I</td>
</tr>
<tr>
<td>7)</td>
<td>Y/N</td>
<td>Y/N/NA</td>
<td>Y/N</td>
<td>C/I</td>
</tr>
<tr>
<td>8)</td>
<td>Y/N</td>
<td>Y/N/NA</td>
<td>Y/N</td>
<td>C/I</td>
</tr>
</tbody>
</table>
Instructions: Listed below are some activities that Dwayne is going to determine how well he is teaching these strategies. It will also provide you with the opportunity to practice some of the techniques we reviewed before you try them at home. When prompted, begin with the first item and do what you would do if Dwayne was your child and you were monitoring at home.

1) Ask Dwayne to pick-up the books
2) Ask Dwayne to bring you the homework
3) Ask Dwayne to stop what he is doing
4) Ask Dwayne to put the paper in the trash
5) Ask Dwayne to stop what he is doing
6) Ask Dwayne to turn off the lamp
7) Ask Dwayne to put the toy on the chair
8) Ask Dwayne to bring you the book.
**Role-play practice measure – Session III**

1) Ask Dwayne to pick-up the books  
2) Ask Dwayne to bring you the homework  
3) Ask Dwayne to stop what he is doing  
4) Ask Dwayne to put the paper in the trash  
5) Ask Dwayne to stop what he is doing  
6) Ask Dwayne to turn off the lamp  
7) Ask Dwayne to put the toy on the chair  
8) Ask Dwayne to bring you the book.

<table>
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<tr>
<th>LAC?</th>
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<th>Praise</th>
<th>Rec</th>
<th>C/I</th>
<th>Issue T/O</th>
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<td>Y/N</td>
<td>C/I</td>
<td>C/I</td>
</tr>
<tr>
<td>2)</td>
<td>Y/N</td>
<td>Y/N/NA</td>
<td>Y/N</td>
<td>C/I</td>
<td>C/I</td>
</tr>
<tr>
<td>3)</td>
<td>Y/N</td>
<td>Y/N/NA</td>
<td>Y/N</td>
<td>C/I</td>
<td>C/I</td>
</tr>
<tr>
<td>4)</td>
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<td>Y/N/NA</td>
<td>Y/N</td>
<td>C/I</td>
<td>C/I</td>
</tr>
<tr>
<td>5)</td>
<td>Y/N</td>
<td>Y/N/NA</td>
<td>Y/N</td>
<td>C/I</td>
<td>C/I</td>
</tr>
<tr>
<td>6)</td>
<td>Y/N</td>
<td>Y/N/NA</td>
<td>Y/N</td>
<td>C/I</td>
<td>C/I</td>
</tr>
<tr>
<td>7)</td>
<td>Y/N</td>
<td>Y/N/NA</td>
<td>Y/N</td>
<td>C/I</td>
<td>C/I</td>
</tr>
<tr>
<td>8)</td>
<td>Y/N</td>
<td>Y/N/NA</td>
<td>Y/N</td>
<td>C/I</td>
<td>C/I</td>
</tr>
</tbody>
</table>

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Appendix H

Parent Skills Knowledge Quizzes
Quiz One
1. So, when you are home this week, how long are you going to wait after making a request before you decide if it was a compliance or noncompliance?

2. What if your child complies with your request but argues with you? What would you record?

3. What if your child does the task but waits for 20 seconds before he/she begins?

4. Where are you going to record your child's responses to your requests?

5. Consider the time periods (each of) you are going to be monitoring. How long will you try to monitor?

6. What if you asked your child to turn off the TV. and he/she did so immediately, but mumbled bad things under his breath? What would you record?

7. What if your child turns off the TV. within 15 seconds and then opens up a book?

8. What if your child snapped back "But it's not my turn!" and didn't budge?

9. What if your child turns off the TV. but stomps his feet on the ground while doing it?

10. What time periods are (each of) you going to monitor?
KNOWLEDGE CHECK

Quiz Two

1. Show me where you record the child's total for each day.
__________________________________________________________________________ C / I

2. When you first explain the chores for the child, who actually does the chore?
__________________________________________________________________________ C / I

3. Is it o.k. to steer the child away from any of the listed rewards?
__________________________________________________________________________ C / I

4. Imagine a day where your child gets all their chore points and is good enough for most of the day to make his/her point total. However, he disobeys you right after supper. When you review the day with him/her before bedtime, does s/he still get his reward for the day?
__________________________________________________________________________ C / I

5. If you ask your child to clean up their toys and they begin the task within 15 seconds, but don't finish it before then, do they still get their points for compliance?
__________________________________________________________________________ C / I

6. If your child complies with your request what do you do?
__________________________________________________________________________ C / I

7. How many points does your child need to get to meet their daily point total?
__________________________________________________________________________ C / I

8. When you are reviewing your child's daily point total, which would it be correct to say?.....
   " I am very upset that you didn't meet your point total. You have disappointed me once again. You'd better work harder tomorrow, or else!" OR...
   " Well, you didn't get your points today, but maybe tomorrow you will. Tomorrow's a brand new day! If you get XX points, then you can choose _______ from all those good rewards!
"__________________________________________________________________________ C / I

9. If your child successfully completes all steps of both of their chores, how many points will they get?
__________________________________________________________________________ C / I

10. How many warnings do you give your child before checking on their chore?
__________________________________________________________________________ C / I
KNOWLEDGE CHECK

Quiz Three

1. What important piece of equipment must you have before you begin to use time-out?
   ____________________________________________________ C / I

2. Let's say that you make a request of your child and they are noncompliant. Your should send them to what?
   ____________________________________________________ C / I

3. Then they walk in the bathroom and quietly close the door as they are supposed to. How long do you set the timer?
   ____________________________________________________ C / I

4. Let's say you've given your child a time-out but s/he continues to misbehave. What is the only thing that you can say?
   ____________________________________________________ C / I

5. What's the longest time you can send your child to time-out?
   ____________________________________________________ C / I

6. If you get to ten minutes for a time-out, what warning do you give your child after you say, "That's ten minutes."?
   ____________________________________________________ C / I

7. If your child continues to be noncompliant with time-out, what do you say at this point?
   ____________________________________________________ C / I

8. Let's say that you ask your child to wash his hands and he says, "I don't want to." You tell him that's a time-out and he says, "I don't care." What do you say?
   ____________________________________________________ C / I

9. Then he stomps his foot and says "You can't make me." What do you say?
   ____________________________________________________ C / I

10. What if he gets up to 10 minutes - what do you say?
    ____________________________________________________ C / I
Appendix I

Computer Satisfaction Rating Questionnaire

131
**Computer Rating Questionnaire**

**Directions:** Please complete the following questions by circling the ONE best available answer.

1. I felt that the computer teaching format was:

<table>
<thead>
<tr>
<th>Very difficult to follow</th>
<th>Difficult to follow</th>
<th>Somewhat difficult to follow</th>
<th>Neutral</th>
<th>Somewhat easy to follow</th>
<th>Easy to follow</th>
<th>Very easy to follow</th>
</tr>
</thead>
</table>

2. The presentation of the ideas and skills by the computer was:

<table>
<thead>
<tr>
<th>Very difficult to understand</th>
<th>Difficult to understand</th>
<th>Somewhat difficult to understand</th>
<th>Neutral</th>
<th>Somewhat easy to understand</th>
<th>Easy to understand</th>
<th>Very easy to understand</th>
</tr>
</thead>
</table>

3. The examples provided in the computer program were:

<table>
<thead>
<tr>
<th>Very realistic</th>
<th>Realistic</th>
<th>Somewhat realistic</th>
<th>Neutral</th>
<th>Somewhat unrealistic</th>
<th>Unrealistic</th>
<th>Very unrealistic</th>
</tr>
</thead>
</table>

4. Using the computer to learn about these skills was:

<table>
<thead>
<tr>
<th>Very boring</th>
<th>Boring</th>
<th>Somewhat boring</th>
<th>Neutral</th>
<th>Somewhat interesting</th>
<th>interesting</th>
<th>Very interesting</th>
</tr>
</thead>
</table>

5. The quiz used in the computer program was:

<table>
<thead>
<tr>
<th>Very difficult</th>
<th>Difficult</th>
<th>Somewhat difficult</th>
<th>Neutral</th>
<th>Somewhat easy</th>
<th>Easy</th>
<th>Very easy</th>
</tr>
</thead>
</table>

6. I would rather have just the therapist teach all of the strategies:

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat agree</th>
<th>Neutral</th>
<th>Somewhat disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>

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7. The sound quality of the computer was:

<table>
<thead>
<tr>
<th>Very poor</th>
<th>Poor</th>
<th>Somewhat poor</th>
<th>Neutral</th>
<th>Somewhat good</th>
<th>Good</th>
<th>Very good</th>
</tr>
</thead>
</table>

8. The video (picture) quality was:

<table>
<thead>
<tr>
<th>Very poor</th>
<th>Poor</th>
<th>Somewhat poor</th>
<th>Neutral</th>
<th>Somewhat good</th>
<th>Good</th>
<th>Very good</th>
</tr>
</thead>
</table>

9. The mouse device was:

<table>
<thead>
<tr>
<th>Extremely difficult to use</th>
<th>Difficult to use</th>
<th>Somewhat difficult to use</th>
<th>Neutral</th>
<th>Somewhat easy to use</th>
<th>Easy to use</th>
<th>Extremely easy to use</th>
</tr>
</thead>
</table>

10. I would recommend this program to a friend or relative:

<table>
<thead>
<tr>
<th>Strongly recommend</th>
<th>Recommend</th>
<th>Somewhat recommend</th>
<th>Neutral</th>
<th>Somewhat not recommend</th>
<th>Not recommend</th>
<th>Strongly recommend</th>
</tr>
</thead>
</table>

11. The combination of computer program and therapist in this program was:

<table>
<thead>
<tr>
<th>Strongly acceptable</th>
<th>Acceptable</th>
<th>Somewhat acceptable</th>
<th>Neutral</th>
<th>Somewhat unacceptable</th>
<th>Unacceptable</th>
<th>Strongly unacceptable</th>
</tr>
</thead>
</table>

12. I found this computer program:

<table>
<thead>
<tr>
<th>Very useful</th>
<th>Useful</th>
<th>Somewhat useful</th>
<th>Neutral</th>
<th>Somewhat not useful</th>
<th>Not useful</th>
<th>Very much not useful</th>
</tr>
</thead>
</table>

13. Information presented by the computer program was:

<table>
<thead>
<tr>
<th>Very clear</th>
<th>Clear</th>
<th>Somewhat clear</th>
<th>Neutral</th>
<th>Somewhat unclear</th>
<th>Unclear</th>
<th>Very unclear</th>
</tr>
</thead>
</table>
14. The text used in the computer program was:

<table>
<thead>
<tr>
<th>Very easy to read</th>
<th>Easy to read</th>
<th>Somewhat easy to read</th>
<th>Neutral</th>
<th>Somewhat difficult to read</th>
<th>Difficult to read</th>
<th>Very difficult to read</th>
</tr>
</thead>
</table>

15. The review section in the computer program was:

<table>
<thead>
<tr>
<th>Very useful</th>
<th>Useful</th>
<th>Somewhat useful</th>
<th>Neutral</th>
<th>Somewhat not useful</th>
<th>Not useful</th>
<th>Very much not useful</th>
</tr>
</thead>
</table>

**Directions:** Please give us your most important impressions for each of the following items.

16. What did you like most about the computer program?

17. What did you like least about the computer program?

18. How was using the program different from your initial expectations?

19. How could the computer program be changed to make it more acceptable or useable?

20. How would you rate your overall personal computer skill level?

<table>
<thead>
<tr>
<th>Expert</th>
<th>Advanced</th>
<th>Intermediate</th>
<th>Very little</th>
<th>None</th>
</tr>
</thead>
</table>

Thank you for your participation!
BIBLIOGRAPHY


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