

AGGRESSION MANAGEMENT: A COMPARISON OF COGNITIVE
RESTRUCTURING VERSUS SOCIAL LEARNING TECHNIQUES

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CURRICULUM STUDIORUM

Gregory E. Hafen was born January 27, 1944 in Laramie, Wyoming, USA. He received his Bachelor of Science degree from Brigham Young University, Provo, Utah, USA in 1968. He received his Master of Science degree also from Brigham Young University in 1970. The title of his Masters thesis was Training and its Effects on the Moral Judgments of Pre-Kindergarten Children. He is the father of four children, two boys and twin girls.

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CHAPTER I

INTRODUCTION AND REVIEW OF LITERATURE

Social aggression is not tolerated for extended periods in most levels of our modern society. Hostile aggressive acts used by non-authorized individuals will be soon condemned by peers and other members within a society, especially if the aggressive acts are intense and/or frequent, unless the cultural norm is to accept aggressive behavior. Should peer pressure or other social sanctions fail, recourse is usually made to law enforcement agencies or to social services designed to help control the aversive acts of the aggressor.

Control of aggressive behavior has long been a major concern. That concern has become especially focal in the last century as our destructive power and capability to inflict massive and intensive destruction on large segments of the world has become a very real threat. Perhaps as a result of this increasing destructive potential, theories as to why people engage in hostile acts have been advanced in the last few decades.

Bandura's Theory of Aggression

One of the more promising theories of aggression is Bandura's (1973) social learning theory. Bandura's definition of aggression includes not only behavior that results in personal injury (both physical and psychological) or in property damage, but he also postulates that social judgments enter into

the definition. While dentists, football players and bulldozer operators inflict pain on individuals or destroy property, they are excluded from the definition of aggression due to social approval of their actions. Other factors that are included to form a meaningful definition of aggression include: (a) the intensity of the response, (b) the expression of injury or pain in recipients, (c) the performer's intentions, (d) the characteristics of the labelers of aggression, (e) the characteristics of the aggressor, and (f) the social norms of a given society, ethnic group, sex, or occupation-education level. Therefore, Bandura characterized aggression as "injurious and destructive behavior that is socially defined as aggressive on the basis of a variety of factors, some of which reside in the evaluator rather than in the performer" (1973, p. 8).

Bandura's conceptualization of social learning processes assumes an interaction between the environment and the person's behavior. The individual may have an impact on his environment by the way he/she behaves and by the way she/he perceives it. The realities of the environment shape and interact with the individual's perceptions and behavior. For Bandura there are three general processes in the learning of responses: (a) antecedent inducements--stimuli and events that precede the behavior, (b) response feedback influences--or the contingencies that operate following behavioral responses, and (c) cognitive processes that either guide and direct, or mask and disrupt, appropriate learning. Bandura maintains that aggressive

responding is the result of reinforcement schedules, anticipation of consequences through mediational processes, and social valuation of aggression by the individual and society. Nevertheless, much of his writing is concerned with the facilitative effects that modeling of aggression has for learning of aggression by individuals as well as the effects that environmental reinforcers play in the acquisition of these modeled events by the observer.

The Effects of Modeling

There is considerable evidence from modeling research that supports the social learning theory postulates of the development of aggressive behaviors. Bandura, Ross and Ross (1963) demonstrated that nursery school age children who watched an adult aggress against a large doll in novel ways would then emit the same novel aggressive behaviors if they were given the opportunity and social sanctions to do so. Another investigation of modeling effects found that children can remember novel aggressive acts even without the opportunity to engage in aggressive acts (Bandura, Grusec and Menlove, 1966). Hicks (1965, 1968b) found that children could remember the aggressive acts of an adult male model eight months after the event took place. The children did not show signs of displaying these behaviors, but they remembered more than 40% of them when asked to recall them. Nelson, Gelfand and Hartman (1969) found that children who watched aggressive models later produced more aggressive behavior if they were losers in competitive play rather than if they were winners or if they had observed no

aggression.

Children will display different amounts of aggressive behaviors based on an adult's responses to aggressive television models (Hicks, 1968a). If the adult sanctioned the model's aggressive behaviors either positively, neutrally or negatively, then the child emitted behaviors consistent with the adult's approval or lack of approval. But when the adult was away, equal amounts of imitative aggressive behaviors were displayed by the three groups (Hicks, 1968a). These studies indicate that performance of aggressive behavior can be influenced by a model's presence or absence and that the learning of aggressive acts is not dependent on performance of those acts. Kniveton and Stephenson (1970) attempted to demonstrate that unfamiliar environments increased aggressive behavior in children, but they found that children would display more aggressive behaviors following an aggressive model regardless of whether or not they were familiar with the environment. There was, however, a further increase in aggressive responding if the child both watched the aggressive model and interacted in an unfamiliar environment.

Hartman's (1969) study that used male subjects only considered the impact of induced anger and modeled aggression plus pain cues as related to the viewer's later aggressive behaviors toward his partner. The partners shocked or threatened the subjects to induce anger. Subjects in the induced anger group watched a film of competitive scenes that then developed into a fist fight. In the film the camera focused on the victim's

expressions of pain. These subjects were just as aggressive following the film to their partners, who had angered them, as the other subjects who had witnessed the aggression-only sequences. The angry viewers were more aggressive than non-angered viewers. However, those who were angry but not shown aggressive films were less aggressive towards their partners. Therefore, it would appear that modeling of aggression even when it produces pain in victims may have a facilitative effect on aggression expression.

The Effects of Attribution

In addition to modeling, there are two other important factors that appear to contribute to aggressive behavior: (a) the level of emotional arousal a person experiences, and (b) the attribution of that arousal by the individual prior to engaging in aggressive acts. Rule and Nesdale (1976) found in their review of adult aggression studies that general emotional arousal (created by non-aggressive agents such as erotic material, loud background noises, drugs, etc.) increased the likelihood of an aggressive response. They also noted that when the individual was able to label the aroused state as anger, aggressive behavior was not only greatly enhanced, but would be directed at the source of the arousal. According to these reviewers, the ability to discriminate between non-anger arousal and anger-induced arousal would have dramatic effects on the probability and direction of an aggressive response. The capacity to give labels to arousal states was dramatized by

Schachter and Singer's (1962) study in which college students received injections of an amphetamine that heightened arousal. They were then instructed to sit in a waiting room with a confederate. For half of the subjects the confederate was playful and euphoric, while for the remainder of the subjects the confederate was restless and verbally hostile. Uninformed drug-aroused subjects used the confederate's behavior as cues for how they were supposed to act. On the other hand, drug-aroused subjects who had been informed that they were receiving a stimulant were much less influenced by the confederate.

For adults the effect of attribution on emotionally aroused individuals is further illustrated in a study reported by Geen, Rakosky and Pigg (1972). Subjects were allowed to read sexually stimulating material while under the "influence of a drug" and they were shocked at intervals by a confederate. If the subjects were led to believe that the story or the drug was the reason they were aroused then they were less likely to exhibit aggressive responses to the confederate than if they believed his shocks were the cause of their arousal. Similar results have been reported using physical exercise (Zillman, Katcher and Milausky, 1972) and excessive noise (Harris and Huang, 1974) to arouse the subjects. Thus, when an individual can attribute the source of his arousal as an anger state produced by certain stimuli, acts of aggression are more likely to be exhibited against those stimuli or individuals that are imputed with producing the arousal. This relationship requires a cognitive-

mediational process on the part of the individual.

Other mediational properties considered by Bandura (1973) to operate in the instigation or inhibition of aggressive responding are: (a) the perceived retaliatory potential of the recipients of an aggressive response, (b) the learned appropriateness of an aggressive response in a specific situation, (c) the acknowledgment of vicarious or symbolic reinforcers or punishers provided to other individuals in similar situations, and (d) the self-evaluation of one's own behavior following a response. Therefore, according to Bandura, even for children, a potential plethora of cognitions precede, surround and follow aggressive acts.

Social Learning Approaches to Aggression

Until recently, the most frequently implemented technique derived from the array of social learning methodology used to treat aggressive children has been operant conditioning or contingency management. Fewer research articles have surfaced attempting to use cognitive interventions with aggressive children, although Bandura's conceptualization would include the cognitions of the child as important determinants of aggressive responding. The work of G. R. Patterson and the Oregon Research Institute (ORI) that uses contingency management methodology has been impressive (Patterson, 1965, 1967, 1971b, 1973; Patterson, Cobb and Ray, 1972; Patterson, Reid, Jones and Conger, 1975). At ORI, parents are trained by clinicians after the families have been screened for severe marital discord or for psychotic family members, since either situation is considered to preclude effective therapeutic

intervention (Patterson et al., 1975). Parents first learn basic social learning procedures by reading programmed materials (Patterson, 1971a; Patterson and Gullion, 1968). When the parents have demonstrated knowledge of these procedures by means of informal testing, they then move to a second level of instruction. At this level they are taught, through instruction and behavior rehearsal, how to pinpoint and gather data on key behaviors they want to change in their children. Upon collection of these baseline materials, parents meet in group sessions of 4-6 couples. Here they are taught management techniques, learn to plan a behavior change program, and then report weekly on the progress made. Individual programs are supplied to persistent problems, but the group format is generally used since vicarious reinforcers come from other group members and additional procedural techniques are discussed.

In addition to this parent group learning mode, school intervention programs are instituted for children who need help in this area. Patterson reports changes in desirable directions of the subject's target and also some non-target behaviors. Parents report improvement in global ratings of their children and siblings of the identified patient also improve according to observer reports (Arnold, Levine and Patterson, 1975). Patterson et al. (1975) have recorded the cost of this technique. The average therapist time per patient was 31.5 hours with the family and 27.5 hours of intervention for the classroom program. Patterson's treatment, though thorough, has financial difficulties

for implementation. As he outlined it, there is the need for a large, well-trained staff. Another problem is operant programs begun in the home do not necessarily generalize to the school. Thus, additional therapist time is required to alter aggressive school behaviors (Abikoff, 1979; Firestone, Kelly and Fike, 1980; Forehand and Atkeson, 1977; Patterson, 1974b; Patterson et al., 1975; Shumaker, Hovell and Sherman, 1977; Wahler, 1969, 1975).

Another operant study by Gittleman-Klein, Abikoff, Katz, Cloisten and Kates (1976) introduced a home-school program for hyperactive children whose ages ranged from 6 to 12. Children who met rigid inclusion criteria were assigned to one of three groups: behavior therapy plus placebo, behavior therapy plus medication, and medication only. Assessment measures included observations of classroom behaviors and teacher, parent and psychiatrist ratings that were administered at pre- and post-test. Teachers and both parents were taught operant techniques and teachers administered tokens for agreed upon classroom behaviors that were rewarded at home. Several home behaviors were included in the child's program. After eight weeks the interventions were evaluated. All three groups were significantly improved on the Conduct Disorder, Anxiety and Hyperactivity factors of Conner's (1969) Teachers Rating Scale. However, the behavior therapy only treatment did not show significant improvement on the classroom observation scales. Both treatment groups that received medication showed improvement on this measure. The combined group was most improved

followed by the medication only group. Of the three interventions, the behavior therapy only group was the least influenced by the treatment, but was still significantly improved from pre-test. The authors caution that these results are generalizable to severely disturbed children only, and Mash and Dalby (1979) list several criticisms of this study that make its interpretation to other populations tenuous. Among other concerns, they state that clarification needs to be made on the equality of behavior therapy administered to the two groups receiving this treatment.

A study by O'Leary, Pelham, Rosenbaum and Price (1976) was also conducted with hyperactive children and included a home-school program that lasted ten weeks. Academic and prosocial behaviors were targeted to be changed. The posttreatment results showed a significant decline in teachers' ratings of hyperactivity. These teachers' results were even lower than ratings received for a control group. Thus, it appears that social learning techniques may be effective with hyperactive and aggressive children.

Several other operant formats which have focused on a variety of problems in addition to aggressive behaviors have been developed. Here again the usual approach was to train parents to be the change agents (Ayllon and Rosenbaum, 1977; Baily, Wolfe and Phillips, 1970; O'Leary and O'Leary, 1977; Ryback and Staats, 1970; Walter and Gilmore, 1973; Wiltz and Patterson, 1974). However, a recent study by Firestone, Kelly and Fike (1980) questions the generalization ability of this method as well as its applicability in clinical settings. Firestone et al. found that although aggressive children

improve at home there was no generalization to the school environment. Wahler's study (1969) which examined setting generalization and used two deviant school children as subjects produced the same finding.

Other programs have focused on training teachers to be the change agents. The utility of this method is well documented (Atkeson and Forehand, 1979; Becker, Madsen, Arnold and Thomas, 1972; Becker, Thomas and Carnine, 1969; Boegli and Wasik, 1978; Homme, Czani, Gonzales and Rechs, 1970; Kazdin, 1977; Madsen, Becker and Thomas, 1972; Mash and Dalby, 1979; O'Leary and O'Leary, 1976; Patterson, Cobb and Ray, 1972; Schumaker, Hovell and Sherman, 1977). Home-based reinforcement programs that communicate with teachers have been incorporated in order to support the teacher's role and also to place more control in the hands of parents (Atkeson and Forehand, 1979). Teachers communicate to parents either that the child was good (Heaton, Safer, Allen, Spinnato and Prumo, 1976) or that the child followed the classroom rules (Hawkins, Sluyter and Smith, 1972; Shumaker et al., 1977).

The success of this treatment can be measured by the populations to which it has been effectively administered. Students range from kindergarten to high school (Lahey, Gendrick, Gendrich, Schnelle, Gant and McNees, 1977; Shumaker et al., 1977), from delayed academic skills (Schumaker et al., 1977), to emotionally disurbed (Heaton et al., 1976), to underachievers (Hawkins et al., 1972), and to delinquents (Bailey, Wolf and Phillips, 1970). However, once again there is the problem of generalization and the

cost to the therapist to train teachers and parents (Atkeson and Forehand, 1979; Firestone et al., 1980; Gittleman-Klein et al., 1976; Schumaker et al., 1977).

Still the work of the ORI group with their extensive research and follow-up of their families, as well as the other research in the area, remains most impressive. The ORI 1975 publication (Patterson, Reid, Jones and Conger) was a culmination of nearly a decade of concentrated research into the mechanisms of overcoming aggressive behavior through operant home-school programs. They have stated that a program in which parents are trained in social learning concepts and who coordinated their efforts with a school intervention program may help two-thirds of the referrals an agency is likely to receive.

In his review of behavioral interventions with children, Abikoff (1979) criticizes the poor showing of maintenance effects following termination of reinforcement contingencies and the failure of treatment gains to generalize to other non-treatment settings during and following operant programs. He also acknowledges the difficulties that occur following withdrawal of stimulant medication, and he declares this problem to be a shortcoming of that approach. These difficulties with traditional interventions have prompted researchers to find alternative treatments. Some of their attention has been directed to cognitive methods with the hope of finding lasting generalization from these newer approaches.

Cognitive Restructuring Approaches

The interest in cognitive approaches has blossomed of late and recent reviews speak to the issues of the utility and limitations of this array of techniques (Abikoff, 1979; Craighead and Wilcoxon-Craighead, 1978; Hobbs, Moguin, Tyroler and Lahey, 1980; Mash and Dalby, 1979; O'Leary and Dubey, 1979; Rosenbaum and Drabman, 1979). Recent work in the area of cognitive behavior modification techniques has been advanced that may provide a viable alternative to the Patterson model, and since the former approach incorporates cognitions as behaviors to train, it more closely fulfills the requirements of Bandura's conceptualization.

The relationship between cognitively mediated material and emotional responses has received considerable attention for some time from Ellis and his associates (1958, 1972, 1973; Ellis and Harper, 1975). Ellis believes that an individual upsets himself by the mediational process that occurs between the actual event and the ensuing emotional response. For Ellis the event itself does not cause emotion, but the person's interpretation of that event and the faulty or irrational beliefs he has about that event and himself lead to whatever affective response the individual produces. Ellis' therapeutic approach requires the client to examine the statements he is making to himself and to assess the rationality of this internal dialogue. Once the irrational and usually self-defeating statements have been systematically replaced by more appropriate, self-enhancing

self-statements, changes in emotion are reported to occur (Ellis and Harper, 1975). This approach requires the individual to restructure his thinking processes in order to control inappropriate emotional responses, rather than to attempt to change environmental events. That restructuring comes about by the client altering beliefs and self-statements. The therapist coaches and challenges the client's irrational beliefs, and the client rehearses more rational alternative self-statements. Homework assignments are given to the client to practice what he has learned in the therapy session.

Working at another level, Meichenbaum (1976, 1977, 1979) has provided the major rationale for the use of cognitive training with children. Influenced by the Soviet scientists Luria (1961) and Vygotsky (1962) on the interaction between language and thought on behavior, Meichenbaum believes that many inappropriate behaviors of difficult children can be traced to their immature or poorly developed thought processes that take the form of speech. Luria's conceptualization of speech development includes the following steps: (a) initial stage--control of behavior comes from external agents and this speech has stimulus not semantic qualities on the recipient; (b) second stage--limited self-control through one's own speech. The content is still not semantic; (c) final stage--self control comes through semantic content of speech (Hobbs et al., 1980).

Meichenbaum (1977) argues that children and adults learn new tasks and govern their behavior by a set of self-instructions

they provide themselves in the form of speech. Early in the learning sequence of a new behavior for an adult, or early in the child's cognitive development the self-guiding instructions are spoken out loud. As proficiency increases for adults, and as the child matures, the nature of the self-statements become more covert, then automatic and finally pass from conscious thought.

Meichenbaum and Goodman's (1969, 1971) research found differences between impulsive children and normals on the effectiveness of self-guiding speech. Whereas normal children used overt self-instruction as cues for self-regulation, impulsive children were less likely to use self-instruction statements to functionally control their behavior. Meichenbaum and Goodman found that cognitively impulsive preschool age children were more immature on private speech based on Kolhberg, Yaeger and Hjertholm's (1968) four developmental levels of private speech than those identified as cognitively reflective. The former group used more self-stimulatory speech while the latter group demonstrated more outer-directed and self-regulatory speech. Meichenbaum hypothesized that a treatment procedure that selectively taught the impulsive child how to effectively self-instruct his/her own behaviors would then help alter the child's response pattern to a variety of different tasks. Meichenbaum and Goodman found that the cognitive-behavior styles of hyperactive and impulsive children of nursery school age can, to some extent, be altered. In these studies impulsive children were taught how to self-instruct in individual sessions by: (a) watching an adult model perform a

task while talking out loud, (b) then the child performed the same task while the trainer verbalized the instructions, (c) next, the child performed the task while instructing himself out loud, (d) then the child performed the task again but with his own whispered self-instruction, and (e) the child then self-instructed at a covert level while doing the task.

A variety of materials and tasks were included using that training procedure. Over time the child's overt self-instructions were gradually faded to include only covert self-instructions. Self-correcting and coping statements were incorporated into the self-instructions so that the child would have the means to cope with errors in performance. Meichenbaum and Goodman (1971) found that the effectiveness of the modeling procedure was enhanced when self-instructions were included rather than relying on modeling alone. The child was allowed to formulate his own self-instruction statements as long as they followed the general sequence of (a) problem definition, (b) focused attention and response guidance, (c) self-reinforcement, and (d) self-evaluation. The purpose of that intervention was to teach the child to think before acting. The authors reported that the children in the self-instruction group performed significantly better on measures of impulsivity: Porteus Mazes, Performance IQ of the WISC, and the Matching Familiar Figures Test (MFF) than did assessment-only subjects or controls. A similar study by Finch, Wilkinson, Nelson and Montgomery (1975) with emotionally disturbed children produced similar results.

The hypothesis that training in cognitive self-instruction would lead to improved maintenance and generalization of appropriate behaviors has precipitated studies in a variety of problem behaviors in children. One area receiving the most concentrated research is impulsivity in children (Cullinan, Epstein and Silver, 1977; Debus, 1970; Denny, 1972; Egeland, 1974; Finch et al., 1975; Kagan, Pearson and Welch, 1966; Kendall and Finch, 1976, 1978; Kendall and Wilcox, 1980; Palkes, Stewart and Kahana, 1968). Several recent reviews discuss these articles and how they relate to the concept of impulsivity. Therefore, the reader is referred to the following papers: Abikoff, 1979; Craighead et al., 1978; Hobbs et al., 1980; Kendall, 1977; Mash and Dalby, 1979; O'Leary and Dubey, 1979). However, for purposes of this paper the work of Finch and Kendall and their colleagues will be outlined.

In some of the earlier work Finch and Montgomery (1973) discovered that there were differences in cognitive styles of impulsive, emotionally-disturbed and normal children. Essentially, they found that impulsive, emotionally-disturbed children think in pictures rather than words (iconic versus symbolic representation); non-impulsive emotionally-disturbed children think symbolically or make use of mediational processes. Impulsive children do not use, or have a lack of verbal mediation. They have an automatic quality to their thinking as if there is an absence of thought. They seem to respond with a minimum of information and

have difficulty in evaluating the consequences of their actions. Montgomery and Finch (1975) found on teachers' ratings of locus of conflict that impulsive boys are more likely to be classified as externalizers (fighters), whereas reflective children are rated as internalizers (anxious, somatizers).

Finch et al. (1975) conducted a study similar to Meichenbaum and Goodman's (1971) research, and found cognitive training was superior to a delay training procedure for reducing errors and increasing latency on the MFF. The delay training group was also able to increase latency.

Kendall and Finch (1976) conducted a case study with a nine year old impulsive outpatient boy. Their treatment included five hours of self-instruction training and response cost. The therapists modeled a problem solving task (mazes) using the four steps Meichenbaum and Goodman developed. A cue card with "Stop, listen, look and think before I am sure" (Palkes, Stewart and Kahana, 1968) was presented to the child prior to responding. The main objective was to demonstrate generalization to rooms, tasks and therapists. The target behavior was the number of "switches" from one activity to another. A response cost contingency (the selective removal of reinforcers) was in effect for switching from one activity to another. The MFF errors and latency improved as did number of switches following treatment and teachers' reports were more positive for treated boys. These effects generalized as predicted and were in effect at a six-month follow-up. The MFF error and latency scores remained stable after training. The authors conclude that the combination of self-instruction training

and response cost was effective in reducing switching in impulsive boys and that the procedure can generalize to other situations.

In 1978 Kendall and Finch reported a group comparison study. They examined the effectiveness of the cognitive behavior approaches on groups of impulsive children. Ten treated and ten control subjects whose ages ranged from 10 through 12, and who were from an inpatient psychiatric facility were included. Dependent measures were errors and latency responses of the MFF, two self-report questionnaires and teachers' ratings. Training included six 20-minute sessions using verbal self-instruction plus response cost, and for controls six exposure sessions with non-contingent rewards were administered. Follow-up occurred three months later. The results indicated treatment effectiveness for the self-instruction group on MFF measures and on teachers' ratings, but not on self-report of locus of conflict ratings. The authors conclude that cognitive-behavioral treatment is effective in reducing impulsivity in children and may generalize to classrooms. They also make this cogent observation:

Indeed in the present study in which generalization to the classroom was attained, the tasks were of the psycho-educational variety. On the other hand, if the six treatment sessions consisted of cognitive training and response cost dealing with interpersonal situations, attaining generalization to life situations may have been more likely. (p. 117)

The most recent study from this group (Kendall and Wilcox, 1980) attempted to compare concrete versus conceptual approaches in self-instruction treatments. Subjects were 33 outpatient referrals

of both sexes. Therapists included graduate and upper level undergraduate psychology students trained in both operant technology and cognitive approaches. The children were placed in one of three groups: (a) concrete self-instruction, (b) conceptual self-instruction, (c) attention-placebo. Each child received six 30- to 40-minute sessions. The instructions and training for the two treatment groups were similar. The differences between treatment groups were whether the statement of task demands at hand were in specific or in more general terms. Training included psychoeducation materials, and, for the last session, interpersonal problems which were applicable to classroom behaviors.

The results of these interventions supported their hypotheses. The conceptual approach was superior to concrete self-instructions. The authors suggested that self-instructions are involved in the development of self-control, and metacognition training as outlined by Meichenbaum and Asarnow (1979) may provide additional potency for generalization. They suggest that a combination of the two approaches may foster maximum treatment effects.

Apparently, from the above studies there is some evidence for the hypothesis that a cognitive-behavioral approach may help a child gain control over his behavior. O'Leary and Dubey (1979) state what the benefits are to be had when a child acquires self-control:

First, acting independently is valued and typically expected by our culture. Second, the child's teacher and/or parent may not always be capable of successfully implementing external controls. Third, when a child controls his/her own behavior well, adults can spend more time teaching the child other important skills. Fourth, the self-controlling child is able to learn and behave effectively when adult super-

vision is not available. Fifth and finally, teaching children to control their own behavior may lead to more durable behavioral changes than relying solely on external means of influence. (p. 449)

The results generated by cognitive-behavioral research appear to hold promise for this procedure's effectiveness with many childhood problems that relate to self-control. There are variations in the application of the different components, but there seems to be a common thread. And that is the child learns to use mediating responses as a general strategy for controlling behavior. He may learn how to think through the cognitive responses necessary for successful completion of arithmetic problems, or how to inhibit aggression by examining the alternative patterns available during a frustrating or provoking situation.

Cognitive Restructuring Treatments with Aggressive Subjects

The following studies highlight the effects of cognitive techniques with aggressive individuals. Aggressive, hyperactive boys were taught by cognitive modeling coping skills in a study by Goodwin and Mahoney (1975). In order to collect baseline data, three boys were sequentially placed in an inner two foot circle while other boys verbally taunted them from an outer six foot circle. Treatment included observing a videotaped model portraying coping with verbal assaults through the use of covert self-instructions that had been dubbed over the sound track of the film. There were no post-test changes following viewing. However, when the experimenter pointed out and repeated the film model's coping statements at the second showing of the film, the frequency of coping behaviors

significantly increased at the second post-test, and appropriate classroom behaviors also increased for most of the subjects at that time.

D. E. Ellis (1976), on the other hand, in working with "impulsive-aggressive" 8 to 12 year old boys, assigned them to either a self-instructional training group, an attention control group or a no treatment control group. A videotaped model who used self-instruction was shown to the training group who also rehearsed self-statements designed to inhibit aggression. The total treatment lasted for two-and-a-half hours. Classroom observations and teachers' ratings showed no aggression reduction. Abikoff (1979) points out that this study was seriously limited by the excessively short treatment. Perhaps a more lengthy training session may have produced a more consistent finding with that of Goodwin and Mahoney (1975). Certainly, a replication study that administers the same treatment condition for a longer time period is in order.

Bugental, Whalen and Henker (1977) conducted a comparative treatment study with 36 aggressive hyperactive boys, half of which received methylphenidate, and half of which were not medicated. The subjects in these two groups were again divided in half and either taught self-instruction by a tutor who used videotaped feedback, or they were given social reinforcement (praise) for on-task behaviors. Children rated themselves on a paper-pencil measure as to whether they perceived themselves as having either high personal causality (things happen due to personal effort) or low personal causality (outside influences make things happen). No changes were obtained

on teachers' rating scales following the 12 session tutorial. However, Porteus Maze performance indicated that self-control training was particularly successful for non-medicated children who attributed good grades to their own efforts rather than to luck. Social reinforcement tended to benefit medicated children who reported low personal causality attributions. Bugental et al. indicate that individually tailoring treatments consistent with a person's attributions might increase the treatment's effectiveness. If a child attributes success to his own work, then a cognitive training program that focuses on self-control procedures might be more successful for her/him, while for a child who attributes external forces to be in control, he/she might find a social reinforcement program to be more effective. A six month follow-up (Bugental, Collins, Collins and Chaney, 1978) indicated that self-control subjects rated themselves with higher personal causality, while social reinforced boys showed more improvement on teachers' ratings. The authors conclude: "Conceivably, the self-control intervention acts to enhance the child's perception of control over his own behavior, and the social reinforcement intervention acts to enhance the teacher's perception of control over the child" (p. 249). They hypothesize that the ideal intervention might be the combination of these two approaches. The social learning approach would get the program initiated and the cognitive program would help the child gain self-control.

Schneider and Robin (1975) designed a training procedure

to use with aggressive-disruptive school children. Called the "turtle technique," the procedure requires the child to withdraw into a turtle posture (draw into an imaginary shell) when they are about to lose control. Additional components include relaxation training while in "turtle response," receiving social reinforcement from teachers and peers for correct behaviors and initiating problem solving by creating alternative solutions to problems. An attempt to evaluate this set of procedures was carried out by Robin, Schneider and Dolnick (1976). They used two special classes of emotionally disturbed children. Six extremely aggressive children (teachers' ratings) were placed in one classroom, while five less severely aggressive children were placed in a second classroom. Observers measured hitting, kicking, and grabbing behaviors. The first group received eight weeks of treatment following a two week baseline, while the second group received seven weeks baseline and three weeks of treatment.

Robin et al. reported a significant reduction in teacher-rated aggression for both groups. However, due to a decrease from the second group's baseline performance, the results were interpreted with caution. The use of a more active coping response needs to be incorporated in this interaction in order to make it anything more than an experimental procedure (Craighead et al., 1978). Nevertheless, the Robin et al. technique shows some promise in teaching self-control to relatively young impulsive and aggressive children.

The effectiveness of cognitive approaches to disturbed

adolescent subjects was demonstrated by Snyder and White (1979). In an attempt to help emotionally disturbed adolescents in a residential treatment center, the experimenters developed a cognitive-behavioral self-instructional package that emphasized problem solving, generating potential appropriate responses for various situations, and reinforcing consequence for each response. The control groups included a discussion group which commented on the nature of responses and the reinforcing consequences, and a no-therapist contact group. Reductions in acting-out behaviors (drug taking, stealing, physical aggression and property destruction) occurred for the cognitive group. That group also produced more prosocial behaviors such as self-care tasks and more frequent class attendance compared to control subjects. These results remained in effect at the six week follow-up.

A somewhat similar finding was forthcoming from a study with 40 conduct-problem Black and Hispanic high school students (Block, 1978). The experimenter used a rational-emotive plus role playing treatment that was compared to a human relations training treatment and a control group that received no treatment. The rational-emotive procedure produced superior results on such dependent measures as grade point average, class attendance and disruptive behaviors. These behaviors remained in effect at the next semester follow-up.

Rosenbaum and Drabman (1979) have stated the purpose of self-control training for children is to enable the students to manage much of their own education and their own social life. Teachers or

parents can then devote their time to teaching and guiding children's activities without having to control disruptive behavior or to provide incentives constantly for appropriate behaviors that are expected of children. Hyperactive and aggressive children require much time and attention that could be more productively used if their respective problem behaviors could be self-managed. Recent studies have attempted to provide support for the effectiveness of cognitive approaches in that direction.

Douglas, working at McGill University, has spent several years investigating the response styles of hyperactive children (Douglas, 1972, 1974, 1975, 1976; Douglas, Parry, Marton and Carson, 1976; Firestone and Douglas, 1975; Freiburgs and Douglas, 1969). This group of researchers have also investigated different treatment methods for use with hyperactives and seem to conclude that chemotherapy is effective with some hyperactive children and helps make them manageable. However, that kind of treatment does not replace lost learning opportunities or teach socialization skills. Serious educational, emotional or behavioral deficits cannot be overcome by medication alone, and gains made in behavior control stop when medication is terminated. Hence, behavioral programs that teach academic and social behaviors have been introduced (Douglas, Parry, Marton and Carson, 1976).

Douglas and her colleagues found that under a social learning procedure similar to Patterson's, hyperactive children respond in unique ways. It was discovered that for impulsive children response cost or punishment contingencies may be more effective in the

development of inhibitory controls than positive consequences when using the more traditional operant conditioning treatment (Cohen, Wiess and Minde, 1972; Douglas, 1975; Firestone, 1974; Firestone and Douglas, 1975, 1977; Freiburgs and Douglas, 1969). An alternative treatment was attempted. A program that introduced a cognitive-restructuring procedure similar to Meichenbaum and Goodman's (1971) was developed with the intent of teaching self-control to hyperactive children. They attempted to alter self-statements and they attempted to teach strategies of how to attack various academic and psychoeducational tasks. The subjects received extensive training in cognitive-restructuring procedures which used auditory, visual and tactual materials for generalization effects. The subjects were 18 boys in the training group, and 11 boys in the control group. Assessment measures included 16 variables from eight instruments. Teachers and parents were involved in the treatment and had a brief introduction to operant techniques as well as instructions to help foster self-controlling, self-monitoring and self-reinforcement behaviors in the school and at home. Each treatment child was seen for 24 sessions. Children were seen in pairs, worked together, and were given training materials designed for their generalization potential.

Douglas et al. reported significant improvement on error and time scores of the MFF, aggressive and realistic coping responses of the Story Completion Test (SCT), time measures of the Bender-Gestalt Test, and listening comprehension of the Gates-McGinite Test. Teachers' ratings did not show an improve-

ment at post-test. Within-group comparison at post-test found 12 of 16 scores improved. At follow-up treatment effects were noticed on the two MFF scores and two SCT measures. Within-group findings were significant for 15 of 16 variables, but the teachers' ratings were not significantly changed.

Douglas et al. (1976) stated that cognitive approaches such as the one they administered were effective with their sample of hyperactive boys. Of significant importance is the finding of generalization from training tasks to assessment materials. They state that, if more time would have elapsed from posttest to follow-up, perhaps teachers' scores might have been improved. The reason they give is that there may be a delay from the time of treatment application to the time behaviors are noticed in the classroom by teachers. They suggest that a combination of contingency management with the cognitive approaches for children might be the optimal treatment for hyperactive children. They also encourage learning a generalized approach to the steps of self-instruction instead of the subject memorizing self-verbalizations. Lastly, they suggest that comparative studies be conducted between cognitive approaches and contingency contracting techniques.

Meanwhile, Camp and associates (Camp, 1977; Camp, Blom, Herbert and van Doorninck, 1977; Camp, Zimet, van Doorninck and Dahlen, 1977) studied how the cognitive styles of aggressive boys differ from normals over developmental periods. These researchers' findings indicate that aggressive boys are

characterized by adequate verbal ability, impulsivity or fast responding, inconsistent inhibition of first responses, immature and voluble private speech, decreased effectiveness of covert commands, high threshold for verbal mediation, poor reading skills and poor sequential memory (Camp, 1977). It is Camp's contention that aggressive boys either lack, or do not use, appropriate mediated cognitive controls. Camp quotes Jensen (1966, 1971) who defines mediation as: "All mental processes that intervene between stimuli and responses when the relationship between the two sets of events cannot be attributed to simple associative processes. In most cases the intervening processes are conceived of as covert verbal responses to external stimulus situations; the verbalizations act in turn as stimuli for other responses" (Camp, Zimet, van Doorninck and Dahlen, 1977, p. 130). According to Jensen (1966), verbal mediation does not develop without language, while language can develop somewhat without verbal mediation. Aggressive children, then, may demonstrate some language skills comparable to normals. However, Camp suggests that aggressive boys rely on associative rather than cognitive response styles. White (1965) characterizes associative processing as rapid, essentially non-verbal functions that occur without intervening controls. The transition to cognitive functioning slows responding, especially with difficult problems, and then internalized linguistic controls begin to operate. Tempo of response is thus related to whether or not the individual uses associative, as compared to cognitive, processes. Camp believes that, since the aggressive boys in her studies rely

more on associative responding than do normals, the result is rapid response styles and decreased ability to respond well to non-verbal events that require a verbal component. Camp also hypothesizes that aggressive boys may have a "control deficiency," meaning they may be able to produce the appropriate verbal mediating response, but these responses do not functionally control the behavior. Thus, aggressive boys may know what is the required behavior, but are not able to make the jump from overt verbal controls to internalized or covert controls.

It is of interest that a similar conclusion was reached by Nelson, Finch and Hooke (1975) with impulsive children. Nelson et al. suggested these children already have within their cognitive-behavioral repertoire the ability to respond reflectively but lack the motivation to do so.

Camp maintains that older aggressive children tend to remain deficient in verbal functioning and perhaps are slower to acquire the cognitive processing characteristic of those who use mediational functioning. For that reason Camp suggests they remain more impulsive and have difficulty in maintaining response inhibition which leads to poor achievement and to aggressive behaviors.

Camp, Blom, Herbert and van Doorninck (1977) instituted a treatment program that required the children in groups of two to first imitate what the trainer said and did. The subjects were then socially rewarded for learning "Copy Cat." Next they were taught how to "think aloud" following the four phases outlined originally

by Meichenbaum and Goodman (1969, 1971) for impulsive children. A series of different tasks including mazes, coloring objects, puzzles, auditory association exercises, inductive reasoning and social interactions were introduced in subsequent sessions. Their intent was to impart the same cognitive strategy of: (a) defining a problem, (b) planning a means to attack the problem, (c) monitoring performance, and (d) evaluating the performance outcome to each task across a wide range of classroom-related activities. Materials from Spivack and Shure (1974) and Shure and Spivack (1974) were incorporated. These materials were designed to teach the child to examine possible alternatives to social situations and the potential outcomes to these alternatives. The cognitive restructuring procedure was designed to reduce impulsive responding, to inhibit first associations, to lower the threshold for verbal mediation, to teach alternative response styles and to generalize the strategy to life situations. The trainers used modeling, coaching, behavioral rehearsal and programmed materials designed for motivational properties to teach the cognitive processes outlined above to the aggressive-experimental subjects. Aggressive non-treated subjects, as well as a normal control group, were assessed at pre-test and post-test as were the aggressive experimental group.

Camp, Blom, Herbert and van Doorninck (1977) were able to increase the number of prosocial responses of teachers' ratings and they significantly improved the aggressive-experimental children's responses on psychometric and achievement tests that required verbal mediation. However, there were no significant differences

between the aggressive-experimental and aggressive-controls on reduction of aggressive behaviors according to teachers' ratings on the School Behavior Checklist. Since aggressive responses during treatment were not directly attacked as inappropriate, but instead were ignored, Camp concludes further research that emphasizes addressing these behaviors, as well as silliness and excessive verbal output, may produce more appropriate responding in aggressive children. The present study attempted to incorporate some of those suggestions.

Occasionally in the above review there has been a tendency to equate studies aimed at the treatment of impulsive, hyperactive and aggressive children as if there were similarities of problem behaviors. There is evidence that the cognitive processes and some overt behaviors of the three diagnostic groups overlap. A study by Loney, Langhorne and Paternite (1978) factor analyzed the medical charts of 135 hyperkinetic/minimal brain damaged boys. The authors found two relatively independent symptom dimensions: aggression and hyperactivity. Aggression accounted for 44.6% of the factor variance of the hyperactive boys' behaviors, while hyperactivity accounted for 23.4%. Of the 135 MBD boys only 9 subjects (7%) were considered to have a conduct disorder as their first or second diagnosis. But, the authors found that aggressive symptomatology figured much more prominently in the hyperactive/MBD syndrome than is commonly supposed, and its influence is somewhat independent of the influence of hyperactivity symptomatology. They continued by stating the need to separate these factors in the diagnosis in

order to predict which children will be aggressive and then help these children before the onset of adulthood where aggressive behaviors may have more serious consequences. Some of the behaviors that are problems for aggressive boys may also be problems for many hyperactive boys. The expression of aggression may relate to the lack of ability to control anger and impulses in both of these populations.

Novaco (1974, 1976, 1977) has published a series of articles and a book (1975) on the development of anger control with adult problems. This approach contains similarities to Ellis' and Meichenbaum's formulations as well as other behavioral components. Novaco ascribed to the belief that anger is a learned emotional response to situational, personal and internal dialogue variables. Novaco formulated his treatment package around the assumptions that people can learn to control anger by changing their cognitions, their self-statements and also their understanding of the functions their anger responses serve. Thus, Novaco provided a rationale for his subjects as to the facilitative and disruptive function anger provides. Next, individuals were asked to evoke images of anger-producing scenes, and were introduced to situations that had a high provocative content. They were instructed in recognizing irrational belief statements, how to change them and to role play ways of coping with those situations in which these statements occur. Next, relaxation techniques were taught; individuals were requested to produce a hierarchy of anger-provoking situations, and then how to emotionally detach themselves from these situations. Novaco has used this program with adult volunteers,

psychiatric patients and police officials. Such a program, adapted for use with children, may provide a highly effective treatment for those children and adolescents who have difficulty with anger and aggression control.

Summary Statement and Hypotheses

The above review has outlined several cognitive retraining interventions intended to help cope with difficult behaviors including aggression. It is apparent that there are relatively few studies that have addressed themselves to cognitive-behavioral approaches to aggression management in children. However, cognitive approaches with other behavior problems appear to be somewhat effective. On the other hand, the evidence for the efficacy of the operant programs seems well established. Yet, there are difficulties in the latter approach around cost, generalization, maintenance and dependence on external agents for control. Since 10-15% of the school population at some point are referred to psychological and related services for hyperactivity, aggressivity or other behavior problems, and that a significant proportion of hyperactive children have difficulty with aggressive behavior (Loney et al., 1978), it becomes difficult to ignore the fact that a substantial portion of the school population needs service. Aggressors have particular problems. Since their behavior is aversive to recipients and usually requires considerable attention from parents, teachers and administrators, aggressive children run a very high risk of being excluded from school and other social

institutions. A program that can effectively deal with the problems aggressive children present needs to be developed that is within the capacity of the normal practicing clinician and can be administered either through parents for implementation at home or to children while they are in the schools.

Given the fact that social learning approaches as practiced by Patterson et al. (1975) are limited by operating expenses and availability of trained personnel, a question as to the costs in time and money spent using a cognitive-restructuring procedure should be asked. Douglas' et al. (1976) work with hyperactive children certainly is limited by the cost factors. They reported 24 one-hour sessions with the subjects plus a minimum of six hours per teacher and 12 sessions with parents for at least 42 sessions. A Ph.D. psychologist, two graduate students and a B.A. graduate worked as instructors. This procedure also is beyond the scope of usual clinical practice.

Camp, Blom, Herbert and van Doorninck's (1977) "Think Aloud" program was also extensive in the amount of time spent with the subjects. Although the exact number of sessions was not stated, they reported daily sessions of 30 minutes over six weeks and two specially trained teachers were used in addition to frequent monitoring of classroom tapes by Camp. One criticism of the Camp, as well as Douglas' research, would be that aggressive behaviors were not focused upon as inappropriate and disruptive. Possible emotional effects of a number of different kinds of behaviors were discussed and considerable time was spent in classroom-

related behaviors (puzzles, mazes, auditory reception exercises, etc.). Neither Camp nor Douglas taught their subjects how to control themselves when confronted by provocations that might elicit aggressive behaviors. On the other hand the Novaco (1975) research which, although oriented toward adults, focused solely on anger and its deleterious effects. He taught his subjects how to stop the behaviors resulting from anger. Novaco did report significant changes in the ability to control anger using this method, and these changes occurred after only five sessions with each subject.

Kendall and Finch (1976), in a single subject case study, used five 50-minute sessions and then tested for generalization. This study produced positive changes on the MFF and the number of switching behaviors. Generalization was shown to occur across situations and to other people. Their next study (1978) was a group comparison investigation. Children received six 20-minute sessions. Control subjects received access to training materials, but did not receive verbal self-instructions or response cost contingent on errors. This study also found generalization to occur from the treatment situation to the classroom with only six sessions required to produce the changes. Finally, Kendall and Wilcox (1980) subjected additional children to six 30- to 40-minute sessions twice a week for three weeks. Only the context of instructions differed between the two treatment groups. Again, significant differences between groups and controls were gained in six sessions for their conceptual group.

Perhaps a cognitive restructuring approach that focuses pri-

marily on aggressive behavior reduction instead of strategies of how to cope with classroom academic activities would be more effective in reducing incidents of aggression, and may be less expensive in time and resources than either Patterson's or the Camp or Douglas approaches.

If Camp's assumptions that delays in the cognitive development of aggressive boys are correct--around what Luria and Vygotsky (quoted in Meichenbaum, 1977) consider to be the third level of functioning (covert control of behavior)--then a treatment approach that provides training in the acquisition of self-control in a very structured fashion might be an effective strategy in the reduction of aggressive behavior. Since there appears to be similarities between aggressive and hyperactive children over several cognitive as well as behavioral dimensions, especially impulsivity (Camp, Zimet, van Doorninck and Dahlem, 1977; Douglas, 1976; Loney et al., 1978), it is conceivable that aggressive children may respond more favorably to a cognitive-restructuring approach in which modeling, self-instruction and self-reward are the key components of training, and if the inappropriateness of aggression is included as the point of focus. If the performance of the child can be brought under "internal" or self-control, then the likelihood that behavior change will generalize across situations and across time may be increased, since performance will not be dependent on the presence of external reinforcers only.

At this point it is difficult to compare the effectiveness of the two approaches--Patterson's social learning vs. Camp or

Douglas' cognitive restructuring, when different dependent measures are used and generalization over time is not equated. Patterson et al. (1975) used trained observers and parents' observations as primary dependent measures. Camp and Douglas used teacher rating scales, and tests of impulsivity, aggressive behavior and academic tests. Follow-up data by Patterson is available for up to one year later, although he introduced "booster treatments" in some cases (Patterson, 1974a). Camp, Blom, Herbert and van Doorninck (1977) reported no follow-up material, while Douglas et al. reported gains to be in effect at three months. There is a need to compare the outcome of these procedures on dependent measures appropriate to both interactions and an attempt made to determine when and with whom the respective treatments may be most effective.

Several issues have been discussed as a function of the above review. One issue that requires further attention is: whether a social learning procedure like Patterson's would be more effective in reducing aggressive behaviors than a cognitive-behavioral approach, similar to those of Camp's and Douglas', which focuses on the inappropriateness of aggression and teaches alternative responses to provocation situations. Secondly, will a social learning approach patterned after the Oregon Research Institute model, which uses parent training and teachers' monitoring of aggressive behaviors in class, generalize to new situations where treatment contingencies are not applicable? In particular, will a child trained in social learning techniques at home be able to generalize this training to other situations as well as a child trained in cognitive restructuring procedures?

And thirdly, how do the long term effects of these two treatments compare? Will a program that relies on external controls of behavior (social learning) be able to maintain its effects as well as a program that teaches self-control to children by cognitive methods? These are the issues this study will attempt to address. More succinctly, the hypotheses to be tested are:

Hypothesis I:

Aggressive children trained in cognitive-restructuring techniques at school will inhibit aggressive behaviors in school more effectively than aggressive children whose parents implement social learning techniques in the home and use teachers' reports of appropriate and inappropriate classroom behavior.

Hypothesis II:

Parents' reports of aggressive behaviors will not differ between cognitive-restructuring trained children and social learning treated children at post-test, but at follow-up cognitive restructuring trained children will exhibit less aggression.

Hypothesis III:

Social learning and cognitive-restructuring trained children will perform more appropriate and less aggressive behaviors at home and at school for both post-test and follow-up compared to control children,

METHOD

Subjects

The subjects in this study were 40 male school children between 8 and 12 years of age. They were selected from the east end of Ottawa schools in the Carleton Board of Education. All schools were in the lower-middle to upper-middle class residential areas. Teachers in the seven schools were asked to select one to five boys from each class that they considered might qualify as aggressive. The teachers were asked to complete Miller's (1972) School Behavior Checklist (SBCL) for each of the selected subjects. A total of 84 checklists were returned. From this initial pool, 25 boys were excluded because they did not meet the criterion of one and one-half standard deviations above the mean for normal subjects on the aggression factor. The parents of the remaining 59 subjects who did meet this criterion were then informed by letter sent from the school that they would be contacted personally by phone at a later date. At the time of the phone contact (by therapist, see Appendix FF) parents of 14 subjects refused to participate. There were several reasons given by parents for declining to include their sons in the study. One couple rejected treatment because they felt their son was unfairly singled out. One parent asserted that teachers and perhaps the psychologist were unqualified to identify anyone as aggressive. Another three subjects were already receiving private help or participating in other studies. The parents of one boy denied any problem with their son. The parents of seven boys

gave no reason for refusal, while another family was going to move soon to another city. The remaining 45 children were identified by teachers as not having signs of psychosis nor retardation, and none of the children were on prescription medication for behavior disorders.

At the time of pretest or shortly thereafter five additional families withdrew their children. One family claimed a lack of time for participation. One mother had decided to quit work and cope with the problem herself. Another family felt their son was being discriminated against because of race, and two families believed their boys were not aggressive. A family from the social learning group dropped out after the second treatment session stating time demands at work interfered with the sessions. An additional family who had been initially assigned to the CR groups and declined treatment due to an appointment with a psychoeducational psychologist later strenuously asked to be included after the pretest phase had commenced. The final distribution of the randomly assigned students at the middle of the treatment phase consisted of 16 cognitive restructuring subjects, 14 social learning subjects and ten control subjects. The average age for all subjects was 9.97 ($SD \pm 1.36$) with an age range of 7 to 12 years (Table 4). The average Peabody Picture Vocabulary Test IQs for all subjects was 110 ($SD \pm 21.57$) with a range of 87-174. Analysis of variance on these two factors indicated no difference between the three groups at pretest (Appendix EE).

Assessment Measures

School Behavior Checklist. Miller's 96 item test (1972) which measures both prosocial and non-adaptive behaviors was filled out by teachers in the school setting and served as the screening test. It was originally developed by Ross, Lacy and Parton (1965) and designated as the Pittsburgh Adjustment Survey Scales (PASS) with the purpose of describing three behavioral dimensions: aggression, withdrawal, and prosocial behaviors. Ross et al. (1965) used a random sample of 209 children from three school districts in Tennessee. A large social-economic range of both rural and urban children was included which had almost equal distribution of subjects across grades one through six. The PASS scales that made up the test were Aggression (25 items), Passive-Aggression (13 items), Withdrawal (19 items), and Prosocial (20 items). Split-half and test-retest reliabilities ranged from .71 to .82, across the scales (Ross et al., 1965).

Miller (1972) retained 80 of the original items of the PASS and added 14 Learning Disability items and two Manifest Anxiety items. Miller called this new instrument the School Behavior Checklist (SBCL) and cross-validated it on 5,373 school children who came from widely diversified schools of Louisville and Jefferson counties in Kentucky. His results isolated the following seven factors: Low Need for Achievement, Aggression, Anxiety, Academic Disability, Hostile Isolation, Extraversion, and Total Disability. By randomly selecting a sample of 123 teachers to reevaluate their subjects, six weeks after the original ratings, Miller received test-retest reliabilities for the

following subscales: Low Need for Achievement (.89), Aggression (.83), Anxiety (.80), and Total Disability (.89). Split-half reliabilities from the randomly selected scales ranged from .70 to .90 on all scales except Hostile Isolation (.44). Miller's analysis collapsed the Ross et al. Aggression and Passive-Aggressive factors into one Aggression factor.

A study by van Doorninck and Camp (1975) attempted to replicate Miller's findings on 994 first and second grade children. In that study two applications of the SBCL were given one year apart. Both analyses supported Miller's findings. However, van Doorninck and Camp found some overlap between Aggression and Extraversion with the former factor having the higher factor loadings. They chose to collapse these two factors into one called Hostility which had three separate clusters: irritability, attention seeking, and belligerence. They also collapsed Anxiety and Hostile Isolation into a single factor called Introversion.

Criterion validity for the SBCL was achieved by comparing scores received on the SBCL for children referred to three identified treatment populations and one control group: 1) a phobic group (N=64), 2) a learning disability group (N=43), 3) an aggressive group (N=60), and 4) a random stratified normal sample (N=64). Phobic children had elevated scores on all scales except Extraversion, with the highest elevations on Anxiety followed by Low Need for Achievement. The learning disabled children showed general elevation on all scales except Extraversion. Highest elevation occurred on Academic Disability and high variation occurred on Aggression. The aggressive students showed elevation on

all scales with the Aggression scale showing the highest elevation (85th percentile or above). The Anxiety and Extraversion scales had the next highest elevation for the aggressive group. The multiple F test indicated the groups differed significantly on all scales (Miller, 1977). Multiple discriminant analyses were performed on the data. The findings disclosed that the aggressive function consisted of aggression and lack of anxiety, while the anxiety function consisted of anxiety and high aggression and low need for achievement. Learning disability children combined academic disability and low need for achievement.

Predictive stability was established by rating 110 boys and girls by different teachers in different classrooms at 18 month intervals. Means and variances were found to remain constant over the 18 months and the correlations between ratings were significant for all scales. The correlations were lower, however, than those found with a six-week interval. Aggression appears to be more stable in males, while Low Need for Achievement and Anxiety are more stable in females. The two Total Disability scores were quite highly correlated for males and females. The higher the scores the more likely they were to remain stable, especially the Aggression and Anxiety factors (Webb, 1973).

Miller, Hampe, Barrett, and Noble (1971) reported that a score of one standard deviation above the mean on the total scale produced a maximum separation of those males referred to a child guidance clinic and those males in the general population. This cutoff correctly classified 84% of the general population of boys as nondisturbed

compared to only 23% of the boys in the clinical population. Since the aggression score correlation is .90 with the total score, a cutoff score of 1.5 standard deviations above the mean on the aggressive scale (T=65) was used to define boys as aggressive (Appendix A).

Behavior Problem Checklist (BPC). The Behavior Problem Checklist (Quay and Peterson, 1967) was used as a second teacher rating scale, and also as a parent rating scale. This instrument has been factor analyzed using several different populations (Peterson, 1961; Peterson, Becker, Shoemaker, Luria, and Hellmer, 1961; Quay, 1964, 1966; Quay, Morse, and Culter, 1966; Quay and Peterson, 1967; Quay and Quay, 1965).

The three consistent factors found in these studies which used teachers, parents and mental health professionals ratings of children were the following: (a) Conduct Disorder - aggressive, psychopathic and unsocialized behavior; (b) Personality Disorder - anxiety, neuroticism, withdrawal; (c) Inadequacy-Immaturity - failure to develop, regression. A fourth factor, Socialized Delinquent - stealing, truancy, is less frequently found (Quay, 1979).

Normative data in terms of means and standard deviations have been published (Quay and Peterson, 1967; Touliatos and Lindholm, 1975; Werry and Quay, 1971). Norms for hospitalized neurotic or character disordered children have also been made available (Peterson et al., 1961; Quay et al., 1966; Quay and Peterson, 1967).

Reliability studies have been done on the Personality Disorder and Conduct Disorder factors. Peterson (1961) found inter-teacher reliability with kindergarten students to be .77 for Conduct Disorder

and .75 for Personality Disorder. For seventh graders these correlations were .58 and .72 respectively. Correlations between parents ratings have been found to be .78 for Conduct Disorder and .67 for Personality Disorder. In addition, Firestone et al. (1980) found these two factors to be sensitive to therapeutic intervention with aggressive children.

The results of studies that included the Immaturity and Socialized Delinquency factors are inconclusive. The relationship between the factors Immaturity and Socialized Delinquency with other characteristics such as: motivation, moral and cognitive development, reinforcement histories, self-concept and impulsivity characteristics are not adequately demonstrated (Quay, 1979). Because of these findings, both Socialized Delinquency and Immaturity scores were excluded from the analysis.

For the present study, only the presence or absence of problem behaviors was recorded, not the severity. The scores for a child are based upon the number of items indicated as problematic (Appendix B).

Behavior Rating Scale. Each child was rated by trained observers on nine behavioral categories (aggression, verbal aggression, object aggression, verbal noise, noise, talking, gross motor, on-task, other). Raters were three undergraduate students in psychology or related fields who were trained in observation techniques using an adapted rating scale developed by O'Leary, Kaufman, Kass and Drabman (1970). They were required to reach a criterion level of 75% agreement with the experimenter who acted as control on both videotaped classroom scenes and in vivo classroom situations. It took an average 35 hours of training for each observer to perform consistently at that level (Appendix C).

After the children were told that observers were to visit the classroom to observe how teachers teach, the raters were instructed to enter the classrooms quietly and to remain as unobtrusive as possible during the observation sessions. They were instructed to refrain from interacting or responding to children so that teachers and students would habituate to their presence. The teacher informed the students that the visitors were observing how teaching takes place in their grade. Observers were naive with regard to the hypotheses of the study and as to which treatment the subjects were assigned. Observers were only informed that the experimenter was treating children with problem behaviors.

Each subject was observed 20 minutes per session for three periods. This constituted an assessment phase. There were three assessment phases per child: before therapy, just afterward, and five weeks later. The observers used a 20 second observe, ten second record observation sequence. Observers were instructed to record one or more behaviors that occurred during the 20 second observation. Only one instance of each behavior was recorded for the 20 second period. Those behaviors classified as on-task behaviors were required to have occurred for the entire 20 seconds in order to be recorded. Each rater had a clipboard with printed rating sheets and either a cassette recorder with an audio signal delivered through an earphone or by a specially designed device and earphone that was programmed to give that signal at the predetermined times. A manual which described explicit behavioral definitions was also provided (Appendix D).

Each observer was monitored three times per assessment phase by the experimenter who checked the observers at random intervals in order to carry out an accuracy evaluation. The experimenter and observers would independently rate the same child during the same observation period, and at five minute intervals they would synchronize their observations to insure both of them were recording at the same time. Each observer was monitored individually.

Reliability scores were calculated using agreement of observation blocks divided by total observation blocks multiplied by 100 to give a percentage score. For every observation block some behavior had to occur that coincided with a behavioral category listed in the training manual. That method was used in order to assess block by block agreements and disagreements between raters. Observer drift and bias was attenuated by recalibration sessions with the experimenter prior to and once during each assessment phase. Observer reliability averaged 78% over all phases. The range of reliability scores for all assessment phases was 63% for in vivo classroom training to 100% for each observer at the end of the third assessment phase.

Matching Familiar Figures Test (MFF). The MFF (Kagan, Rosman, Day, Albert, and Phillips, 1964) is reported to distinguish reflective versus impulsive response styles in school age children. Other forms of the test are available for preschoolers and adults. The test requires the child to visually match the sample picture with one of six alternative stimulus pictures. The operational measures are: (a) latency to first response and (b) number of errors. If aggressive

school children differ from normals on impulsivity as Camp et al. (1977) suggest, then there may be changes in the number of impulsive responses on the MFF as a result of treatment.

Messer (1976) provided an extensive review of the MFF, which showed test-retest reliabilities that varied from .58 to .96 on response latencies. Reliability scores on the number of errors ran from .34 to .80. Messer quotes Egeland (1974) who devised three eight-item tests from the school and adult forms and then administered these to 30 children and reported correlations ranging from .92 to .98. The Messer review article reports internal consistency as .89 on the latency factor, and the correlations for error responses were .62 and .58 on two additional studies (Ault, Mitchell and Hartman, 1975; Block, Block and Harrington, 1974).

Convergent validity was measured by using ten tests similar in type to the MFF that were constructed by Yando and Kagan (1970). These tests were given to seven year olds and the median correlations were .73 for response time and .68 for errors. Kagan and associates (Kagan, 1965; Kagan, Pearson and Welch, 1966; Kagan, Rosman, Day, Albert, and Phillips, 1964) found that reflection-impulsivity as measured by the Design Recall Test (DRT) and the Haptic Visual Matching Test (HVMT) were moderately correlated with the MFF. Latency correlations ranged from .33 to .52. Latency correlations on the MFF and the Ravens Coloured Progressive Matrices were found to be .54 according to Hall and Russell (1974) (Appendix E).

Story Completion Test (SCT). Douglas and colleagues (Douglas,

1965; Parry and Douglas, 1974) have developed a semi-structured projective technique which has been shown to differentiate between hyperactives and normals (Campbell and Douglas, 1972; Douglas, 1965; Parry, 1973; Parry and Douglas, 1974). A series of unfinished stories are presented to the subject in which a child embarks on interesting activities until some external agent interferes with his progress. The story is stopped at that point and the subject chooses from three alternative endings to the story. These endings are coded as either (a) withdrawal, (b) aggression, or (c) realistic problem solving. Douglas and colleagues have found that hyperactives tend to choose withdrawal or aggression, while normal controls choose the realistic solution. Firestone and Martin (1979), in a study that looked at response styles of hyperactive, behavior problem, and asthmatic children and normal controls found that the first three groups did not differ on realistic responses, but the normal controls were significantly different from the hyperactives on the number of realistic problem solving responses. When behavior problem children were compared to controls, the behavior problem children responded with more difficulty in accepting realistic solutions, much like the hyperactive children's responses. However, the behavior problem children differed from the hyperactives on the number of withdrawal responses as did the other groups. Thus, this measure was included in order to assess any changes in frustration tolerance due to interventions (Appendix F).

Peabody Picture Vocabulary Test (PPVT). The PPVT (Dunn, 1965) is widely used to test intelligence. It consists of 150 four choice picture plates. The subject chooses from one of the four alternative pictures per

page that best defines the word spoken to him/her. The PPVT was administered by either the experimenter or an assistant to all subjects as a screening device. Miller (1972) found that students who produced IQ scores lower than 90 were much more likely to experience a wide range of difficulties in school. He stated (1977) that high ratings on all scores of the SBCL went up when IQ dropped below 90. Therefore, only aggressive boys with relatively intact intellectual abilities (a cutoff score of 85) were included.

Procedure

Following the pretest screening on the SBCL, each subject was randomly assigned to one of three treatment groups: (a) a social learning (SL) group that provided training to parents and then to teachers in social learning techniques (N=14); (b) a cognitive-restructuring (CR) group that focused on the student's style of handling aggressive thoughts and redirected their thinking to less aggressive methods of coping in the school setting (N=16); and (c) an assessment-control (C) group made up of aggressive children who were untreated (N=10). The PPVT was administered only at pretest; all other assessments were administered at each of the three assessment phases.

Social Learning Group. In the first week following the initial phone call, both parents, if possible, otherwise either the father or mother of the 15 subjects met individually with the investigator, a rationale for the study was given, parent rating scales were gathered, and a copy of the book Families: Applications of Social Learning to Family Life (Patterson, 1971a) was given to each set of parents.

Parents were asked to begin their reading and appointments for group sessions were made. The second session began about one week later. In small groups of 3-5 couples, the parents were instructed in pin-pointing and counting of target behaviors. Parents were given charts and shown how to use them. They were asked to select one or two prosocial and one or two negative behaviors from their children's repertoire, and asked to begin collecting baseline data of these behaviors. Reading in the book Families was further encouraged. At the third week, if the baseline data warranted it, the procedures of contingent positive and negative reinforcement were taught and demonstrated with audiotaped examples. The procedure of "time-out" was explained and its implementation was demonstrated. During the fourth session the concept of contingency contracting was presented. A discussion format provided a means for teaching parents how to make changes in the contracts, and how to cope with problems they had encountered. The parents were prepared to begin including school-related work in the daily home contracts. By the fifth week contact with teachers had been made by the investigator. The teachers were asked to keep a daily record of specified prosocial and aggressive or other inappropriate behaviors on sheets provided by the child. The child took the data sheets home to the parents every day. The parents incorporated that data into the home program. The school data were, thus, regular component of the home contract. At the sixth week parents were told that, until the completion of the study (two weeks hence), the home-school programs were to remain in effect. Following

Posttest, parents were informed that the group sessions were terminated, but they were asked to continue their social learning programs as long as they felt there were positive effects coming from them.¹

Cognitive restructuring group. The 16 subjects assigned to the CR group met with the investigator singly (2 subjects only) or in groups of two for one-half hour, four to five times per week for a total of nine one-half hour sessions. In the first session introductions were made and a rationale was given to the subjects for the necessity of thinking aloud. Examples of procedures and techniques to be used in subsequent sessions were introduced briefly. Then a sample problem describing the five stages involved in the "think aloud" strategy was modeled. These stages included: (a) "Stop and think," or inhibit responding in order to think; (b) problem definition or "What do I have to do?"; (c) devising a plan to cope with a problem or "What is my plan?"; (d) coping with the demands of the task or "How am I doing?"; and (e) self-evaluation and self-reward of "How did I do?". To facilitate memory of these steps, cue pictures were presented for that session and subsequent sessions. The next step was to provide another problem in which the therapist modeled the think-aloud stages. Then the subjects rehearsed thinking out loud while solving that problem without getting angry

¹A copy of the SL therapists manual is available from Philip Firestone at the University of Ottawa, Department of Psychology, 651 Cumberland, Ottawa, Ontario.

or aggressive. The second session included a review of concepts outlined previously, an introduction to the concept of self-reward following adequate performance, and a description of some readily apparent physiological reactions to anger arousal to serve as cues to the subjects of their impending aggressive responses. Subjects heard a model on audiotape demonstrate those cues along with the coping strategy of think-aloud. Next, subjects followed rehearsing think-aloud procedures to cope with each problem. For the third session subjects reviewed components of the second, became familiar with the concepts of negative self-statements as facilitators to anger arousal, and learned means of stopping these negative self-statements by again producing think-aloud strategies to new problems. Finally, a review of the day's lesson was provided. The fourth session focused on both physiological and cognitive aspects of emotional arousal by way of modeling by the therapist and individual practice by subjects. Then, situations that frequently provide anger in school children were introduced by use of audiotaped vignettes. The subjects were again coached in how to use think-aloud strategies to cope with these provocative situations. At that time the therapist began to demonstrate whispered self-instructions and requested subjects to rehearse that aspect when practicing think-aloud during the next training experience. Cue pictures were still used as reminders. By the fifth session subjects were familiar

with think-aloud strategies but they were given sheets with examples of both non-productive as well as coping self-statements to study. The subjects were asked to practice with new situations requiring anger inhibition procedures, and the emphasis at that stage was to have subjects begin using covert self-instructions. The remaining four sessions were devoted to teaching alternative responses to anger and aggression. Those alternatives included instruction and coaching in the utility of using sharing, cooperation, requesting, waiting, negotiating, empathy, and telling the teacher, if the situation warranted it. Again, visual prompts and tape recordings of models were used to facilitate the learning process. By the final session subjects were expected to recognize internal dialogue that contributed to anger arousal, then to inhibit those reactions by initiating think-aloud strategies, and to begin generating alternative responses incompatible with aggressive responding. Situations and vignettes frequently occurring in the classroom and at home during the treatment sessions were used in order to facilitate generalization.²

Assessment controls. A group of ten subjects received no treatment. One subject in this group was moved to another school due to aggressive behaviors exhibited at school. Pre-test, posttest and follow-up data were collected on this group in an attempt to control for maturation or assessment effects.

²A detailed copy of the CR manual is available from the author or supervisor on request.

Parents and school staff were informed that not all subjects would receive immediate treatment due to time and logistic restraints. They were also told that controls were a necessary and integral part of the study.

Therapist

The two treatments were administered by the experimenter who was trained in social learning procedures and had three years post MA experience in applying behavioral techniques to behavior problems in the schools. The experimenter also administered one-half of all psychometric tests. The rest of the tests were carried out by two assistants. One was an experienced MA level teacher who had psychometric experience. The other assistant was an undergraduate psychology student who was also a trained observer for the study and who was trained by the experimenter in the use of the psychometric instruments. Both assistants were unaware of the hypotheses and the assignment of students to groups. The undergraduate student tested only those children she did not observe. The MA level assistant had to withdraw after pretest due to illness.

Ethical Considerations. Parents of the children were informed as to the nature of the experiment and were told explicitly that although the procedures were experimental, there was considerable evidence for their effectiveness. Expectations for positive effects were held for both treatment groups. In

fact, the nature of the investigation was to find the best available treatment. Parents were asked to consent to have their children and, where applicable, themselves, participate. Each treatment technique was explained as to its necessity for inclusion and what impact it had on the overall package. Parents were free to withdraw themselves or their children at any time. They were also informed later of the study's results.

RESULTS

Subjects

At the beginning of this study 45 subjects were randomly assigned to one of the three groups. At the first phone call, immediately following pretest, five families dropped out of the control groups and one family withdrew from the SL group after treatment commenced. Another family, which had been previously contacted and refused involvement later strenuously requested inclusion in the CR group after composition of that group had been established. Thus, by the end of the study there were 14 SL subjects, 16 CR subjects and 10 control subjects.

Data Analysis

All data were submitted to analysis of covariance (ANACOVA) procedures for posttreatment scores and follow-up scores. In each case, the pretest score served as the covariate term (Huck, and McLean, 1975). Following significant findings on the ANACOVA results, Newman-Kuels post hoc analyses were performed (Keppel, 1973).

With the exception of Behavioral Observational data, within group differences were calculated by using correlated t tests on individual means (Gittleman-Klein, etal, 1976). Two tailed tests were used to compare changes from pretreatment to posttreatment and pretreatment scores to follow-up scores. For the Behavioral Observation data Newman-Kuels tests were applied for within measures as well as for between groups analyses. For all analyses the .05 level was accepted as significant.

School Behavior Checklist (Table 1.) Of the seven scales of the SBCL only one (Anxiety) demonstrated significant changes over the course of the experiment. A power analysis (Weiner, 1962, pg 104) was performed after

Table 1

Subscale Means and Standard Deviations by Group on
The School Behavior Checklist at Pretest, Posttest and Follow-up

Measure	Pretest		Posttest		Follow-up	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
School Behavior Checklist						
Low Need Achievement						
SL	59.00	10.06	55.28	7.49	56.86	10.71
CR	57.56	11.07	54.62	9.60	55.75	11.60
Control	56.70	10.37	54.30	11.44	55.70	11.20
Aggression						
SL	79.07	8.80	70.29	12.69	72.07	14.79
CR	77.87	6.54	70.81	11.40	70.37	14.51
Control	77.90	6.59	70.52	11.95	73.00	14.97
Anxiety						
SL	57.29	12.94	51.07	7.29	51.50	9.52
CR	52.00	10.18	51.25	8.35	49.81	9.20
Control	54.20	11.14	56.20	16.34	62.50	17.00
Academic Disability						
SL	48.50	6.49	46.71	6.97	47.43	8.34
CR	52.06	9.50	52.94	9.86	54.31	11.01
Control	49.80	9.27	49.10	10.16	52.00	11.68
Hostile Isolation						
SL	58.71	9.19	55.29	10.87	55.50	7.85
CR	56.56	9.03	51.69	8.50	50.75	9.58
Control	56.90	8.12	48.90	7.96	49.70	8.88
Extraversion						
SL	49.71	18.90	48.64	19.01	48.93	16.66
CR	49.56	16.05	50.25	13.03	49.19	14.28
Control	37.10	21.98	48.20	17.66	45.30	14.37
Total Disability						
SL	66.86	12.38	62.29	10.29	66.21	11.48
CR	68.25	8.89	61.87	10.43	63.25	12.63
Control	66.40	9.37	61.70	12.97	64.50	14.60

the experiment was completed using means for the aggressive factor to determine appropriate sample size. This data suggested a sample of 28 per treatment was necessary to produce significance ($\emptyset = .40$ $k = 3$ $d = .05$) based on the difference between pretest and posttreatment mean scores.

The ANACOVA results for the Anxiety subtest showed a trend was developing at posttest $F(2,36) = 2.65$, $p < .08$. At follow-up this difference was significant $F(2,36) = 6.45$, $p < .01$. (Appendix I).

Post hoc analysis showed no differences between groups at posttreatment; however, there were significant differences between groups at follow-up. The SL group and the CR group both were significantly improved compared to controls ($p < .05$). However, the two treatment groups did not differ from each other.

Within group comparisons indicated that the SL group showed improvements at posttest $t(13) = -2.86$, $p < .02$ and at follow-up $t(13) = -2.23$, $p < .05$. However, the CR group showed no improvement on this factor, while the control group showed a significant elevation on the follow-up scores $t(9) = 2.90$, $p < .02$, indicating the teachers perceived more anxiety in these subjects at the follow-up assessment phase. (Figure 1.)

Behavior Problem Checklist (Table 2.) For each rater in turn (teacher, father, mother) there was a significant correlation between their Conduct Disorder pretest score and their Personality Disorder pretest score. The correlations were performed only on the pretest scores. These results are: for teachers: $r = .61$, $p < .001$; for fathers, $r = .52$, $p < .01$; for mothers, $r = .59$, $p < .001$, respectively.

In addition correlations were found to occur between the father's pretest BPC Conduct Disorder factor and mother's pretest BPC Conduct Disorder $r = .77$, $n = 24$, $p < .001$. Also both parents' scores on the Personality Disorder factor at pretest were significantly correlated with each other

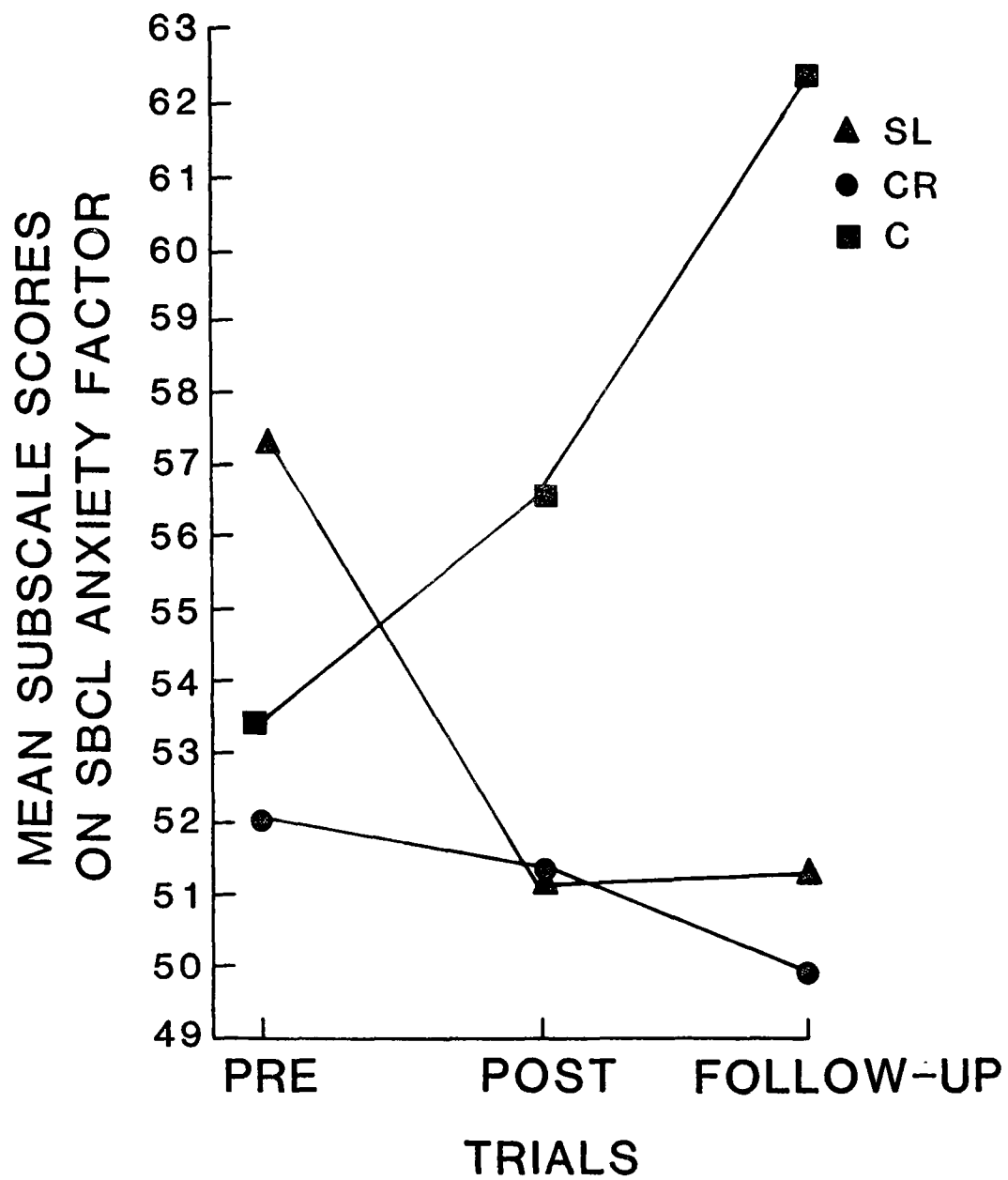


Figure 1. Mean subscale scores for each group on School Behavior Checklist Anxiety factor at pretest, posttest and follow-up.

Table 2

Means and Standard Deviations of Items Checked for the Behavior
Problem Checklist at Pretest, Posttest and Follow-up

Measure	Pretest		Posttest		Follow-up	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Teacher Behavior Problem Checklist Conduct Disorder						
SL	10.64	2.79	8.93	4.25	9.36	3.99
CR	9.19	2.81	7.44	3.35	8.31	4.29
Control	10.10	4.28	8.40	4.25	7.60	4.79
Personality Disorder						
SL	5.79	3.42	3.36	2.56	3.00	1.80
CR	4.62	2.99	3.25	2.38	3.12	2.45
Control	5.30	5.08	4.40	4.65	4.80	4.69
Mothers - Conduct Disorder						
SL	11.71	2.61	7.57	3.18	5.93	2.95
CR	8.00	4.52	5.75	3.94	4.50	2.45
Control	10.50	3.81	10.30	3.80	9.30	3.89
Personality Disorder						
SL	5.50	3.16	4.43	2.24	3.43	1.91
CR	6.06	3.84	4.50	3.41	3.62	2.45
Control	6.90	2.92	7.30	3.40	6.30	3.02

($r = .52$, $p < .01$). Because these latter correlations were significant and because only 24 fathers from the total population of fathers completed the ratings for all assessment phases, compared to 38 mothers (In two families there were fathers only present as the parent.) only the mothers' reports were included in the study as a measure of parents' ratings. Even though there were significant correlations between parents on both ratings, there were also significant differences between parents on both factors. Perhaps mothers see more inappropriate behavior than fathers. Fathers rated their children significantly less problematic than did mothers on Conduct Disorder and also for Personality Disorder (Table 3).

The ANACOVAS computed on mothers' Conduct Disorder was significant at posttest $F(2,37) = 9.83$, $p < .001$ and at follow-up, $F(2,37) = 8.41$, $p < .001$ (Appendix N).

Newman-Kuels post hoc analyses of the above findings revealed that for mothers' Conduct Disorder the SL group and the CR group scored significantly lower than the control group. Also the CR group was significantly lower in amount of reported Conduct Disorder behaviors than the SL group. These differences were in effect for both posttest and follow-up assessment phases.

Within-group comparisons showed that both treatments had substantial reductions in the amount of mother's perception of negative behaviors in the home. The CR group had reductions from the pretest at both the posttest and follow-up that were significant, $t(15) = -3.47$, $p < .003$, and $t(15) = -4.26$, $p < .001$, respectively. The SL group also had significant reductions at posttest and follow-up, $t(13) = -10.25$, $p < .001$ and $t(13) = -9.31$, $p < .001$, respectively. The control group produced differences only from pretest to follow-up on this variable, $t(9) = -3.24$, $p < .02$. These analyses indicated

Table 3
t-test Comparison of Mothers and Fathers BPC
Scores on Conduct Disorder and Personality Disorder
Subtests of the BPC at Pretest

Subtest	Fathers		Mothers		t
	$\bar{X}$	SD	$\bar{X}$	SD	
Conduct Disorder ¹	8.50	3.78	10.20	4.03	3.03**
Personality Disorder ¹	8.54	3.92	6.03	3.43	1.76

1. t-test conducted on 24 cases only due to fathers not present or not responding.

* $< .05$

** $< .01$

that both treatments produced a reduction in mother's reports of inappropriate and aggressive behaviors over time but the CR group was more improved than the other two groups across both assessment periods (Figure 2).

The ANACOVAS computed on mothers' Personality Disorder were significant at posttest $F(2,37) = 3.19, p < .05$ and at follow-up $F(2,37) = 3.95, p < .03$ (Appendix O).

The Newman-Kuels analysis¹ for the mothers' Personality Disorder indicated a significant difference for both the CR and SL groups compared to controls at posttest, but there was no difference detected between the two treatments. At follow-up both treatments were still significantly different compared to controls, but again no difference was discovered between treatment groups.

Within-group comparisons revealed that the SL group had significant reductions only at the pretest compared to the follow-up stage on the Personality Disorder factor, $t(13) = -4.60, p < .001$. The CR group demonstrated significant differences at pretest to posttest and at pretest to follow-up, $t(15) = -2.61, p < .02$ and $t(15) = -4.03, p < .001$, respectively. There were no significant reductions for the control group at either time period. These analyses indicated that both treatments significantly changed the scores on the mothers' ratings, and the CR group was able to demonstrate improvement across both assessment phases, whereas the SL group showed improvement only at follow-up (Figure 3).

Teachers Behavior Problem Checklist (Table 2) The ANACOVA results for teachers' Conduct Disorder factor were non-significant. Therefore, further analyses are not reported for this factor here (Appendix P).

¹The use of the harmonic mean was incorporated for unequal sample size with Newman-Kuels (Keppel, 1973).

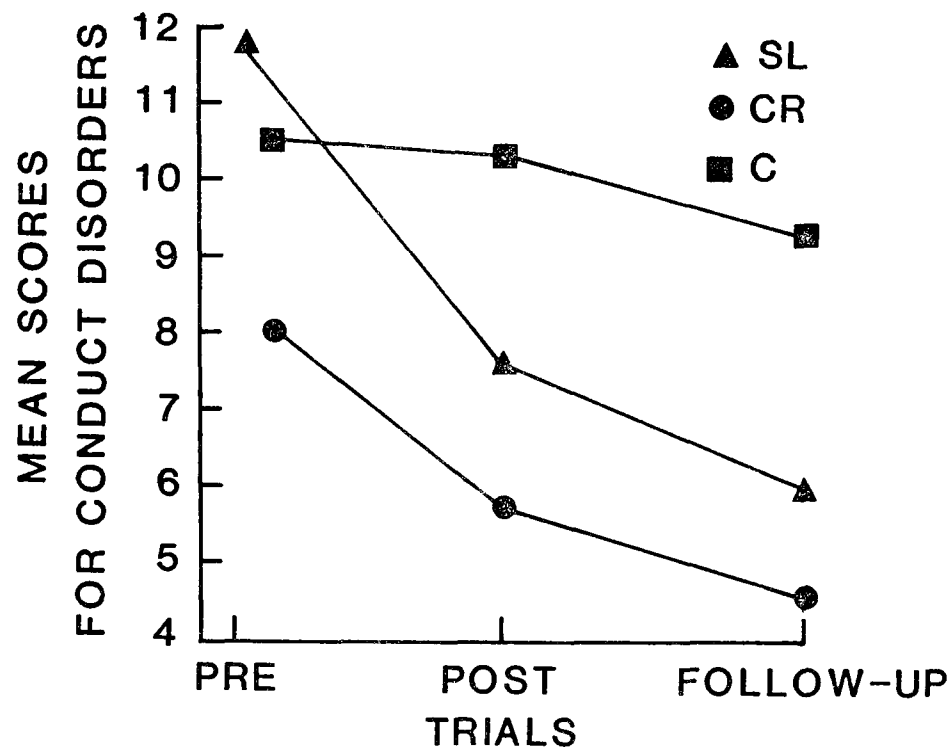


Figure 2. Mean number of items listed by mothers for each group at pretest, posttest and follow-up on Mothers' Conduct Disorder.

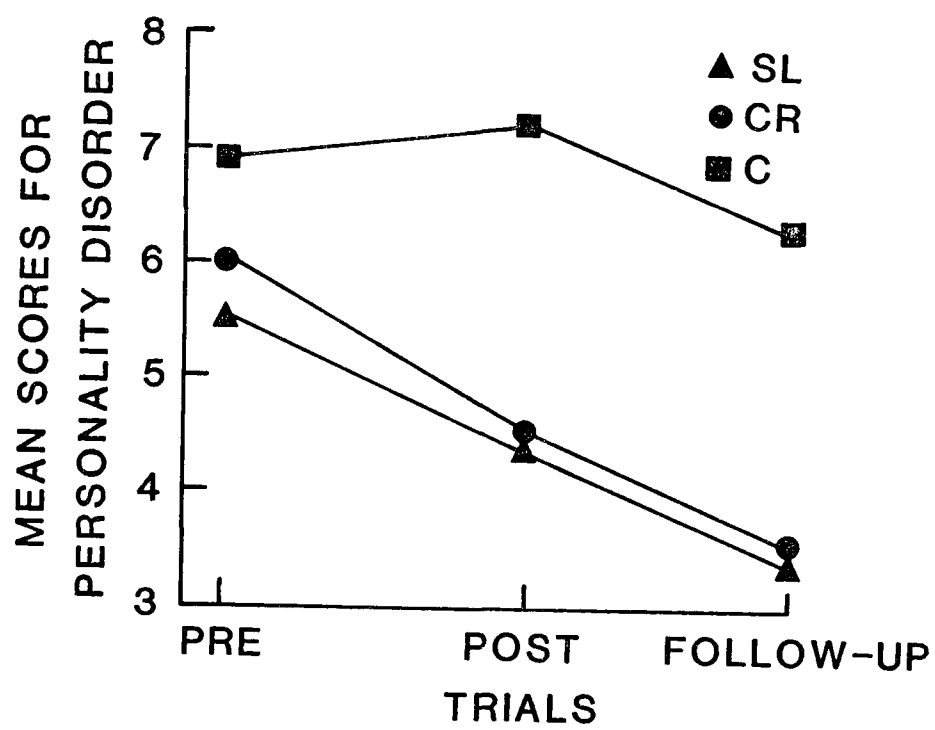


Figure 3. Mean number of items listed by mothers for each group at pretest, posttest and follow-up on Mothers' Personality Disorder.

The ANACOVA results for teachers' Personality Disorder factor were also non significant at posttest (Appendix Q). However, there was a trend developing at follow-up $F(2,37) = 2.84$, $p = .07$. Newman Kuels post hoc analyses of this trend level data indicated that at follow-up both the SL and the CR groups were significantly different from the control group subjects, but both treatments did not differ from each other.

The within-group differences indicated a significant improvement for the SL group at posttest, $t(13) = 02.55$, $p < .03$, and at follow-up, $t(13) = -3.25$, $p < .01$. The CR group also improved at posttest and follow-up, $t(15) = -2.15$, $p < .01$ and $t(15) = -2.83$, $p < .02$, respectively. There were no significant changes in the control group at posttest, or at follow-up. Apparently, both treatments were equally effective in reducing teachers' concerns about those behaviors tapped by the personality factor, whereas controls showed no significant improvement (Figure 4).

Psychometric Tests (Table 4) The results of the Matching Familiar Figures test and the Story Completion test were non significant for all ANACOVA data. Therefore these results are not reported here (Appendixes R, S, T, U, V).

Behavioral Observations (Table 5) There were eight behavioral categories included in the Behavioral Observation assessment. These categories were: Aggression, Verbal Aggression, Object Aggression, Verbal Noise, Noise, Gross Motor, Talking and On Task. The following behavioral categories had non significant ANACOVAS and therefore the results of those analyses will not be reported here: Verbal Noise, Noise, Gross Motor and Talking (Appendixes Z, AA, BB, CC).

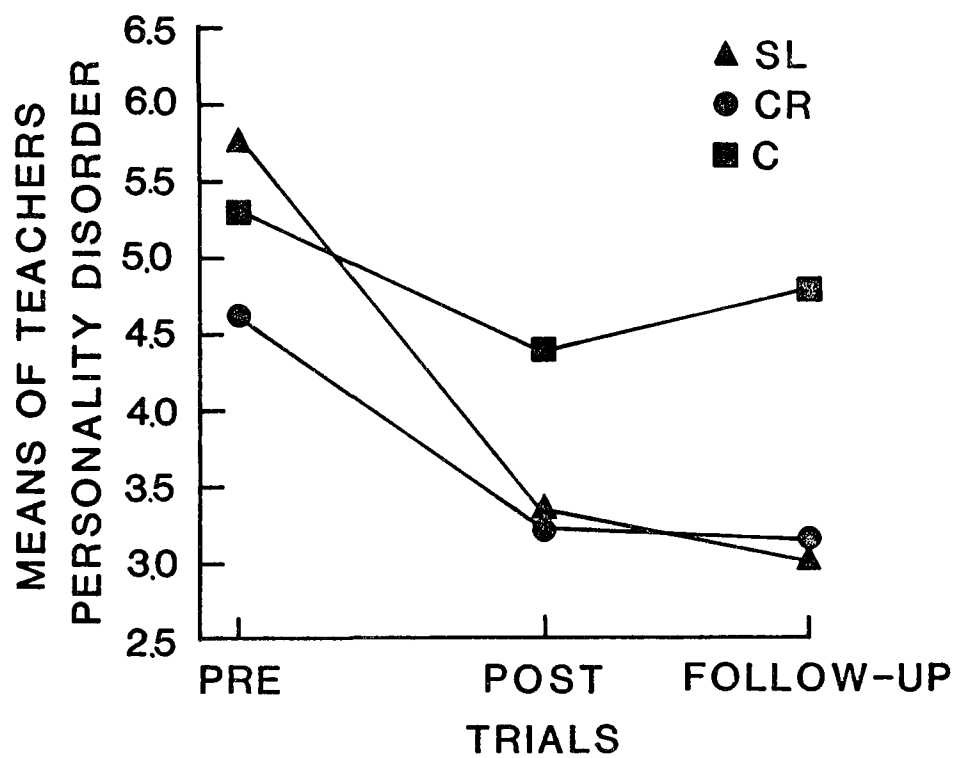


Figure 4. Means number of items listed by teachers for each group at pretest, posttest and follow-up on Teachers' Personality Disorder.

Table 4

Mean Scores and Standard Deviations for Matching Familiar Figures,
and The Story Completion Test, PPVT and Age at Present,
Posttest and Follow-Up

Measures	Pretest		Posttest		Follow-up	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Matching Familiar Figures						
Errors						
SL	12.58	4.73	11.50	6.37	8.71	4.92
CR	11.88	4.74	9.94	3.07	7.88	3.21
Control	11.50	4.86	9.20	4.93	10.70	6.14
Latency						
SL	6.22	3.67	7.70	3.37	8.28	4.61
CR	11.22	7.58	8.36	2.52	13.17	15.22
Control	10.33	8.07	10.20	8.47	8.32	5.92
Story Completion Test						
Aggression						
SL	1.29	2.33	0.86	1.61	0.64	1.22
CR	1.56	2.31	0.75	1.06	0.69	1.35
Control	0.40	0.52	0.20	0.42	0.20	0.42
Withdrawal						
SL	1.64	1.91	0.93	0.83	1.14	1.03
CR	1.81	1.51	2.00	1.63	1.69	1.96
Control	2.00	0.94	1.60	1.17	1.30	1.06
Realists						
SL	6.07	3.02	7.21	1.58	7.21	1.48
CR	6.06	1.88	6.25	1.69	6.69	2.24
Control	6.60	1.26	7.20	1.40	7.07	0.97
PPVT*						
IQ						
SL	117.	24.32				
CR	109.	23.77				
Control	104.	7.2				
Age*						
SL	9.57	1.66				
CR	9.65	1.27				
Controls	10.10	1.15				

*pretest only

Table 5

Mean Number of Observations and Standard Deviations for Behavioral Observation Scale at Pretest, Posttest and Follow-up

Measure	Pretest		Posttest		Follow-up	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Aggression						
SL	0.21	0.31	0.24	0.72	0.09	0.27
CR	0.94	1.46	0.37	0.66	0.22	0.57
Control	0.48	0.34	0.20	0.29	0.21	0.47
Verbal Aggression						
SL	0.40	0.64	0.09	0.27	0.06	0.13
CR	0.41	0.63	0.14	0.43	0.04	0.10
Control	0.51	1.14	0.23	0.44	0.03	0.09
Object Aggression						
SL	0.29	0.45	0.0	0.0	0.0	0.0
CR	0.27	0.42	0.36	0.51	0.16	0.30
Control	0.06	0.13	0.23	0.63	0.13	0.32
Verbal Noise						
SL	2.01	1.88	1.42	2.44	1.12	1.59
CR	2.02	1.92	1.84	1.76	1.82	1.79
Control	0.52	0.74	0.60	1.12	0.42	0.35
Noise						
SL	0.74	0.77	0.14	0.26	0.53	0.54
CR	0.74	0.98	0.98	1.73	0.67	1.13
Control	0.50	0.82	0.16	0.41	0.33	0.49
Gross Motor						
SL	5.65	3.13	4.04	3.20	4.58	3.16
CR	7.43	4.95	4.77	4.01	4.52	2.74
Control	5.63	2.77	3.20	2.32	4.19	4.76
Talking						
SL	5.66	3.32	5.50	3.32	5.91	4.64
CR	7.54	3.97	5.42	3.66	5.42	2.61
Control	5.94	3.32	4.83	2.90	5.07	3.85
On Task						
SL	23.75	5.30	31.21	5.43	28.54	9.16
CR	25.94	6.58	28.34	6.31	29.26	5.99
Control	30.96	4.26	27.22	4.47	29.05	5.72

The ANACOVA results for the Aggressive Behavior category were significant at posttest $F(2,37) = 7.14$, $p < .01$, but not significant at follow-up $F(2,37) = 0.03$, $p < .80$ (Appendix W).

Newman-Kuels post hoc analyses indicated no difference between groups existed at posttest. Newman-Kuels within-group analyses suggested that the CR group was showing significant reductions in observed aggressive behaviors at posttest and follow-up. These results were significant at the .05 level. Both the SL and control group results indicated no change from pretest. However, both of these groups had low observed aggression scores at pretest that may have provided a floor effect (Figure 5).

The ANACOVA results for the verbal aggression behavioral category were significant at posttest. $F(2,37) = 3.78$, $p < .05$. However these results did not prove to be significant at follow-up $F(2,37) = 0.67$, $p = .55$ (Appendix X).

Newman-Kuels post hoc results indicated no differences existed between groups at posttest. However, Newman Kuels within-group comparisons showed that the CR group had significant improvement at both the posttest assessment phase and the follow-up assessment phase (Figure 6).

The ANACOVA results for Object Aggression were nearly significant at posttest $F(2,37) = 2.50$, $p < .06$ but failed to maintain the effect at follow-up $F(2,37) = 1.80$, $p = 0.17$ (Appendix Y).

Newman-Kuels post hoc test results found a difference between the SL and CR groups to be significant at the .05 level. Apparently the SL group had significantly lower amounts of reported aggressive behaviors directed at objects than the CR group. However, there were no differences between the SL group and controls or between the CR group and controls.

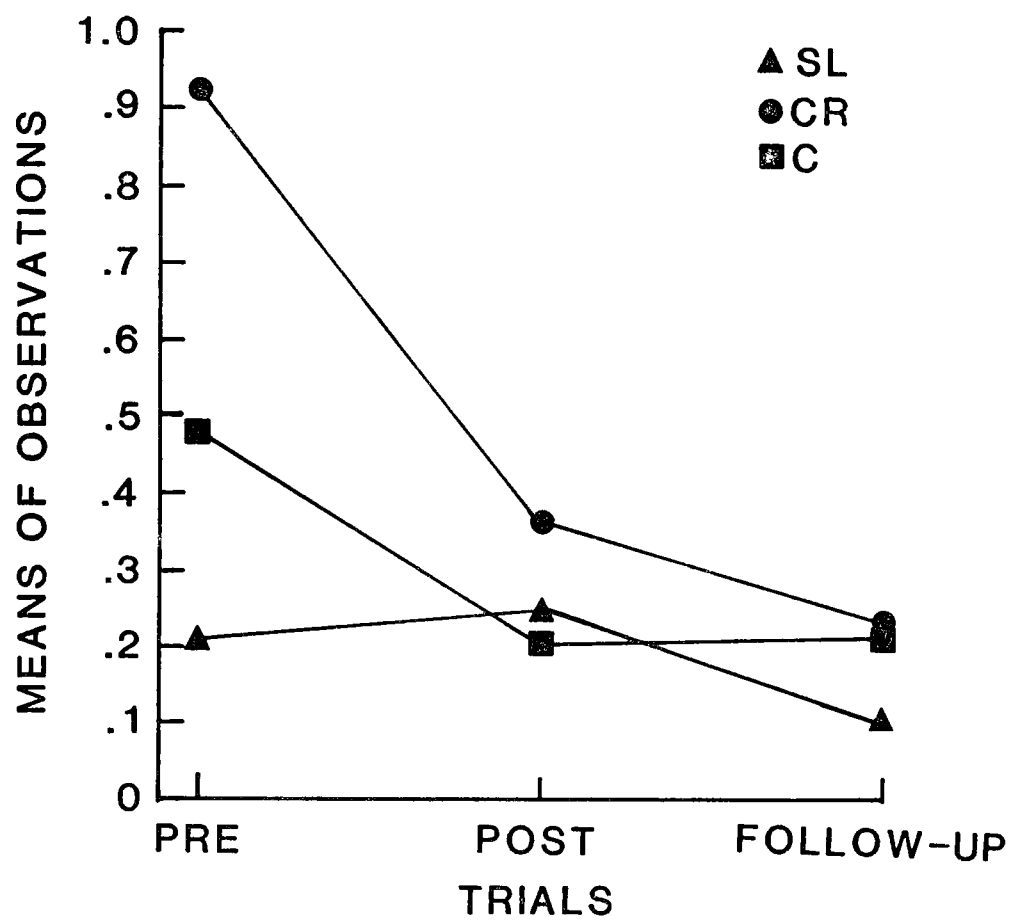


Figure 5. Mean number of observations for each group at pretest, posttest and follow-up on the Aggressive factor by trained observers.

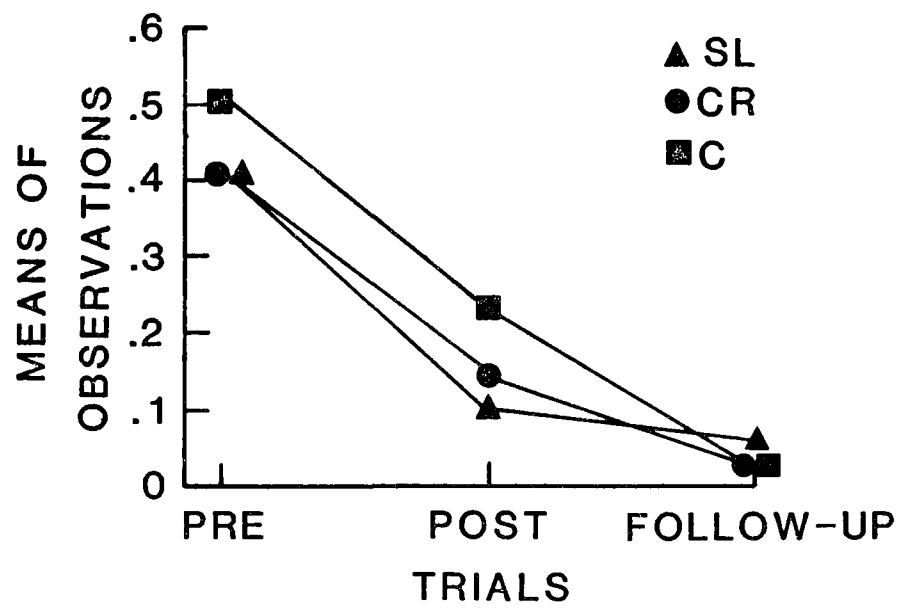


Figure 6. Mean number of observations for each group at pretest, posttest and follow-up on Verbal Aggression factor as measured by trained observers.

Newman-Kuels within group test results found the SL group to have significant reductions in observed aggressive behaviors at posttest and at follow-up. The CR group and the control group results indicated no change to have been in effect for either group at either posttest or follow-up (Figure 7).

The ANACOVA results for the On Task category approached significance at posttest $F(2,37) = 2.75$ $p < .06$, but failed to demonstrate a continuation of this effect at follow-up $F(2,37) = 0.45$, $p = .68$ (Appendix DD).

Post hoc comparisons of between group differences failed to reach significance levels, but Newman-Kuels within-group comparisons indicated a significant improvement was in effect at posttest and at follow-up for the SL group. The other two groups (CR and Controls) demonstrated no significant change in amounts of observed On Task behaviors (Figure 8).

Comparisons of Rating Scales with Observer Reports

A Pearson Product Moment Correlation Coefficient was conducted on the two teacher rating scales (SBCL and BPC) at pretest only with the behavioral observations (BOA) carried out by trained classroom observers in order to determine the level of correspondence between these measures and to investigate the validity and potential utility of these tools (see Table 6).

SBCL with Behavioral Observations. The Low Need for Achievement factor of the SBCL produced correlations with the following observation categories: positively with Verbal Aggression, Talking and negatively with On Task. The SBCL Scores of Aggression, the main screening variable, were negatively correlated with On Task behaviors, but not with any of the other variables, an unexpected finding. However, the Anxiety subtest of

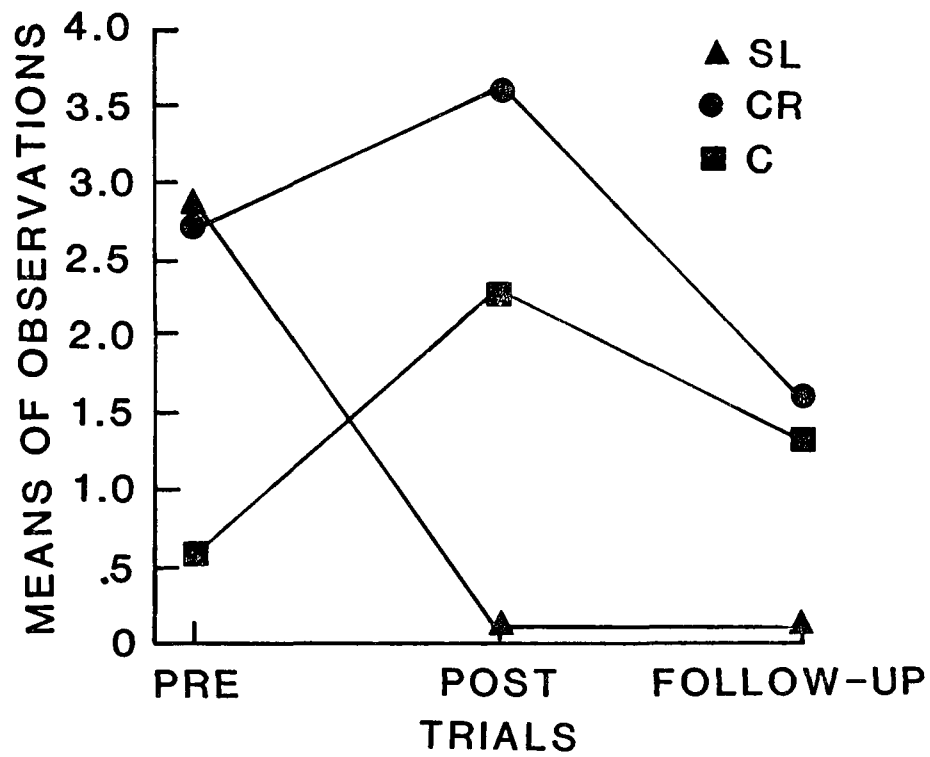


Figure 7. Mean number of observations for each group at pretest, posttest and follow-up on Object Aggression factor as measured by trained observers.

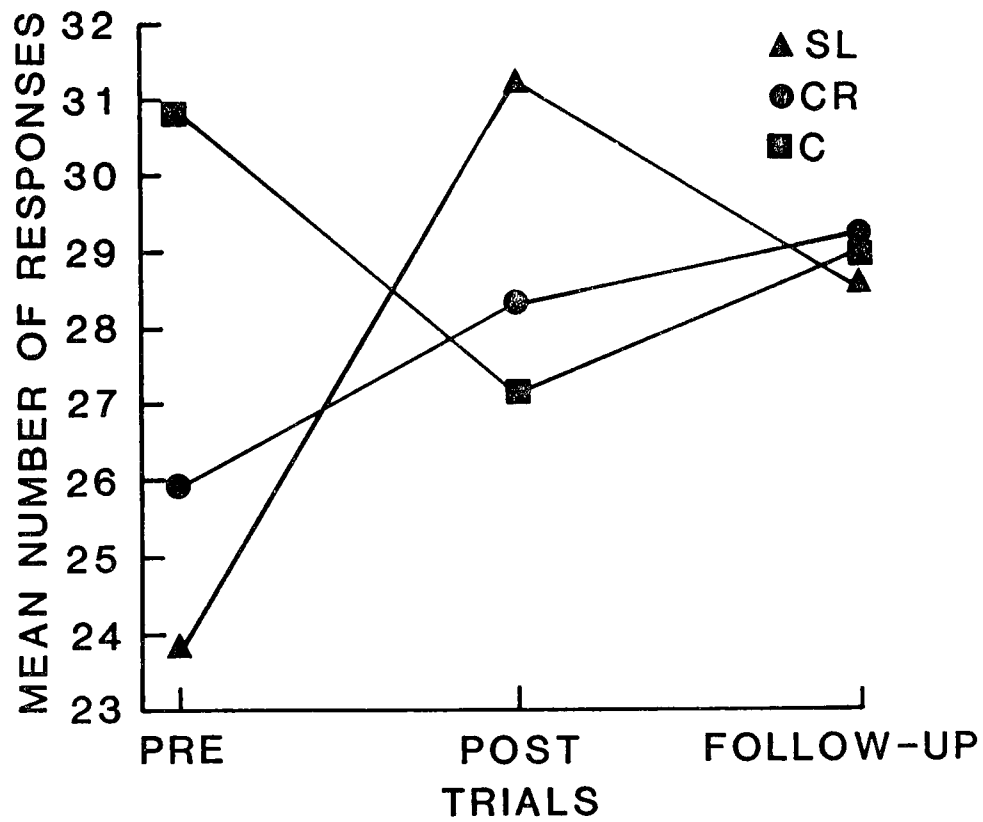


Figure 8. Mean number of observations for each group on the On Task factor for pretest, posttest and follow-up.

Table 6
Correlations of Behavioral Observations with
School Behavior Checklist and Behavior Problem Checklist

Test	Behavioral Observations							
	Agg	Verbal Agg	Object Agg	Verbal Noise	Verbal Noise	Gross Motor	Talk	On Task
<u>SBCL</u>								
LNA	.17	.33*	.22	-.15	.12	-.12	.38**	-.41**
Aggression	.19	.20	.18	.02	.25	-.01	.24	-.37**
Anxiety	.21	.37**	.29*	.18	.35**	.12	.36**	-.33*
Academic Disability	.17	.17	.02	-.09	.04	-.15	.15	.02
Hostile Isolation	.02	.13	.07	-.06	.07	-.11	.07	-.14
Extraversion	-.08	-.24	-.03	.13	.01	.08	-.11	-.20
Total Disability	.23	.45**	.12	.01	.30*	.07	.40**	-.32*
<u>BPC</u>								
Conduct Disorder	.06	.13	.05	-.17	-.00	-.06	.10	-.18
Personality Problem	-.08	-.01	.01	-.18	-.17	-.24	-.01	.07

* $p < .05$
 ** $p < .01$
 *** $p < .001$

the SBCL was positively correlated with Verbal Aggression, Object Aggression, Noise, Talking and negatively correlated with On Task behavior. The Total Disability factor on the SBCL was highly associated with Verbal Aggression, Noise and Talking and was negatively associated with On Task behavior.

BPC with Behavioral Observation. The BPC test that teachers also filled out produced no significant correlations with any of the observers' accounts for either factor used in this study: Conduct Disorder or Personality Problem. Thus, the BPC either measures different behaviors than those noticed by the trained observers, or it is a less sensitive measure than the SBCL of those behaviors the observers were monitoring.

CHAPTER IV

DISCUSSION

In general, the results are suggestive that both cognitive and behavioral procedures are effective in the reduction of behaviors considered to be problematic by parents, teachers and observers. However, the behavior changes were rather weak, perhaps due to the small number of subjects or the limited intervention time. Perhaps a larger number of subjects or a more intensive treatment might have led to more substantial changes demonstrated on the dependent variables. However, the present study suggests the relative equality of the cognitive approach, as practiced here, with the SL approach, as interpreted herein, for the treatment of school age aggression. However, the data indicate, as reported in other research, that various dependent measures may tap different aspects of the child's cognitive and behavioral repertoires. Also, the data suggest that the two treatments have a different impact on the subjects' cognitive and behavioral repertoires, and the result of this diversity in impact of treatments is reflected in the variation of the respective measures.

Hypothesis 1

The first hypothesis asserted that the cognitive restructuring treatment would be more effective in the school environment than the social learning treatment. It was anticipated that changes would occur on the MFF and SCT measures because others who have used cognitive methods have found these tests to be sensitive to cognitive treatment

effects (Bugental et al., 1977; Camp, Blom, Herbert and van Doorninck, 1977; Douglas et al., 1976; Kendall and Wilcox, 1980). It was also thought that the cognitive restructuring techniques employed in this study, which emphasized inappropriate aggressive content and appropriate alternative behaviors, would create significant changes in teachers' ratings on the SBCL. This assumption was based on the fact that both the Camp and Douglas studies suggested changes might occur if treatment did focus on the inappropriateness of aggressive behaviors. The statistical analyses did not indicate significant differences between treatment groups on three school-related measures (MFF, SCT, SBCL). The other school-related measures (BPC, BOA, SBCL) suggest movement in the expected direction, but not with the anticipated degree of change. There was a significant difference between both treatment groups and controls on the anxiety factor. Thus, treatment appears to lower anxious behaviors.

The within-group results indicate an advantage of the CR treatments over the SL approach on some measures, while the SL showed more changes on others. What is of more interest is the profile of changes on the different variables as effected by the two treatments. The CR group found improvements at posttest on the following school-related variables. On the teachers' BPC, the Personality Disorder was significantly improved. On the Behavioral Observations (BOA) overt aggression and verbal aggression were improved. The SL group had significant improvements at posttest on teachers SBCL Anxiety Factor, also on teachers BPC Personality

Disorder. In addition, the BOA, object aggression, and on-task behaviors were significantly improved for the SL group. For the control group teachers noticed an increase in anxiety. Otherwise at posttest there were no school related changes for this group.

At follow-up the results indicated significant changes still to be in effect for the CR group were the following: Teachers BPC Personality Disorder; and on the BOA overt aggression and verbal aggression. The SL group scores that remained changed from posttest were: SBCL Anxiety teachers' BPC Personality Disorder and the BOA object aggression and on-task behaviors. For the controls at follow-up BOA verbal aggression and object aggression scores were improved. Thus, it appears that the CR treatment was able to demonstrate a long term effect on three school-related variables while the SL treatment maintained an effect on four school-related variables.

Intuitively, it was expected that the CR treatment would facilitate redirection of those behaviors tapped by teachers' ratings on both the Conduct Disorder and Personality Disorder factors. At posttest this expectancy was not met for the CR group on the Conduct Disorder and only those posttest changes in behaviors reflected in the Personality Disorder variable were maintained at follow-up. On the BOA measure it was expected that all three indices of aggression (overt, verbal and object aggression) would be significantly lowered for the CR group. The results indicated that only the first two were effected by the CR treatment, yet these changes remained in effect at follow-up. Because the emphasis of the CR treatment was on the

reduction of aggressive behaviors and the control of anger, no expectation was held for improvement on the other BOA subtests.

The CR treatment, then, was able to demonstrate an improvement in anxious withdrawal or isolate behaviors according to teachers' observations. In addition, these children were able to sufficiently inhibit both physically and verbally aggressive behaviors in the classroom so that naive observers could discern a difference from pretreatment levels. The changes in these specific behaviors are seen as evidence of the efficacy of the CR procedure with aggressive and perhaps socially withdrawn children.

The SL group was expected to show improvement on both teachers' Conduct Disorder and Personality Disorder at both posttreatment assessment phases, but not to be as significantly improved as the CR group on either of these teachers' ratings. In fact, there was no appreciable difference between the two groups on teachers' ratings of either factor. The SL group was able to demonstrate changes in teachers' ratings on the Personality Disorder factor, but not on the Conduct Disorder factor. Apparently teachers did not notice a significant improvement in the behaviors of the latter variable as a result of the SL approach practiced here. There was an expectation that raters would note a reduction on the BOA in some of the disruptive behaviors as a result of parents and teachers working together. There were significant improvements in object aggression and the amount of on-task behaviors emitted by this group as a result of the intervention. The lack of change in physically aggressive and verbally aggressive behaviors was

not anticipated. However, on the former the results may be due to basement effects at pretest. Perhaps, the fact that aggression itself was rarely seen in the classroom for the subjects in this group explains this. If its expression was not seen it could not be changed.

The SL treatment, then, was able to demonstrate an improvement in anxious, isolate and withdrawn behaviors in the classroom to the degree that teachers noticed these changes. These SL trained children also demonstrated that this procedure can noticeably decrease aggressive acts against property and this procedure was successful in increasing the amount of time aggressive children engaged in academic tasks. These results suggest that SL procedures are effective in treating aggressive children who may remain in the classroom rather than be withdrawn for treatment.

It was anticipated that controls would remain relatively unchanged on all subtests. However, this group demonstrated some increase in behaviors teachers interpret as anxious. They did show a reduction on object aggression and verbal aggressive acts. This result may be a chance finding or an indication of spontaneous changes in children in some areas without treatment.

Based on these findings it appears that both treatments were successful in promoting generalization from the training sessions to the school. In addition, both treatments generalized over a short time. The specific mechanisms that produced that generalization for the CR group are not clear. Components included in the training were: vignettes that approximated classroom difficulties, playground difficulties

and some reoccurring situations in the home environment. Additionally, a mini-situational analysis was requested from each child around events that provoke aggression, and instructions were given to subjects to rehearse the problem-solving behaviors in the sessions, at home, and in the school. The typical self-verbalization components of many cognitive interventions, i.e., modeling, self-instruction and self-reinforcement, were coupled with Meichenbaum's four stages of problem analysis: a) problem identification and definition, b) focusing attention and response guidance, c) self-evaluation and self-reinforcement and d) coping skills and error correction (Meichenbaum and Asarnow, 1979). Any of these components singly or in combinations may have worked together to produce the changes.

Other studies have reported successful results of cognitive interventions on classroom behavior as reflected by teachers ratings (Kendall and Finch, 1976, 1978; Kendall and Wilcox, 1980; Robin et al., 1976). However others have not. The Camp, Blom, Herbert, van Doorninck (1977) study, although much longer and more diverse in scope (six weeks of training and use of games, matrices, classroom tasks), did not produce significant differences between the two aggressive groups on the SBCL. They did manage to obtain changes on the SBCL subscale of Low Need Achievement by using improvement scores, however. That improvement was thought to reflect an increase in prosocial behaviors for the experimental group. But, their treated group was shown to not differ from the aggressive controls on the aggression factor. They mentioned that if their program would have paid more attention to the negative aspects of aggressive

behavior, a suggestion adopted here, a significant reduction in aggressive behavior might have taken place. The present study also found the SBCL to be relatively insensitive to changes in classroom behaviors as a result of cognitive interventions even when aggressive behavior was the point of focus during the treatment.

The use of the Behavior Problem Checklist (BPC) did reflect significant changes in the two treatments on the Personality Disorder factor. That result is interesting because it appears that the Conduct Disorder category might be more relevant to aggressive behavior reduction. Essentially, the teachers were indicating less shyness, anxiety or withdrawal behavior by reporting changes on the Personality Disorder factor, behaviors that were not addressed by either treatment specifically. The reasons for these findings are not clear. Perhaps it is a "halo" effect with teachers seeing improvement as a generalized effect. However it is interesting to note comparisons between this study's means and the means of other deviant and normal populations. The group means in the present study on Conduct Disorder approximate those of institutionalized delinquents, while the Personality Disorder means of this study coincide with those of normal populations (Quay and Peterson, 1967). Children in this study were chosen by aggression scores on the SBCL and those scores were intended to reflect a high level of aggressive behaviors (one-and-a-half standard deviations above the aggression mean).

Douglas et al. (1976) had a more lengthy and more comprehensive intervention than the present study in their treatment of hyperactive children and they did not report the positive behavioral changes due

to treatments found here. They reported no changes with teacher ratings (Conners short form) as a result of their treatment. Their explanation for that finding was that either the abbreviated Conners test was less sensitive than the longer 39 item form, or more likely that their "training program stressed internal thought processes and the development of inner controls far more heavily than outward observable behaviors. Possibly with more time, the effects of the cognitive changes produced by the training would become more observable to teachers" (p. 405).

Perhaps there is a delay from the time treatment ends until some changes attendant to a cognitive approach do become manifested in observable behaviors that teachers notice. Additional follow-up studies need to be done to investigate this hypothesis. However, other researchers have found more immediate transfer of training to classrooms (Bornstein and Quevillon, 1976; Kendall and Finch, 1976, 1978; Kendall and Wilcox, 1980; Robin et al., 1976).

The teachers reports for the SL group were somewhat similar to teacher reports for the CR group. Teachers reported a significant difference between SL and CR groups with control subjects for the personality factor. Teachers also noted both treatment groups were significantly different from controls on anxiety-related behaviors. However, favorable changes of both teacher measures of the BPC would have provided stronger evidence of treatment effects.

The data from trained observers indicates that CR subjects decreased overt aggressive acts aimed at people and also decreased their verbal assaults. In the CR treatment aggressive behaviors were

fantasized and then dealt with through role play and rehearsal. The SL subjects only reduced aggressive acts directed against objects. The reasons for these results are not immediately clear. Perhaps this was the only time teachers saw aggression in the classroom and they dealt with this aggression through the home-school intervention. Apparently the CR training had an effect on the subjects so that they reduced their overt and verbal aggressive activity, but it is difficult to explain what there is about SL training that brought about inhibition of aggressive acts against property and not people, perhaps the low initial scores made significant improvement impossible.

Hypothesis 2

The second hypothesis stated that the two treatment groups would be equally effective in the reduction in parents perception of inappropriate aggressive behaviors in the home environment at posttest. At follow-up, however, it was thought the CR group would be more improved on parent's reports of unacceptable behaviors. The results of the study do indicate that the CR treatment effects are, in fact, more effective than the SL group as measured at posttest, as well as at follow-up. The mothers BPC Conduct Disorder ratings reveal that CR trained boys are more likely to significantly improve their behaviors than children whose parents are trained in social learning procedures. The Conduct Disorder factor, which indicated differences between treatment groups at both posttest and follow-up, more closely represents behaviors defined as aggressive than the personality factor.

To the author's knowledge there are no studies that report parents' ratings of behaviors in the home when the child received cognitive restructuring training in the schools. It is difficult, therefore, to determine if changes at home as a result of this kind of intervention are unusual or if they are a common phenomenon. Spring, Greenberg and Yellin (1977) found that parents and teachers differ on their reports of hyperactive children's behavior after the children's medication was withdrawn. These authors suggest that teachers and parents pay attention to different behaviors (e.g., teachers require sustained attention to tasks, whereas parents do not). Spring et al. found that teachers' ratings, on an index of hyperactivity, negatively correlate with low scores on psychological tests. On the other hand, mothers' reports correlate positively with low scores on psychological tests. It may be that these differing viewpoints may have allowed parents to notice significant differences between the behaviors of their children in the two treatment groups, whereas teachers did not. Perhaps teachers and parents emphasize similar but also different behaviors and that difference in emphasis leads to a reduction in scores on the Conduct Disorder factor but not the Personality Disorder factor for parents. At the same time, teachers may notice a more significant and permanent drop in behaviors measured by the Personality Disorder factor as a result of treatment.

Nevertheless, the CR students did produce significant changes at home that are reflected in their mothers' ratings. Many of the situations practiced in the treatment sessions dealt with problems in

the home environment. Perhaps the use of discussion and role play in these interactions and the use of think-aloud procedures were sufficiently powerful to alter the child's habitual approach to coping with a provocative home situation, and the parents noticed a change in the child. An alternative explanation might be that the parents had an expectancy for improvement based on their knowledge that their child was participating in an intervention at school for nine consecutive days with professionals from the Children's Hospital. Since parents were asked to fill out their forms at home on the child's behaviors, there may have been a push to favorably rate their child in spite of the fact there may have been no change in behavior.

The SL parents actively participated in their sons' treatment and would be the first to notice changes at home. Mothers' reports of improvement are more easy to understand and explain in that group as there is an expectancy built up from group participation for behavior change in the children (Gittleman-Klein et al., 1976).

The SL group conformed to expectations as outlined in the hypothesis. When the parents of these subjects participated and assimilated the concepts and then applied the procedures, they usually met with success. The findings here are consistent with other home-based reinforcement programs (Atkeson and Forehand, 1979).

The role of teachers for the smooth operation of the SL groups was essential in the present study. They were asked to pinpoint behaviors needing reduction or improvement and then to provide feedback on the child's progress as related to those pinpointed behaviors.

If a teacher willingly accepted the tenets of a behavioral intervention and attempted to daily implement the components of observation and recording and to occasionally make phone calls to the parents, the success of the program was almost assured. Several teachers went beyond the requested minimal performance required and included anecdotal notes to parents, made frequent telephone conversations, met with the parents occasionally, and requested advice and clarification from the therapist. These teachers, it seemed, had more frequent positive comments and favorable ratings of their subjects. On the other hand, a few teachers did minimal amounts of recording and parental contacting. Their results were understandably less beneficial. The study focused on parent control of behavior more than having teachers be the change agents. Nevertheless, changes for the better did occur across different classrooms and across the four year age span of the subjects in the study. The greatest improvements for the SL procedure were recorded by parents. And these improvements remained in effect at follow-up on both dimensions of the parents rating scale. However, the fact that teachers were not required in the CR condition is an asset for that treatment. Some teachers do not want to work with children and the CR intervention allows treatment to occur without teacher involvement.

Hypothesis 3

The third hypothesis asserted that both treatments would be superior to controls at posttest and that this superiority would be in effect at follow-up. The results indicate that both treatments were superior to controls on a number of measures. Significant

differences did occur between both treatments and controls for both factors of the parent measure. There was significant reduction in numbers of anxiety related behaviors emitted by both treatment groups also. Significant improvements were found for both treatments at follow-up on the teachers Personality Disorder factor compared to no improvement for controls. Thus, teachers and parents noticed differences in children's behaviors when treated by either condition and these differences were probably not a result of maturation.

On the behavioral observation measure, the SL group remained significantly improved on the object aggression factor at post-treatment and follow-up, and that group was also significantly improved at posttest and follow-up in on-task behaviors, whereas the CR or control subjects did not. In fact, only the SL group showed significant change in the on-task category, indicating that teachers and parents were probably concentrating on appropriate academic tasks, and perhaps less emphasis was placed by parents and teachers on reducing aggressive behaviors in the school. It may be that observers had difficulty in finding any expression of aggression for this group.

The CR group duplicated the SL record for mothers' ratings compared to aggressive controls. They also improved on one measure of classroom behavior that teachers reported (Personality Disorder). In addition, reliable observation indicated improvements in both overt aggression and verbal aggression (but not object aggression). The control group demonstrated an improvement on the verbal and object directed acts of aggression that was significant only at follow-up.

The role of the teachers and parents for the CR group was negligible. Teachers were required to dismiss children from classes and parents were requested to provide permission for their child to participate. Expectancy effects then would be limited to information given by the therapist to the parents over the phone, and by the therapist to the teachers in a general staff meeting. All teachers and parents were required to fill out identical rating sheets. The SL group on the other hand required both teachers' and parents' involvement and communication between the two. If expectancy or other non-specific factors were at work, one would expect greater improvement scores from the SL parents (Gittleman-Klein et al., 1976).

Although not formally stated, another purpose of the study was to investigate whether the CR technique might be no more costly than a social learning home-school program. The study attempted to streamline the SL approach to minimal parent and teacher involvement and adopted a middle length treatment for the CR group. Each child's parents in the SL group were seen for six 90-minute sessions and teachers were seen for about 60 minutes each over two or three sessions for a total of ten hours' intervention for each subject in the SL group. The CR children were seen for nine 30-minute sessions with no teacher-parent involvement except for initial contacts that explained procedures and requested permission. The CR involvement was an average total of $4\frac{1}{2}$ hours for each child. For the SL group, much of the parent training was con-

ducted in groups of 4 or 5 couples, while the CR students were seen either individually or in dyads. On an individual basis, within the limits of the present study, the CR approach is less costly (4.5 average therapist time per each child compared to ten hours of therapist time per each family). When a group of 14 SL boys are compared to 14 CR boys, according to the format used here, the CR procedure requires 31 total therapist hours (4.5 hours x 14 boys = 63.5 total hours; sixty-three hours divided by two boys in a dyad = 31 total therapist hours). The SL procedure, when used with a population of 14 boys' families and teachers, requires 41 hours (nine hours for parent instruction x 14 boys = 126 hours). With three groups the average number of families for each group is 4.67. One hundred and twenty-six hours divided by 4.67 parents equals 27 hours of training. Add 27 hours to 14 hours of teacher training to get 41 hours total therapist time to train parents and teachers of 14 boys. Patient expenses may be kept lower by using CR treatment for both small and larger samples.

It is also important to note that compliance is always a serious issue in intervention. As mentioned earlier several parents and teachers did not want to participate or could not because of personal problems or beliefs. Therefore cognitive retraining might be incorporated in treating their children without the need of their direct involvement.

Generalization

Essentially, the study does indicate some limited general-

ization occurred following treatment. Both groups found some time and setting generalization on a few dependent measures. Rosenbaum and Drabman (1979) suggest that time generalization is attributable to conditioned reinforcing properties of responses acquired during self-reinforcement that follow self-monitoring after the formal program contingencies have been removed. Thus, aggressive boys may be able to control some disruptive behaviors by way of conditioning response inhibition to provocative situations via self-reward (for CR subjects) or by anticipated external rewards for appropriate behaviors (SL subjects). It would be difficult to ascribe similarity of training tasks to test material (vignettes, role play) as an explanation for treatment gains in the present study as has been the case in previous CR research (Douglas, 1976; Meichenbaum and Goodman, 1971). Bornstein and Quevillon (1976) found that the effects of self-instructional training transferred from the training setting to the classroom. Unfortunately, those results were difficult to replicate. Friedling and O'Leary (1979) attempted a replication study on second and third grade hyperactive children. They used the same format as Bornstein and Quevillon (1976). They also controlled for teacher attention to experimental subjects, a condition that Bornstein and Quevillon did not include. Friedling and O'Leary's 90 minute intervention did not generalize to classroom behaviors. When they did introduce a token system, classroom behaviors did significantly improve. They

stated that the difference in age groups and the control of teacher attention may have accounted for the difference in findings between their study and Bornstein and Quevillon (1976). Other studies have reported generalization from one setting to another, nonetheless (Drabman, Spitalnik and O'Leary, 1973; Kendall and Finch, 1976, 1978; Robertson, Simon, Pachman and Drabman, in press).

Douglas suggested that in order to improve performances on a particular task specific training on that task may need to be undertaken (Douglas et al., 1976). Abikoff (1979) advises that the failure to obtain treatment effects on several assessment measures may be due to what Meichenbaum (1977) contends to be a function of inadequate task analysis. When training and assessment tasks make use of similar skills, transfer effects are more likely to occur. The implication is that an experimenter or clinician needs to analyze the task demands and then tailor his treatments or interventions to those specific skills needing training; and then tailoring the training tasks to address each new specific problem behavior. The two most extensive studies to date using CR methods (Camp, Blom, Herbert and van Doorminck, 1977 with aggressive children, and Douglas et al., 1976 with hyperactive children) in which interventions were carried out across several learning modalities, were unsuccessful in providing generalization to non-target behaviors, unlike the present study. The Douglas study did show evidence of treatment effects to listening, spelling and oral comprehension--all cognitive-motor tasks--and

to psychometric tests, but behaviors disruptive to teachers were not modified. However, their training tasks were more like academic materials instead of tasks that addressed problem behaviors. The Camp study also noted improvement on a variety of measures including Porteus Mazes, MFF, WISC performance IQ, reading achievement and classroom behaviors. But, reductions in expressed aggressive behaviors in the classroom were not significantly effected, according to teachers' reports.

Drummond's (1974) study, on the other hand, which treated behavior problem children, directed his intervention at changing disruptive behaviors and not to receiving generalization to test scores. Following training that centered on classroom behaviors only, reductions were noted on teachers' ratings, but there was no change on MFF scores. His findings are supported by the results of the present study. Both studies provided evidence for the assumption that generalization is enhanced if the test materials closely approximate the training materials.

Meichenbaum and Asarnow (1979) admit to a relative lack of generalization in cognitive behavior modification research. They suggest careful consideration should be directed to what is meant and expected in seeking for generalization and they believe that recent advances in metacognition development research will "help explicate the processes underlying generalization" (p. 15). In a parallel vein the work of Kendall and Wilcox (1980) seems to indicate the need to train children in the use of conceptual as

well as concrete techniques in order to maximize generalization. Once the child has grasped the steps and stages of the cognitive approach, self-control training may require general self-statements to be generated by the child for a more effective strategy.

Mash and Dalby (1979) suggest the need to monitor the behaviors of children across several settings in order to assess the generality of the intervention. They state that it is not clear from available data if the self-control procedures will have more generalization to non-treatment environments than other procedures if the training is general in nature. O'Leary and Dubey (1979) indicate that it is unknown if maintenance and generalization is better achieved with the external or the self-control strategies "because children continue to use the procedures in the absence of systematic external prescriptions to do so, or whether another unidentified factor accounts for the differential results. No one has, for example, attempted to assess whether children actually continue to use the self-control procedures they have been taught" (p. 462). Thus, even if generalization or maintenance can be demonstrated, there is little evidence that it is the treatment components that maintain the behaviors. It may be other factors that have occurred following the child's change in behaviors that promote generalization.

The nature of the CR intervention used in this study involved situations that might occur in the home, the school yard, and the classroom. Perhaps if the training sessions included

additional classroom situations and excluded problems relative to home and non-classroom milieus, there would be changes in the teachers' ratings. An additional possibility for improving teachers' ratings would be to have teachers provide to the therapist specific problem situations each student had difficulty with in the classroom. With this teacher input and the child becoming aware of which disruptive behaviors concern his teacher, the training and practice on these individualized problems may increase the power of the treatment as its focus becomes more salient to teachers' concerns. Alternatively, lengthening the training program to include both of the suggested areas of emphasis might be most beneficial. However, at some point in the training, concentration would need to shift to a more general approach in order to provide maximum likelihood for generalization to occur (Kendall and Wilcox, 1980; Meichenbaum and Asarnow, 1979; O'Leary and Dubey, 1979). Another factor not investigated here, but which shows some promise, is the finding of Bugental, Whalen and Henker (1977) that shows children with different levels of causal attribution to be differentially effected by the kind of treatment they receive. The Bugental et al. study suggests that children with high personal causation attributions may be more amenable to self-control interventions, whereas the social learning procedure may help those children with low personal causation. Matching the attribution level of the child to the therapy might increase the effectiveness of both interventions and help general-

ization to other situations. Of course, in real life situations a combination of treatments may be best for some children. Further research may be required to indicate what treatment works best with what kind of child.

Limitations of the Treatments

Cognitive Restructuring. There are problems with the CR approach that should be mentioned. In order to get the training procedures started it is necessary to build a favorable relationship with the child. This requires convincing the child that the sessions will be fun or will produce something he wants or can use. Therefore, the training materials need to be interesting and relevant to the child. For children of different ages, sex, and interests there may need to be adaptations made in the materials. Also, it is necessary to schedule the time with the child so that there is not an interference with free activities, recesses, gym periods, or assemblies, if the experimenter wants to maintain the child's interest. That factor cuts down on available school time, and some teachers do not like students leaving classes too often.

The experimenter may need to use social or tangible rewards to get the sessions going (Douglas et al., 1976). Also, children are sometimes embarrassed by "think aloud" tasks and the experimenter needs to overcome that problem. The use of reinforcers may be necessary. Another problem is, once the child leaves the session, there is no guarantee he will use the principles taught. Unless highly-trained observers monitor his behavior, covert self-

instruction exercises will be almost impossible to observe. Parents, teachers and other people who may want to help keep the procedures going may find it difficult to monitor the child's silent self-instructions.

Robin, Armel and O'Leary (1975) found other problems with CR procedures when teaching young children writing skills. Children would self-instruct correctly, but would do the tasks incorrectly. The authors believed that the time required to teach self-instruction decreased the time for direct instruction. They also reported that the amount of improvement gained did not warrant the cost in time. Apparently, some tasks may not be amenable to self-instruction training or not worth the effort.

Social Learning. Although the results of the SL group were significant here and consistent with recent review articles that indicate the utility of SL approaches (Atkeson and Forehand, 1978; Mash and Dalby, 1979) with a variety of problems, the use of SL techniques is not without problems and limitations. First, there is a great deal of teacher and consultant time needed to effectively alter the teacher's style, assuming the teacher is willing to change for only one or two students per classroom. This problem is even more true for changing parents' behaviors. Second, as Kazdin (1975) mentions, the external agents (teachers) may become discriminative stimuli for performance of target behaviors due to their reinforcing qualities, and those behaviors may occur only in their presence. Generalization for these students' behaviors is,

therefore, restricted to those teachers who dispense feedback. Thirdly, teacher feedback or monitoring of the child's behavior is not effective unless the feedback is linked to home-based consequences that are meaningful for the child. Thus, unless the communication process and cooperative behaviors of three links in a chain (teacher-child-parents) are maintained, a breakdown in the program will occur. When more than one teacher becomes involved with a single subject the problems multiply.

Atkeson and Forehand (1979) comment on the need for experimenters to monitor whether or not the parents and teachers actually implement the program as outlined. There is a need to assess how, or if, the parents/teachers do what they are taught, or actually do what they say they do. Patterson et al. (1975) attempted to control for this problem by sending trained observers into the homes and schools. The logistics of such a procedure, let alone the expense, makes such an approach prohibitive, especially when several families are being trained simultaneously. Still, in the present study, we have only the parents' records or verbal reports of their implementation of the techniques. Many parents produced graphs of their home programs that were typical of learning curves for children's behaviors, so the assumption is that parents did implement the procedures. How well or how consistently they were applied was not investigated here.

Finally, response generalization seems unlikely under a SL program, unless it is very systematically programmed into the intervention. One alternative is for parents and teachers to

initiate new contingencies for new behaviors. At some time the parents will have to let the child seek out those reinforcers that occur naturally in the environment. This procedure requires much time and careful training of parents in fading and thinning of home and school contingencies, and for some parents this was difficult to implement in the time allowed in the study.

It is more likely that the child will remain dependent on whatever contingencies are operative in his home and school instead of making lasting changes in non-targeted behaviors. However, some effects of training with SL procedures used here were in effect at follow-up.

To avoid some of the above difficulties several authors (Karlovy, 1977; O'Leary and Drabman, 1971; O'Leary and Dubey, 1979; O'Leary and O'Leary, 1976) have commented on the need for operant self-control procedures that teach children how to evaluate their own performance and self-administer rewards based on agreed upon contingencies. They argue that teaching children how to develop self-control in academic and social skills may free up teachers to teach more and to monitor behaviors less. Bolstad and Johnson (1972) have noted that self-regulated students were at least as effective as externally-regulated students.

Perhaps the inclusion of a self-control operant component may augment generalization of new behaviors learned by behavior problem children who are trained by either a social learning or cognitive restructuring approach.

Dependent Measures

Rating Scales. As mentioned above, the SBCL appears to be an adequate diagnostic tool, but it is relatively insensitive to behavioral changes. Camp, Blom, Herbert and van Doorninck (1977) reported a similar lack of sensitivity of the SBCL. Miller (1972) reports that aggression scores on the SBCL are stable up to 18 months for boys. Perhaps in the future the SBCL might best be used as a diagnostic instrument only. The fact that several SBCL subtests did correlate significantly with Behavioral Observation categories suggests that there is some utility for the SBCL as a diagnostic instrument.

Behavior Problem Checklist. In a review of classification systems, Quay (1979) analyzed the findings on numerous studies using the Behavior Problem Checklist and the classification of behaviors described by the Conduct Disorder category. No fewer than 26 studies interpreted Conduct Disorder to include fighting, hitting and assaultive behaviors--a finding that speaks well for the utility of the BPC as a measure of aggressive, acting out behavior. However, its lack of correspondence with the observations of trained observers is questioned by the results of this study. Of either behavior categories on the latter measure, there were no significant correlations with either Conduct Disorder or Personality Disorder. This finding is difficult to interpret. Either the two scales measure different things, or one is less sensitive than the other. Perhaps the boys seen in this study were aggress-

ive and did not produce sufficient changes in behaviors that the teachers noticed and recorded on the BPC. An alternative explanation might be that observers were more sensitive to changes that occurred following treatment and they reported these changes, while it might take teachers more exposure to the children's new behaviors before teachers noticed these changes.

Behavioral Observations. Hobbs et al. (1980) indicate that behavioral observations by trained observers are essential in school or home environments in order to evaluate the clinical utility of cognitive behavioral therapy. They go on to mention that when observation procedures are used, significant changes in behaviors are seldom observed. The study reported here did register some changes, not significant differences between groups, but some changes as a result of treatment. Hobbs et al. (1980) further suggest multiple outcome measures be employed from school, home and other agencies--a recommendation affirmed and followed here.

Although there are advantages to using behavioral observations (Hobb et al., 1980) there are many difficulties and limitations as well. Bornstein and Quevillon (1976) mention the need for behavioral observers to be subject to frequent reliability checks that are covert. Even then, they report that it is possible for two observers to drift. That fact has established a need for a standard against which observers can be "calibrated." And these procedures are time consuming. Thus, one disadvantage

of the use of observers is the length of training time (30-50 hours in the present study, which is similar to that reported by Abikoff, Gittleman-Klein and Klein, 1977) to bring them up to an acceptable and reliable criteria, and then frequent recalibration (another 3 to 5 hours per observer) is necessary to assure accuracy. That training and recalibration becomes an inconvenience, especially if turnover occurs among observers.

There are logistic problems in using observers. They must acquire permission to enter classrooms from principals and teachers. They have difficulty with time spent in non-observation including: travel to different schools; movement of children in classrooms (i.e., to other rooms, or within a single room); ignoring or avoiding curious and talkative children; discussions of problem children with teaching staff at the teachers' instigation; target child movement (i.e., to French class, or to see the principal or nurse); and deciding which classes to observe (math, spelling, gym). The use of behavioral observers, however desirable, can be an expensive and time-consuming assessment technique.

Psychometric Tests. The lack of findings on the MFF in the present study may be due to the discrepancy between those kind of activities required in the training sessions and the kind of task demands required on the MFF. One of cognitive training's most consistent findings is its ability to modify children's responses on paper-pencil tasks of assessing impulsivity, especially if the

training tasks use psychoeducational materials (Abikoff, 1979). Most studies do find increased response time on the MFF following training (Camp et al. 1977; Douglas et al., 1976; Egeland, 1974; Kendall and Finch, 1978; Moore and Cole, 1978; Meichenbaum and Goodman, 1971, Study 11). In some cases there have been significant changes on MFF error rate as a function of cognitive interventions (Cullinan et al., 1977, Study 11). On the other hand, there are studies that have been unable to produce changes in MFF response time (Cullinan, Epstein and Silver, 1977; Drummond, 1974) as well as error rate (Camp et al., 1977; Drummond, 1974; Meichenbaum and Goodman, 1971, Study I; Moore and Cole, 1978). Most of those that find a MFF improvement have a psychoeducational component in their treatments. But, as Hobb et al (1980) state, the "functional relationships between performance on tests like the MFF or the Porteus maze test and various child problems generally have not been demonstrated . . . test behaviors appear to be neither a relevant target for cognitive-behavioral interventions, nor the most appropriate index for evaluating therapeutic outcome" (p. 160). It is not unlikely that the lack of positive findings on psychometric tests in the present study is a result of differences between the nature of treatment tasks and those tasks required of the psychometric tests. This calls into doubt the appropriateness of tests like the MFF and mazes for assessing social behavior changes in problem children.

The lack of changes on the Story Completion Test (SCT) is

less clear. The nature of the CR group's intervention should closely approximate the task demands of the SCT. Children who are exposed to vignettes and trained in how to alter aggressive impulses by think aloud should have learned the skills consistent with choosing the realistic response on the SCT stories.

However, inspection of pretest means on the SCT suggests that the boys in this age range were approaching a ceiling effect and may have already made the connection of what generally was the appropriate behavior for the children in the stories. Therefore, they know the correct answer, but do not respond on the test accordingly. That the SCT is sensitive to cognitive training is evidenced by the Douglas et al. (1976) study. On the one hand, her subjects were hyperactive children and they were younger than those selected in the present study. This may be an important difference. On the other hand, the students in the present study did not receive the breadth and extent of training that the Douglas et al. students did. Perhaps additional exposure to the materials by CR subjects would have precipitated an effect that would have been measured by the SCT.

The expectation for change on the SCT by the SL group was not as great as for the CR group. The training for SL subjects came through parental instruction and reinforcement. It was expected that parents would focus on school behaviors and pay less attention to social behaviors which make up the bulk of the content in the SCT. However, that group did produce changes on other

measures, so it is conceivable that changes could have registered on the SCT, especially when the objective of the intervention was explained to the child--to reduce his aggressive behavior, and rewards were given following the inhibition of aggressive responses. The SL subjects' pretest scores were also close to ceiling levels. This fact may have precluded a noticeable change from occurring.

Future Research

The present investigation attempted to determine the appropriateness of the CR procedures for aggressive 8 to 12 year old children. The results seem to indicate that the CR procedure is as effective as the more traditional SL interventions. However, future research will need to investigate what combination of treatment components, treatment length, group composition, group size as well as what client and therapist variables are optimal for training aggressive children to be less aggressive.

It appeared that, in the present study, single parent families and for families in which one or more parents were uncooperative in implementing the SL technique, that the CR approach might be an appropriate choice. On the other hand, in those situations where the child attributes causality to external agents or those situations where interventions taking place in the school are an inconvenience, the SL approaches may be more suitable.

It may be worthwhile to determine if general strategy intervention (Meichenbaum and Asarnow, 1979; Kendall and Wilcox, 1980) can be most effective in producing changes in children's classroom

behaviors that teachers will notice. On the other hand, would involving teachers in pinpointing the specific behaviors they want changed and then including the teachers in the treatment procedure be more effective than the general instruction format? Another avenue of investigation is what combination of CR and SL methodologies may be optimal in promoting changes that will be maintained in the child's repertoire and will generalize to other situations.

A further look at the cognitive components mentioned by Bandura (1973), such as the victim's retaliatory potential, the appropriateness of aggression in a situation within the child's social environment, and the effects of self-evaluation following aggressive actions, should be attempted.

Camp, Zimet, van Doorninck and Dehlem (1977) theorized that aggressive boys do not use appropriate mediated controls because they rely on associative rather than cognitive mediation and they may develop a "control deficiency" (i.e., they know the required responses, but they do not use them). The boys in her study were non-responsive to her manipulations due to, in her opinion, a lack of attention to the inappropriateness of aggressive content and the lack of training in prosocial alternatives for aggressive behaviors. Another alternative was suggested by some anecdotal comments given by teachers in the present study. Some examples were given by teachers of how boys in the study would wait until recess to "get even" with someone who had done a perceived injustice. Or a child would wait until the teacher's

attention was diverted and then engage in some "rough stuff," sometimes to get something he wanted. What appears to be happening here is not just impulsive behavior or "inconsistent inhibition of first response," but instrumental aggression, carefully thought out, and judiciously administered with a definite end in mind. Perhaps more research need be spent, not on "stop and think" exercises but on the social fabric of some aggressive children's environments and determine if, as Bandura states, that some aggressive behaviors are emitted due to the perceived lack of retaliation from a victim and the appropriateness of aggression for that child in a given situation. It may be that many children are aggressive because it pays off more often than not and instead of a "control deficiency" they have a "situation appropriateness deficiency."

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APPENDIX A

School Behavior Checklist

School Behavior Checklist

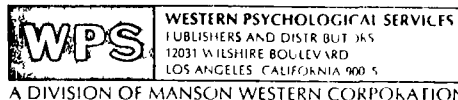
ANSWER SHEET

by Lovick C. Miller, Ph D.

Published by

**Form
A2**

Ages 7-13



Child's Name _____ Date _____

Sex _____ Birthdate _____ Age _____ Grade _____

School _____ Teacher _____

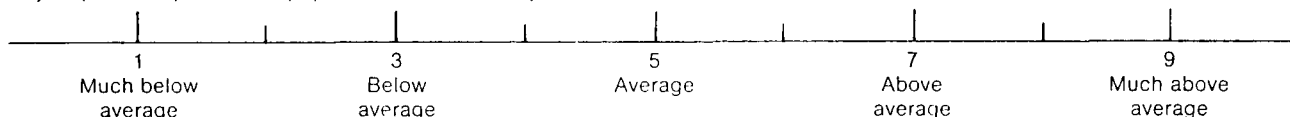
Global Judgments

On items 1-6, read each statement and check "Yes" or "No"

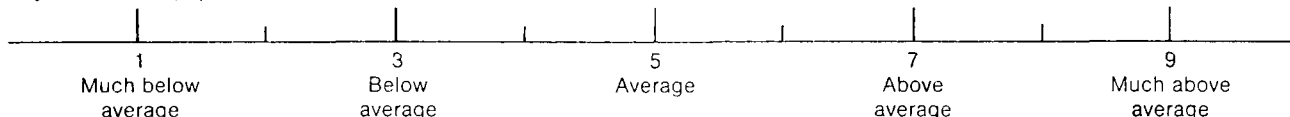
- 1 I would rate this pupil as one of the best adjusted I have known in my teaching career YES _____ NO _____
- 2 I would rate this pupil as one of the most seriously disturbed I have known in my teaching career YES _____ NO _____
- 3 I think this child should be referred for treatment for an emotional problem YES _____ NO _____
- 4 This child is currently receiving treatment for an emotional problem YES _____ NO _____
- 5 I think this child should be referred for special education for a learning disability YES _____ NO _____
- 6 This child is currently receiving special education for a learning disability YES _____ NO _____

On items 7-11, please rate child on a 9-point scale. Feel free to place an X anywhere along the line between 1 and 9.

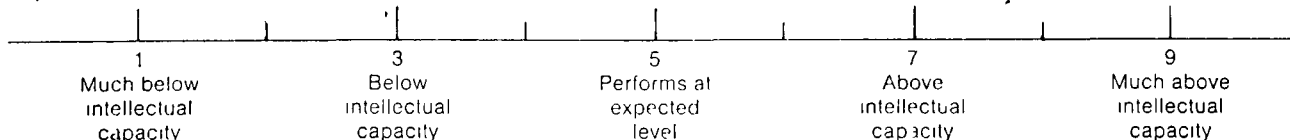
7 How would you personally rate this pupil's intellectual ability?



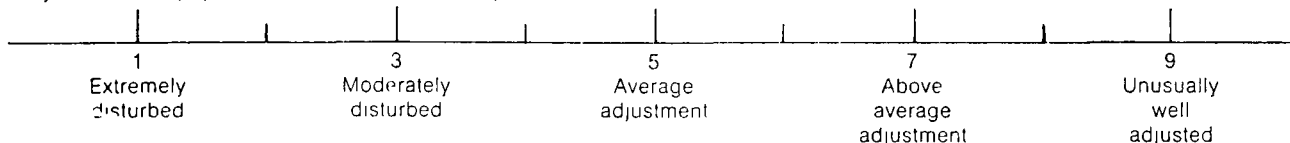
8 How would you rate this pupil's academic skills?



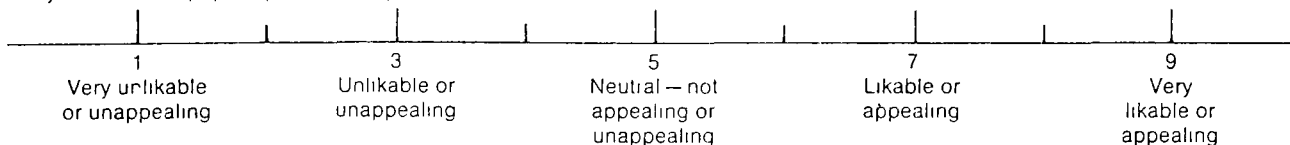
9 How would you rate this pupil's overall academic performance?



10 How would you rate this pupil's social and emotional adjustment?



11 How would you rate this pupil's personal appeal?



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1 2 3 4 5 6 7 8 9

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43. Seems dull; slow to catch on

44. Will not ask questions even when unsure as to how to do the work

45. Fights back if another child has been asking for it

Julies

70 Does things that are normal for children much younger

71 Never sticks up for self when picked on by other children

72 When angry, threatens to hurt other children

73 IQ (Intelligence Quotient) average or above

74 Does not take orders when other children are in charge

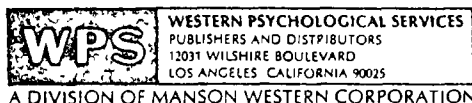
School Behavior Checklist

by Lovick C. Miller, Ph.D.

**Form
A2**

Ages 7-13

Published by



DIRECTIONS

The statements on this checklist are often used by teachers to describe children's behavior. Read each statement and decide whether it describes the child being rated. If it does, blacken the space for that item under "T" on the separate answer sheet; if not, blacken the space under "F" on the answer sheet. It is important to mark EACH statement. If you are in doubt, blacken the answer that is most characteristic of the child.

STATEMENTS

- | | |
|---|---|
| 1 Is friendly | 20 Does things to get others angry |
| 2 Tends to give up if has something hard to finish | 21 Will put up an argument when told not to do something |
| 3 Interrupts whoever is speaking | 22 Does homework |
| 4 Penmanship (handwriting) at least one grade level below age expectation | 23 Teases other children |
| 5 Starts fighting over nothing | 24 Is afraid of making mistakes |
| 6 Is a helpful child | 25 Is bossy with other children |
| 7 Is alert in class | 26 Is easily upset by changes |
| 8 Poorly coordinated when using hands such as in coloring or pencil work | 27 Is sure of self |
| 9 Reading ability at least one grade level below age expectation | 28 Uses abusive language toward other children |
| 10 Just stands around on the playground | 29 Has changeable moods |
| 11 Acts up when adults not watching | 30 Gives in when another child insists on doing something another way |
| 12 Volunteers to recite in class | 31 Does not respect other people's belongings |
| 13 Hits and pushes other children | 32 Does not forget things which anger her/him |
| 14 Hands shake or is nervous when called on to recite | 33 Seems to be off in own world |
| 15 Finds fault with what other children do | 34 Is infuriated by any form of discipline |
| 16 Approaches a difficult task with an air of defeatism | 35 Likes an audience all the time |
| 17 Is considerate of others | 36 Finds it hard to study |
| 18 Fails to carry out tasks (homework assignments, seat work, etc.) | 37 Has to have everything own way |
| 19 Lacks ambition to do well in school | 38 Works well alone |
| | 39 When angry, will refuse to speak to anyone |
| | 40 School performance is far below capabilities |

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es

43. Seems dull, slow to catch on
- 44 Will not ask questions even when unsure as to how to do the work
- 45 Fights back if another child has been asking for it
- 46 Never seems to be still for a moment
- 47 Argues with me
- 48 Is able to concentrate on things
- 49 Boasts of own toughness
- 50 Seems to think of self as worthless
51. Tries to be the center of attention
- 52 "Drags feet" when requested to do something
- 53 Accepts suggestions of adults
- 54 Sulks when things go wrong
- 55 Becomes frightened easily
- 56 Resents even the most gentle criticism of work
- 57 Distractible, can't concentrate
- 58 Able to see the bright side of things
- 59 Fights with smaller children
- 60 Spelling performance at least one grade level below age expectation
61. Fearful of being hurt at play
62. Is stubborn
- 63 Never speaks up even when there is cause to be angry
- 64 Is interested in schoolwork
- 65 Tries to get other children into trouble
- 66 Does things just to attract attention
- 67 Never fights back, even if someone hits or pushes first
- 68 Prefers to be around adults, rather than play with children
- 69 Is popular with classmates
- 70 Does things that are normal for children much younger
- 71 Never sticks up for self when picked on by other children
- 72 When angry threatens to hurt other children
- 73 IQ (Intelligence Quotient) average or above
- 74 Does not take orders when other children are in charge
- 75 Prefers to be alone and play alone
- 76 Finishes classroom assignments
- 77 Gives other children dirty looks
- 78 Deliberately interrupts what is going on by asking silly questions
- 79 Slow in making friends
- 80 Seems as happy as most children
- 81 Finds fault with instructions given by adults
- 82 Seems unconcerned when misbehaving
- 83 Cries easily
- 84 Is afraid of strange adults
- 85 Is self-confident
- 86 When angry, will do things like slamming the door or banging the desk
- 87 Acts in a "dare-devil," fearless manner
- 88 Has difficulty speaking clearly when excited or upset
- 89 Has a "chip on shoulder"
- 90 Becomes embarrassed easily
- 91 Bright, but doesn't apply self (underachiever)
- 92 Disturbs other children with boisterous behavior
- 93 Behind at least two school grades due to academic difficulties
- 94 Arithmetic skill at least one grade level below expectation
- 95 Unusually afraid of such things as storms, school, death, injury (phobic)
- 96 Frequent headaches, stomach aches or other non-specific physical complaints

APPENDIX B

Behavior Problem Checklist

APPENDIX B

Behavior Problem Checklist

Donald R. Peterson, Ph.D. and Herbert C. Quay, Ph.D.

Children's Research Center
University of Illinois
Champaign, Illinois

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Donald R. Peterson, 1967

Col. No.

Please complete items 1 to 6 carefully.

(1-8)

1. Name (or identification number) of child

(9-10)

2. Age (in years) _____

(11)

3. Sex _____ (Male - 1; Female - 2)

(12)

4. Father's occupation _____

(13)

5. Name of person completing this checklist

(14)

6. Relationship to child (circle one)

a) mother b) father c) teacher d) other _____
(specify)

Please indicate which of the following constitute problems, as far as this child is concerned. If an item does not constitute a problem, encircle the zero; if an item constitutes a mild problem, encircle the one; if an item constitutes a severe problem, encircle the two. Please complete every item.

(15) 0 1 2

1. Oddness, bizarre behavior

(16) 0 1 2

2. Restlessness, inability to sit still

(17) 0 1 2

3. Attention-seeking, "show-off" behavior

(18) 0 1 2

4. Stays out late at night

(19) 0 1 2

5. Doesn't know how to have fun; behaves like a little adult

(20) 0 1 2

6. Self-consciousness; easily embarrassed

Cont'd on page 2

APPENDIX C

Observers Training Manual

Appendix C

OBSERVERS TRAINING MANUAL

This manual combined with additional training should guide and help individuals to become extremely expert and confident as observers. In the earlier discussions it will be demonstrated that people usually have different interpretations and definitions of events even though they use a common language. Unfortunately, there is much imprecision in communication and individual differences in background, training and perception that contribute to the lack of reliability among observers. Even after training has occurred the ability to categorize and define behavioral events changes within observers and also between observers as a function of such factors as drift, halo effects, fatigue and other factors. Occasionally new problems arise as a result of unusual or extreme behaviors that change the frame of reference as well for some observers. For these reasons this manual has been developed to help minimize inaccuracies that might occur.

First, it is essential that observers become aware of the global nature of this study, its importance, and their role in it to help give some meaning to their behavioral observations. The study is an attempt to compare different treatments on children who manifest somewhat severe behavior problems in the school and at home. Some of the children being observed will be receiving one kind of treatment, while others will be receiving another. Research in the past has shown that each of these treatments can be effective with children. However, it is necessary to determine which one is the most effective, both in the short term, and more importantly, in the long term. To do this will require multiple assessment phases, one before treatment, immediately following and another during the follow-up phase. Considerable benefits may accrue to the children, the parents, the school and to the therapists of the treatment facilities if it can be demonstrated which or if

all treatments are effective. The observers' function then is to, as accurately and consistently as possible, rate each child's behavior as it happens in their presence.

However, past experience with many raters in a multitude of settings has shown that observers can be influenced significantly if they know in advance the specific hypotheses being tested or if the observers are aware of which treatment group the people they are watching belong to. This is explained as expectancy effects; which means unconsciously or consciously the rater may want to help make the experimenter or subjects look good or bad. Since this is a frequent occurrence it is necessary to attempt to have observers remain uninformed as to the specifics of the experiment and which children are being treated one way or another. This procedure will help ensure their objectivity. After the experiment observers will meet with the experimenter and discuss in detail the experiment, the outcomes and what importance the observations had on the conclusions.

Another factor that has been found to effect observer objectivity is called halo effects; which is defined as the process of perceiving a person consistently in a good light because he did something well initially. Some of the children under observation will be brighter, cuter, or more attractive than others. On the other hand some of the children observed will have a negative subjective impact on those observing. Therefore it is extremely important to be on guard while observing and record only objective behaviors that occur and not allow subjective impression to cause one to bend the rules because the observer would like or want a particular child to score well, or another child to appear to not do well,

Still another factor that changes observer perceptions is called practive effects, which is defined by a change in rating as a function of becoming more familiar with instruments. Hopefully by the time we move to

the "real" classroom situation this problem will have been controlled by previous training. In spite of careful training, over time, it is possible for a slow change to occur in how observers rate behaviors due to a slow changing of the definition of observed behaviors. This is called drift, and occurs in almost all rating situations. To combat this change observers will meet together at least once per assessment phase and "recalibrate" with the tapes and with the experimenter.

This procedure is used for several reasons. First, it helps find difficulties or grey areas in the coding system. Thus, it may be necessary to redefine or "tighten-up" our categories as a result of discussions and practice. Second, it provides the experimenter with an estimate of how accurate and reliable the behavioral measures are over time. High reliability between two competent raters indicates that what is desired to be measured is being measured. For all of these reasons reliability checks will be occurring all the time.

It is important that observers adopt the attitude of working together as a team, instead of adopting a competitive attitude. To help achieve this objective observers will meet together and rate behaviors independently, then will discuss their results. Any discrepancies in observations will be discussed to help clarify definitions of behaviors, and then come to a consensus of opinion over areas that may need clarification. Procedurally this will be done by discussion, reference to the manual and if necessary changing the categories either by collapsing categories, expanding the definitions for greater clarity, including additional categories

or whatever other methods seem appropriate.

Hopefully, the observation scale will provide an exhaustive method of rating. In other words, for every observation period something occurs that can be rated by the present categories. On some occasions during observation more than one behavior may occur in the 20 second interval. This is all right as long as the behaviors can be recorded by the present scale and two raters can agree that more than one behavior occurred during the same period. If a problem occurs that does not fit into the presently defined system and needs clarification it is essential to contact Greg Hafen as soon as possible so a decision can be made. If necessary, he will then communicate the new decision to all raters immediately and will provide a written explanation for the change. There is space at the bottom of each rating scale for written comments. Use this space to communicate unusual situations or problems that may effect an individual record and/or have impact on the rest of the ratings.

Procedural Instructions

Training procedures. The format for training will follow four steps. Essentially they are progressive and intended to ensure adequate precision is obtained and maintained. These steps are:

1. Manual training. During this phase observers will become familiar with the definitions of each behavior category. They will also become familiar with the coding forms used in data collection. In addition, each observer will need to become familiar with the interval timer and how to code with the earphones in their ears. The procedure of two raters coding simultaneously will be introduced also.

2. Video tape or film training. Actual or simulated situations on video tape or films will be used to help refine skills. This procedure will allow "stop action" training so discussion of any disagreement can occur. This procedure will help ensure accuracy as well. Fine distinctions between categories and increasing interrater reliability should occur during this phase.

3. Classroom training. At this stage observers will receive the permission of teachers to enter a classroom and observe specific children. It is extremely important at this stage to learn how to be as unobtrusive as possible. Observers will want to blend into the background; otherwise, their presence may have an unnatural effect on the behaviors of the children. This effect is called reactivity. These classroom sessions will be relatively short and will be used to refine skills, provide discussions of separate ratings and solve any problems that occur at this time.

4. Accuracy retraining. Periodic "recalibration" sessions will occur throughout the observation phase. Each observer will return to videotaped material as well as field studies to ensure inter-observer agreement and control for drift.

Rating Procedures. Following the training phase, schedules for each observer will be compiled so as to enter the schools and do individual and reliability ratings. Procedures observers will need to attend to during these visits are the following:

1. Observers should inform the school of their intent to observe and receive the permission of the teachers and the principal. Public relations are a fundamental key to success of the project. Every principal wants to know what is going on in his school before it happens. A telephone call prior to arrival is a good way to

inform the school observers are coming and also will prepare them for unexpected events such as PD days, class excursions, etc. The principal may then inform the teacher(s) of the observers' impending visit.

2. Upon arriving at the school observers should check in with the office, so as to confirm with the administration that the observers are in the school.

3. When observers enter the classroom, they should as quietly as possible, notify the teacher which child(ren) they want to observe so the teacher can unobtrusively point the child(ren) out for them. If the teacher can provide a seating chart that may be a better procedure. Check to see that the child(ren) to be observed is (are) in attendance for that day.

4. The teachers will be requested to inform the class that observers are there to observe how teaching occurs in that school. The observers' role is to remain in the shadows as much as possible Do not respond to children and attempt to not let the observed child(ren) know he is being concentrated on.

5. Observers should have their rating sheet filled out (child's name, observer's name, start time, teacher etc.) prior to inserting the earphone and starting the session. Have the behavior categories available to checking of definitions.

6. The first tone should be the observer's signal to begin observation. The observation time is 20 seconds. During this time concentrate on the behaviors the child emits. The second tone is the signal to record on the rating sheets (10 seconds). At this time record on the sheets the behavior(s) observed during the

previous 20 seconds. Any behavior that occurs during the 10 second record phase is not to be marked. Only behaviors occurring during observation periods are recorded. Some behaviors may overlap two observation phases. Record this as two events.

7. Following the first record (10 second) segment another observation (20 second) phase begins followed by the second record phase and so on. In the 20 minutes of total observation during a session an observer should make 40 observations and thus fill in each record block on the record sheet.

8. At the end of 40 observations (20 minutes) stop observations for the child originally selected. If there is another child in the same class, and there is sufficient time before a major break, begin recording the second child using the same procedures outlined above, otherwise move on to the next classroom.

9. During observation periods the classroom activities may change. During the record cycle note such changes to the left of the record box that coincides with the change in activity, e.g. S,I 12 ☐ equals structured, individual activity occurring during segment 12. But if for segment 13 the teacher gives directions to meet in groups and to work on a project that may be recorded as U,G 13 ☐ meaning unstructured group activities.

10. Classroom activities fall into the following two sets of categories and five subcategories.

A. Classroom structure

S = Structured: The teacher has provided clear guidelines for children to follow in carrying out tasks.

U = Unstructured: Guidelines are vague or unclear to the observer, i.e. the students may determine what they want to do in terms of academic activity and/or non-intellectual behaviors.

B. Classroom groupings:

I = Individual: The majority of students doing work by themselves. To be scored even if an individual requests help from peers or teacher.

G = Group: Class as a unit engaged in academic activity, e.g. teacher lecturing, student reciting while entire class is listening. Also when small groups are used in classes.

T = Transitional: When class is between activities, e.g. waiting for recess, lining up for lunch, class returning from recess. Teacher indicates reading period has finished, but provides no directions for next task. When instructions come from teacher to change from group to individual and vice versa.

11. It is possible and probable that sometime during an observation-something will occur that interferes with the observation, e.g. fire drills, the child is sent to the office, equipment failures, etc. Please note when such events happen at the bottom of the report form. If less than one-half of the 40 observation periods were not recorded, attempt to make arrangements to return to the class for another observation period. If 21 or more observations occurred prior to the interruption, that will be considered a session if a note occurs at the bottom of the page. If the interruption is minor or for a short time and it is possible to pick up again, please attempt to do so. However, it is still necessary to make the appropriate comments at the bottom of the rating page.

12. When there are two raters working on observing the same child make sure both raters have indentified the same child and both raters begin at the same time. After each observation session begins each rater will continue as if the other rater is not there. It is important that all raters are confident in their own ability to rate accurately. Therefore, confer with each other only after the observation session is over. Both observers should start and finish simultaneously.

13. At the end of an observation session count up the total of each behavior category and put the respective sums in the spaces provided at the bottom. DOUBLE CHECK THAT THE CHILD'S NAME IS ON THE SHEET, YOUR NAME, THE TIME OF DAY AND ALL INFORMATION IS COMPLETE PLEASE DON'T LOSE THE FILLED IN SHEETS. Place the sheets in a folder or large envelope for safe keeping. Turn them into Mr. Hafen as soon as possible.

On the following pages is listed the behavior categories, their short title and codes. Study each until they are very familiar. Following the coding sheets are example rating sheets.

APPENDIX D

Behavior Rating Scale

Appendix DBehavior Rating Scale

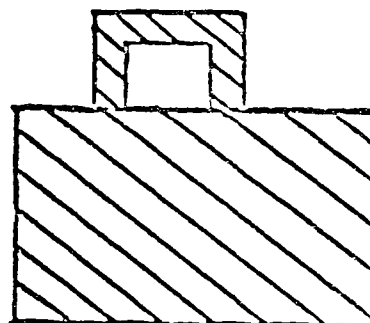
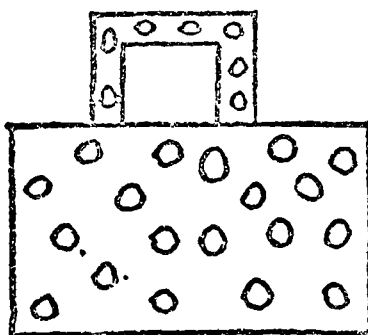
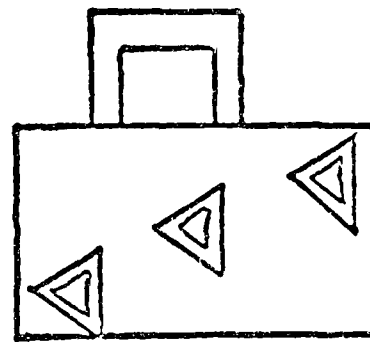
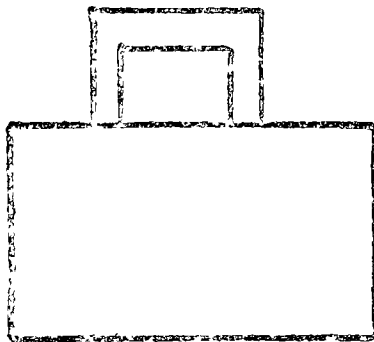
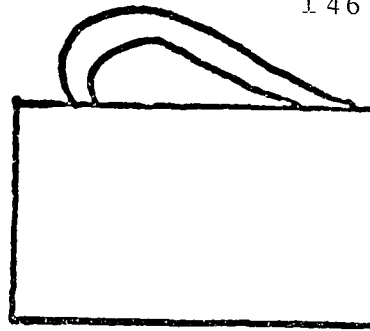
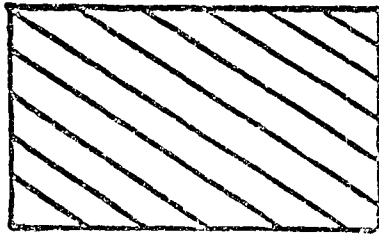
<u>Symbols</u>	<u>Class Label</u>	<u>Class Definition</u>
A	Physical aggression towards people	Child makes an intense movement directed at another person so as to come in contact with him directly or with an object as an extension of self, regardless of accuracy of attack. Taunts or provokes. <u>Includes:</u> Hitting, kicking, shoving, pinching, slapping, biting, pulling hair, striking with an object, throwing object at another person, poking with an object, attempting to strike, tripping. <u>Excludes:</u> Brushing against another, unless continually repeated and obviously purposeful.
VA	Verbal Aggression	Child makes a verbal expression directed at another person so as to intimidate, retaliate or annoy other person. Requires rater to impute intention to subject of desire to upset, disturb or "get back at" another individual. <u>Includes:</u> Verbal threats, calling person names, teasing, taunting, shouting, verbal obscenities, statements of noncompliance (e.g., I won't do that), talking back, statements that could "hurt" others (e.g., "stupid", "you can't do anything right". "Hey Fatso", "I'll get you at recess".) Loud noises directed at another child or teacher. <u>Excludes:</u> Loud noises, talking etc. that does not have elements of aggressive intent (i.e. see V N & T below).
OA	Object Aggression	Child attempts to disrupt or destroy the property of others as well as his own. <u>Includes:</u> Grabbing, destroying the property of another, breaking school materials normally durable for everyday use, breaking personal possessions. Slamming an object down on desk with force, kicking objects. Tearing books and other materials. Taking objects away from others, writing on another's work, desk, textbook. <u>Excludes:</u> The use of shared objects (e.g. rulers, art material). Normal wear and tear of objects.

Symbols	Class Label	Class Definition
VN	Verbal disruptive material	Child makes vocalizations that are inappropriate for the situation. <u>Includes:</u> Answering teacher without raising hand or without being called on, making comments or calling out remarks when no question has been asked, calling teachers name to get her attention, crying, screaming, singing, whistling, laughing loudly, moaning, yawning, belching, talking to self but audible. <u>Must be undirected to a particular child, but may be directed to teacher.</u> <u>Excludes:</u> Vocalizations in response to teachers question; sneezing, automatic coughing.
N	Noise	Child creating any audible noise without permission, other than vocalization. <u>Includes:</u> Moving desk around, pencil tapping, banging of any object, clapping hands, tapping feet, rattling or tearing papers. Fishing in desk without coming out with anything, or producing inappropriate object. Any noise made while getting out of chair without permission. <u>Excludes:</u> Accidental dropping of objects, pushing chair back and forth once during permitted activity, shuffling feet (if only once each way). Be conservative. Has to be audible with eyes closed.
X	Inappropriate gross motor activity	Child moves most, if not all, of body in inappropriate manner during activities not requiring such activity. <u>Includes:</u> Getting out of seat without permission or when not appropriate for activity, standing up, running, hopping, jumping, walking around, rocking in chair, disruptive movement without noise, dancing, play acting, posturing, non-aggressive gestures. <u>Excludes:</u> Moving from seat to floor or other rooms if activity requires movement. Quiet and orderly retrieval of objects or materials related to activity.

Symbols	Class Label	Class Definition
T	Talking	Child carries on conversation with other child, when not part of activity. <u>Must be directed to particular child or children or teacher.</u> <u>Includes:</u> Whispered conversation, inaudible to observer but elicits response from other child. Laughing softly, belches. <u>Excludes:</u> Verbal aggression items (VA) above; projects that require communication in which subject is a part.
C	On-task or relevant behaviors	Child attends to appropriate people or assigned tasks. Looks at teacher or students engaged in school related activities. <u>Includes:</u> Answering questions, listening, hand raising, reading aloud and silently or looking in books or at other materials related to task at hand. Writing or drawing on assigned material, copying from the board. Discussing topic, moving to get reference or other activity related materials with teacher's permission. Child must be engaged in on-task activities for whole 20 seconds except for orienting responses of less than 4 seconds duration. (Looking up or around for less than 4 seconds.)
II	Other	Child engages in other activities than those mentioned above. <u>Includes:</u> Ignoring teacher's questions or command, doing unassigned activity (includes minor motor activity such as playing with pencil when supposed to be writing), day-dreaming, looking around room or out windows, minor teases, minor activities while on task. To be used when other ratings not appropriate.

APPENDIX E

Matching Familiar Figures Test



Appendix E Continued

MFF Score Sheet

Name _____ School _____
 Address _____ Teacher _____
 Date of Birth _____ Examiner _____
 Date of Test _____ Child's age _____
 Administration 1 2 3 Time end _____
 Time begin _____
 Total test time _____

MFF #	Time to 1st Respond	# of Errors	Comments
EX A.			
EX B.			
1 house (1)			
2 scissors (6)			
3 phone (3)			
4 bear (1)			
5 tree (2)			
6 leaf (6)			
7 cat (3)			
8 dress (5)			
9 giraffe (4)			
10 lamp (5)			
11 boat (2)			
12 cowboy (4)			

total time _____

total errors= _____

divided by 12

divided by 12

Average time= _____

Average errors= _____

APPENDIX F

Story Completion Test

Appendix G

STORY COMPLETION TEST

The three types of endings are noted: A - aggression

W - withdrawal or dependency

R - realistic problem
solving or acceptance
of the situation

1. During the past month, Roger had practiced running in his gym class. As far as he knew, he was the fastest runner in his class. Because of this, he could hardly wait for the school field day at the end of the year when prizes were given for the winners of sports events. Roger and all of his friends felt sure that he would win and get first prize. The race began. Roger was well out in front, neck and neck with a fellow from another class. Suddenly, just as Roger was gaining speed, he tripped. There was no chance for Roger to catch up so he was out of the competition.

1) Roger got up and finished the race though he felt terrible. (R)

2) Roger yelled at everyone that the race was unfair...he kept saying that they should run it again. (A)

3) Roger just sat there on the ground and cried. (W)

2. Bill worked hard all week saving his money to go to the weekend fair. He wanted to see the clowns, the horse show and all kinds of things he didn't usually see. On Tuesday, Bill spent the day at his friend's house. His friend hadn't felt too well then. On Wednesday, the doctor said his friend had the measles. By Friday, Bill was feeling quite sick too. Bill broke out in spots. He had caught the measles from his friend. He would have to miss the fair.

Appendix G

1) Bill was in a bad mood all weekend. He wouldn't talk to anyone. (W)

2) Bill began to cry and scream when he found out he would miss the fair. (A)

3) Bill was so upset, he felt like crying...but he called up his friend who was also sick and they talked. (R)

3. On Wednesday afternoons, at Bob's school, you were allowed to work on some project of your own. Bob was working on his model of the city. Everyone had praised it and he was very proud. He planned to finish it this afternoon because he wanted to enter it in the local art competition. While everyone was working in the class, a boy came along and caught his sweater on the side of the model...it fell on the floor. It broke into little pieces. There was no time to make another one before the contest.

1) Bob felt awful, but he knew it hadn't been done on purpose. (R)

2) Bob gave the other boy a good punch for being so sloppy. (A)

3) Bob cried and told the teacher his model was broken. (W)

4. John looked forward to the weekend when he and his friend would put together his new space rocket. It was going to take two people to build it...one to hold it while the other spread the glue. John had got it for his birthday a few weeks ago, but hadn't had anyone to help him with it, since his father was out of town for the month. So, he had planned all of Saturday to do this with his friend. His friend had promised to come over at ten o'clock sharp. By one o'clock, he still hadn't come. John phoned his home. It turned out that his friend had gone fishing that morning with another boy instead. John couldn't even start working on his rocket.

Appendix G

- 1) John decided he wasn't a very good friend after all and he didn't talk to him for quite a while (R)
- 2) When John saw the other boy, he beat him up. (A)
- 3) John went and told his mother what a bad thing had happened to him. (W)

5. It was Rick's birthday and all his friends had come to his house for a party. They had had a Bar-B-Q in the back yard and Rick was going to open his presents now. Rick was especially interested in one of his presents from a friend that he liked a lot. His friend liked books, but Rick really liked fishing and wanted a fishing rod. He opened up the present. It was a book after all. Rick was very disappointed.

- 1) Rick was so disappointed that he went to his room and wouldn't come out for the rest of the party. (W)
- 2) Rick was disappointed but he thanked the boy anyway. (R)
- 3) Rick was really angry and he threw the present back at the other boy in front of everyone. (A)

6. Nick's favorite show was on TV tonight. So, he rushed home early and did all his homework instead of going out to play with his friends. But, Nick's mother had a friend over for dinner and the lady's son had come with her. When the time came for the program Nick wanted to see, the other boy wanted to see something else. He went over to change the dial. He turned it too hard and it stuck between the channels. The repairman came only the next morning, so Nick not only missed his favorite program but didn't see TV at all that night.

Appendix G

- 1) Nick was angry. He told the other boy he'd really done a stupid thing. (R)
- 2) Nick was so angry that he hit the other boy. (A)
- 3) Nick went into his room and cried. (W)

7. It was holiday time. Jim and his friends had decided that while on holidays they were going to do things together each week. This week, they were going to the opening baseball game. One of his friends was going to check the time to be at the park. Everything was ready. They were going this afternoon. When they got to the park, they realized that the other boy had made a terrible mistake about the time. They were late...the game was just over and the boys were very disappointed.

- 1) Jim and his friends hit the other boy they were so angry at him. (A)
- 2) Jim realized that the boy hadn't done it on purpose, so he told him that he should be more careful next time. (R)
- 3) Jim sat in the bleachers and wouldn't talk to anybody. (W)

8. It was Saturday and Dan and his friends were going to the movies. This was a good show, so the lineup was long. But, they finally got into the theatre. They settled down with their drinks and popcorn and the show began. Just then, two tall boys came and sat right in front of them. They sat in the last two empty seats in the theatre. Dan and his friends couldn't see the show at all and so they missed all the most important parts.

- 1) After the show, Dan told his friends what a crummy time they had had. (W)

Appendix G

- 2) After the show, Dan and his friend felt angry at themselves for not having asked the boys to move or slouch in their seats. (R)
- 3) Dan and his friend fooled around during the movie so the other boys couldn't hear what was going on. (A)

9. This was the best Halloween party Jack had ever been to. There were candy apples and games and everyone had to come in costumes. There were to be prizes for the best costumes. Jack's mother had worked all week on his costume and he thought he was sure to win a prize. When it was time to line up for the judging, everyone rushed to see. Someone bumped into Jack and spilled grape drink all down the front of his suit. His suit was ruined, so he couldn't enter the contest and didn't win a prize.

- 1) Jack was so upset he began to cry. He left the party early. (W)
- 2) Jack was angry at the boy. He turned around and hit him. (A)
- 3) Jack was upset about his costume, but he took part in the other games later. (R)

APPENDIX G

ANACOVA of School Behavior Checklist
Low Need for Achievement Factor

APPENDIX G

ANACOVA of School Behavior Checklist
 Low Need for Achievement Factor
 Posttest and Follow-up

Posttest

Source	df	MS	F
Group	2	1.135	0.969
Explained	3	669.231	0.000
Residual	36	35.813	
Total	39	84.538	

Follow-up

Source	df	MS	F
Group	2	1.352	0.979
Explained	3	801.338	0.000
Residual	36	62.343	
Total	39	119.189	

* $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX H

ANACOVA of School Behavior Checklist
Aggression Factor

APPENDIX H

ANACOVA of School Behavior Checklist
Aggression Factor
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	10.239	0.103
Explained	3	577.619	5.784**
Residual	36	99.864	0.002
Total	39	136.614	

<u>Follow-up</u>			
Source	df	MS	F
Group	2	24.380	0.183
Explained	3	1093.811	8.227***
Residual	36	132.948	
Total	39	206.860	

* $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX I

ANACOVA of School Behavior Checklist

Anxiety Factor

APPENDIX I
ANACOVA of School Behavior Checklist
Anxiety Factor
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	179.964	2.649 ^T
Explained	3	640.815	9.434***
Residual	36	67.929	
Total	39	111.997	

<u>Follow-up</u>			
Source	df	MS	F
Group	2	594.874	6.447**
Explained	3	936.023	10.145***
Residual	36	92.268	
Total	39	157.173	

T Trend
 * $\underline{p} < .05$
 ** $\underline{p} < .01$
 *** $\underline{p} < .001$

APPENDIX J

ANACOVA of School Behavior Checklist

Academic Disability Factor

APPENDIX J

ANACOVA of School Behavior Checklist
Academic Disability Factor
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	43.335	1.128
Explained	3	643.733	16.754***
Residual	36	38.422	
Total	39	84.984	

<u>Follow-up</u>			
Source	df	MS	F
Group	2	72.422	1.043
Explained	3	603.590	8.692***
Residual	36	69.444	
Total	39	110.532	

* $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX K

ANACOVA of School Behavior Checklist

Hostile Isolation Factor

APPENDIX K

ANACOVA of School Behavior Checklist
Hostile Isolation Factor
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	86.224	1.283
Explained	3	339.187	5.046**
Residual	36	67.220	
Total	39	88.141	

<u>Follow-up</u>			
Group	2	74.638	1.438
Explained	3	423.036	8.153***
Residual	36	51.889	
Total	39	80.438	

* p .05
 ** p .01
 *** p .001

APPENDIX L

ANACOVA of School Behavior Checklist

Extraversion Factor

APPENDIX L

ANACOVA of School Behavior Checklist
Extraversion Factor
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	126.795	0.772
Explained	3	1391.522	8.477***
Residual	36	164.144	
Total	39	258.557	

<u>Follow-up</u>			
Source	df	MS	F
Group	2	43.094	0.371
Explained	3	1485.311	12.803***
Residual	36	116.011	
Total	39	221.342	

* $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX M

ANACOVA of School Behavior Checklist

Total Disability Factor

APPENDIX M

ANACOVA of School Behavior Checklist
Total Disability Factor
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	4.695	0.048
Explained	3	325.448	3.302*
Residual	36	98.573	
Total	39	116.025	

<u>Follow-up</u>			
Source	df	MS	F
Group	2	54.301	0.419
Explained	3	475.275	3.669
Residual	36	129.548	
Total	39	156.143	

* $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX N

ANACOVA of Mother's Conduct Disorder

APPENDIX N

ANACOVA of Mother's Conduct Disorder Ratings for
Posttest and Follow-upPosttest

Source	df	MS	F
Group	2	34.548	9.827***
Explained	3	161.101	45.822***
Residual	34	3.516	
Total	37	16.293	

Follow-up

Source	df	MS	F
Group	2	38.239	8.414***
Explained	3	96.150	21.156***
Residual	34	4.545	
Total	37	11.972	

* $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX O

ANACOVA of Mother's Personality Disorder

APPENDIX O

ANACOVA of Mother's Behavior Problem Checklist
 Personality Factor
 Posttest and Follow-up

Posttest

Source	df	MS	F
Group	2	34.548	9.827***
Explained	3	161.101	45.822***
Residual	36	3.516	
Total	39	16.293	

Follow-up

Group	2	38.239	8.414***
Explained	3	96.150	21.156***
Residual	36	4.545	
Total	39	11.972	

* $\underline{p} < .05$
 ** $\underline{p} < .01$
 *** $\underline{p} < .001$

APPENDIX P

ANACOVA of Teacher's Conduct Disorder

APPENDIX P

ANACOVA of Teacher's Behavior Problem Checklist
 Conduct Disorder Factor
 Posttest and Follow-up

Posttest

Source	df	MS	F
Group	2	0.130	0.018
Explained	3	109.440	15.506***
Residual	36	7.058	
Total	39	14.933	

Follow-up

Source	df	MS	F
Group	2	8.035	0.870
Explained	3	125.141	13.546***
Residual	36		
Total	39		

* $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX Q

ANACOVA of Teacher's Personality Disorder

APPENDIX Q

ANACOVA of Teacher's Behavior Problem Checklist
Personality FactorPosttest

Source	df	MS	F
Group	2	5.281	1.168
Explained	3	70.316	15.547***
Residual	36	4.523	
Total	39	9.584	

Follow-up

Source	df	MS	F
Group	2	12.595	2.836 ^T
Explained	3	64.041	14.421
Residual	36	4.441	
Total	39	9.026	

T Trend
 * $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX R

ANACOVA of Matching Familiar Figures Test

Error Factor

APPENDIX R
ANACOVA of Matching Familiar Figures Test
Error Factor
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	0.051	0.403
Explained	3	0.892	7.101***
Residual	36	0.126	
Total	39	0.185	

<u>Follow-up</u>			
Source	df	MS	F
Group	2	0.084	0.308
Explained	3	0.057	0.209
Residual	36	0.273	
Total	39	0.256	

* $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX S

ANACOVA of Matching Familiar Figures Test

Latency Factor

APPENDIX S

ANACOVA for Matching Familiar Figures Test
Latency Factor
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	18.298	1.248
Explained	3	133.021	9.075
Residual	36	14.658	
Total	39	23.763	

<u>Follow-up</u>			
Source	df	MS	F
Group	2	75.918	0.693
Explained	3	118.368	1.081
Residual	36	109.500	
Total	39	110.182	

* $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX T

ANACOVA for Story Completion Test

Aggressive Factor

APPENDIX T

ANACOVA For Story Completion Test
Aggressive Responses
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	0.396	0.389
Explained	3	6.151	6.042**
Residual	36	1.018	
Total	39	1.413	

<u>Follow-up</u>			
Group	2	0.078	0.083
Explained	3	5.434	5.822**
Residual	36	0.933	
Total	39	1.279	

* $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX U

ANACOVA for Story Completion Test

Withdrawal Factor

APPENDIX U

ANACOVA for Story Completion Test

Withdrawal Factor
Posttest and Follow-upPosttest

Source	df	MS	F
Group	2	3.854	2.659 ^T
Explained	3	5.932	4.093*
Residual	36	1.449	
Total	39	1.764	

Follow-up

Source	df	MS	F
Group	2	1.090	0.520
Explained	3	2.712	1.294
Residual	36	2.096	
Total	39	2.144	

T Trend
 * $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX V

ANACOVA for Story Completion Test

Realistic Factor

APPENDIX V

ANACOVA for Story Completion Test
Realistic Factor
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	3.915	1.788
Explained	3	7.655	3.497*
Residual	36	2.189	
Total	39	2.610	

<u>Follow-up</u>			
Group	2	1.535	0.632
Explained	3	9.792	4.034
Residual	36	2.428	
Total	39	2.994	

* $\underline{p} < .05$
 ** $\underline{p} < .01$
 *** $\underline{p} < .001$

APPENDIX W

ANACOVA for Behavioral Observation

Aggression Factor

APPENDIX W
ANACOVA of Behavioral Observation
Aggression Factor
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	1.57	7.14**
Residual	36	.22	.76
Total	39	.29	

<u>Follow-up</u>			
Source	df	MS	F
Group	2	.02	.03
Residual	36	12.95	1.09
Total	39	12.93	

* $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX X

ANACOVA for Behavioral Observation

Verbal Aggression Factor

APPENDIX X

ANACOVA of Behavioral Observation
Verbal Aggression Factor
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	.68	3.78*
Residual	36	3.27	1.29
Total	39	2.54	

<u>Follow-up</u>			
Source	df	MS	F
Group	2	.03	.67
Residual	36	1.18	1.00
Total	39	1.15	

* $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX Y

ANACOVA of Behavioral Observation

Object Aggression Factor

APPENDIX Y

ANACOVA of Behavioral Observations
Object Aggression Factor
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	5.14	2.50 ^T
Explained	3	3.74	1.87
Residual	36	0.206	
Total	39	0.219	

<u>Follow-up</u>			
Group	2	0.112	1.80
Explained	3	0.079	1.273
Residual	36	0.062	
Total	39	0.063	

* $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX Z

ANACOVA for Behavioral Observation

Verbal Noise Factor

APPENDIX Z

ANACOVA for Behavioral Observation
Verbal Noise Factor
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	0.69	0.26
Explained	3	16.53	6.27
Residual	36	2.64	
Total	39	3.71	

<u>Follow-up</u>			
Group	2	4.35	1.94
Explained	3	4.64	2.07
Residual	36	2.34	
Total	39	4.42	

* $\underline{p} < .05$
 ** $\underline{p} < .01$
 *** $\underline{p} < .001$

APPENDIX AA

ANACOVA for Behavioral Observation

Noise Factor

APPENDIX AA

ANACOVA for Behavioral Observation
Noise Factor
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	5.44	1.83
Residual	36	44.79	.95
Total	39	50.92	

<u>Follow-up</u>			
Source	df	MS	F
Group	2	1.46	.59
Residual	36	44.22	1.05
Total	39	45.68	

* $\underline{p} < .05$
 ** $\underline{p} < .01$
 *** $\underline{p} < .001$

APPENDIX BB

ANACOVA for Behavioral Observation

Gross Motor Factor

APPENDIX BB

ANACOVA of Behavioral Observations
Gross Motor Factor
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	12.40	0.62
Residual	36	360.93	1.05
Total	39	373.33	

<u>Follow-up</u>			
Source	df	MS	F
Group	2	0.65	.06
Residual	36	11.68	1.08
Total	39	10.82	

* $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX CC

ANACOVA for Behavioral Observation

Talking Factor

APPENDIX CC
ANACOVA of Behavioral Observations
Talking Factor
Posttest and Follow-up

<u>Posttest</u>			
Source	df	MS	F
Group	2	1.66	0.13
Residual	36	230.38	1.08
Total	39	232.04	

<u>Follow-up</u>			
Source	df	MS	F
Group	2	8.30	0.32
Residual	36	468.54	1.06
Total	39	476.84	

* $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX DD

ANACOVA for Behavioral Observation

On Task Factor

APPENDIX DD

ANACOVA for Behavioral Observation
On Task Factor
Posttest and Follow-upPosttest

Source	df	MS	F
Group	2	83.413	2.757 ^T
Explained	3	59.550	1.968
Residual	36	30.254	
Total	39	32.508	

Follow-up

Group	2	20.792	0.445
Explained	3	82.166	1.759
Residual	36	46.713	
Total	39	49.440	

T Trend
 * $p < .05$
 ** $p < .01$
 *** $p < .001$

APPENDIX EE

ANOVA of Pretest Scores

PPVT, IQ and Age

APPENDIX EE

ANALYSIS of Variance of Pretest Scores

PPVT, IQ and Age

	Source	df	MS	F
PPVT, IQ	Between	2	527.6638	1.142
	Within	37	462.0391	
	Total	39		
Age	Between	2	485.3312	1.195
	Within	37	406.1348	
	Total	39		

APPENDIX FF

Cognitive Restructuring Trainer's Manual

APPENDIX GG

Social Learning Trainer's Manual

APPENDIX HH

Phone Conversation With Parents of
Cognitive Restructuring, Social Learning
And Control Subjects

PHONE CONVERSATION WITH
COGNITIVE RESTRUCTURING PARENTS

Mr. & Mrs. _____

My name is Greg Hafen of the Department of Psychology of the Children's Hospital of Eastern Ontario. The reason I am calling (have called you in) is to inform you of a project the Children's Hospital, the Carleton Board of Education and _____ (School) are participating in. We are looking at children who show aggressive behaviors and how they respond to techniques of intervention that we are going to use in the schools. Your son (child's name) has been indentified by his classroom teacher as one child who demonstrates aggressive behaviors on occasion. We would like to have him participate in this project in order to help him learn control of his aggressive actions and to determine the effectiveness of our program in the school. Could I take a few moments? (Pause)

What will be required of your son is that he spend a half-hour a day for 8-10 days with another child and myself in the school. The first session will involve some tests, administered individually, that will be used only for purposes of this project and will take no more than 45 minutes. The rest of the time will be used teaching your son how to gain control of his own behavior by demonstrating a method he can use to instruct himself in anger-producing or upsetting situations.

To facilitate his learning we will incorporate audio and perhaps video tapes, role playing and rehearsal of how to cope with provoking situations. There will be supervision and coaching all the time with a trainer-student ratio of 1 to 2.

After this intervention is completed we will need to do some follow-up, which requires the administration of the same tests again. These results will indicate how effective we are, and whether your son will use these

procedures in the future.

If you wish, we may communicate these results to the school or you may request that they remain private. However, you may receive these results. In fact, we would be happy to share them with you. How do you feel about what I have just said? (Response) Would you be willing to allow your son to take advantage of this project? (Allow response.)

(Positive) OK. Since you are willing to allow him to participate, we will need to obtain some information from you as well. This data is in the form of two questionnaires that will take a few moments for you and your wife/husband to complete. Only I will use this information and then primarily as an indication of changes. Will both you and your husband/wife fill them out please? (Administer the BPCL and the Locke-Wallace at this time.)

Thank you. It's a pleasure to have your cooperation and I think your son will enjoy this experience. In order for us to go ahead we will need your name on an enclosed permission release form. (We will send you.) (Provide permission release form.)

(If necessary have a stamped, addressed envelope. Get phone # for follow-up.)

If at any time you have questions please feel free to contact me at 737-2492 or at 741-3277. (I will include my phone numbers on a card.)

Thanks again.

(Negative response)

OK. That's fine. We understand your desires. Be assured that we will comply with your wishes. Thank you for listening anyway.

SOCIAL LEARNING PARENTS
Phone Conversation

Mr. or Mrs. _____

My name is Greg Hafen of the Department of Psychology of the Children's Hospital of Eastern Ontario. The reason I am calling is to inform you of a project the Children's Hospital, The Carleton Board of Education and _____ (School) are participating in. We are looking at children who display different behavior patterns and how these change during the school year. Your son _____ (child's name) has been identified by his teacher as one child that, on occasion, demonstrates some aggressive behaviors. We would like to include him in the project to observe how he behaves over the rest of the school year. Could I take a few moments to explain it to you? (Pause for response.)

What would be required of your son is that he spend about 45 minutes with my assistant or myself in some individually administered tests. His classroom behavior will also be observed. We will do this on three occasions throughout the school term for follow-up. These results will indicate whether there is any change in your son's behavior patterns.

If you wish we may communicate these results to the school or you may request that they remain private. However, you may receive these results. In fact, we would be happy to share them with you. How do you feel about what I have just said? (Response.) Would you allow your son to take advantage of this project? (Allow response.)

(Positive.) O.K. Since you are willing to allow him to participate, we will need to obtain some information from you as well. This data is in the form of two questionnaires that will take a few moments for you and your wife/husband to complete. Only I will use this information and then primarily as an indication of changes. Will both you and your husband/wife fill them out please? (Administer the BPOCH and the Locke-Wallace at this time.)

Thank you. It's a pleasure to have your cooperation and I think your son will enjoy the experience. In order for us to go ahead we will need your name on an enclosed permission release form we will send you. (Provide permission release form. Provide a stamped, addressed envelope. Get phone number for follow-up.)

If you have any questions, please feel free to contact me at 737-2492 or 741-3277. Thanks again.

(Negative Response)

O.K. That's fine -- we understand your desires. Be assured we will comply with your wishes. Thank you for listening anyway.

PHONE CONVERSATION WITH

CONTROL GROUP PARENTS

Mr. or Mrs. _____

My name is Greg Hafen of the Department of Psychology of the Children's Hospital of Eastern Ontario. The reason I am calling is to inform you of a project the Children's Hospital, The Carleton Board of Education and (school) are participating in. We are looking at children who display different behavior patterns and how these change during the school year. Your son (child's name) has been identified by his teacher as one child that, on occasion, demonstrates some aggressive behaviors. We would like to include him in the project to observe how he behaves over the rest of the school year. Could I take a few moments to explain it to you?

(Pause for response.)

What would be required of your son is that he spend about 45 minutes with my assistant or myself in some individually administered tests. His classroom behavior will also be observed. We will do this on three occasions throughout the school term for follow-up. These results will indicate whether there is any change in your son's behavior patterns.

If you wish we may communicate these results to the school or you may request that they remain private. However you may receive these results. In fact, we would be happy to share them with you. How do you feel about what I have just said? (Response) Would you allow your son to take advantage of this project? (Allow response.)

(Positive) OK. Since you are willing to allow him to participate, we will need to obtain some information from you as well. This data is in the form of two questionnaires that will take a few moments for you and your wife/husband to complete. Only I will use this information and then primarily as an indication of changes. Will both you and your husband/wife fill them out please? (Administer the BPCL and the Locke-Wallace at this time.)

Thank you. It's a pleasure to have your cooperation and I think your son will enjoy the experience. In order for us to go ahead we will need your name on an enclosed permission release form we will send you.

(Provide permission release form. Provide a stamped, addressed envelope. Get phone number for follow-up.)

If you have any questions please feel free to contact me at 737-2492 or 741-3277. Thanks again.

(Negative Response)

OK. That's fine. We understand your desires. Be assured we will comply with your wishes. Thank you for listening anyway.

ABSTRACT

This study compared two treatments and an assessment-only control group using 40 aggressive male children (8-12 years of age). The two treatments were: a) social learning parent training, based upon G. Patterson's work, and b) cognitive restructuring, patterned after B. Camp and V. Douglas. Children in the cognitive restructuring group were seen in dyads. The social learning group was conducted with parents in small groups and required teacher involvement. Cognitive restructuring training consisted of nine one-half hour sessions administered in schools, while the social learning groups met for six 90-minute sessions.

Children who were included in the study scored one and one-half standard deviations or more above the mean on the School Behavior Checklist, had at least average intelligence, and lived at home with at least one parent. Assessment took place immediately prior to intervention, seven weeks later, and at a five-week follow-up. Measures collected included the Behavior Problem Checklist filled out by teachers and parents independently, classroom observation by trained observers naive to the experimental conditions, the Matching Familiar Figures Test (MFF), and the Story Completion Test (SCT). Results indicated that there were significant changes due to treatments on several measures with the exception of the MFF and SCT tests. These results were maintained over time. Minimal changes were obtained in the control group. Of interest was the finding that treatment produced differential positive changes on several measures. The cognitive restructuring subjects were significantly more improved at home on conduct disordered behaviors than either the social learning or control subjects according to parent ratings. Parents also noted significant reductions in personality problems. Teachers noted

significantly lower amounts of anxiety related behaviors on the SBCL and also reductions in personality disorder behaviors on the BPC compared to control subjects. Classroom observers noted reductions in amounts of physical and verbal aggressive acts for these subjects. The social learning subjects parents reported significantly different amounts of conduct and personality problem behaviors at home compared to control parents. Teachers of social learning subjects noted significant reductions in anxiety behavior as measured by the SBCL and personality disordered behaviors of the BPC. Trained observers reported reductions in aggressive acts directed at inanimate objects and an increase of on-task related behaviors in the classroom. Control subjects were reported to improve on the number of aggressive acts against property and to reduce the number of verbally aggressive behaviors in the classroom. But, they did not reduce the number of aggressive acts directed towards people. Parents reported improvement in conduct disorder behaviors, but this improvement was not as marked as that reported by the parents of treated children. Problems regarding the issues of generalization, the shortcomings of dependent measures, and the implications for future research were discussed.