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The Use of Goal Setting and Contingency Contracting for Improving Children's Homework Performance.

Deborah Lynn Miller
Louisiana State University and Agricultural & Mechanical College

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The use of goal setting and contingency contracting for improving children's homework performance

Miller, Deborah Lynn, Ph.D.
The Louisiana State University and Agricultural and Mechanical Col., 1992
THE USE OF GOAL SETTING AND CONTINGENCY CONTRACTING FOR IMPROVING CHILDREN'S HOMEWORK PERFORMANCE

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy in
The Department of Psychology

by
Deborah L. Miller
B.A., Vanderbilt University, 1987
M.A., Louisiana State University, 1989
August, 1992
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ABSTRACT

Research suggests that homework has favorable effects on learning and student achievement. However, research directed at improving homework completion and accuracy has been limited in scope. The present study examined the effects of goal setting and contingency contracting on children's homework performance. Subjects were four parent-child dyads in which the child exhibited clinically significant homework problems. Dependent variables of primary interest included direct observation of children's on-task behavior, work accuracy, and Homework Problem Checklist scores (Anesko, Schoiock, Ramirez, & Levine, 1987). Using a combination of multiple baseline and withdrawal (ABAB) designs, goal setting and contingency contracting produced significant improvements in children's homework accuracy. Results concerning the effects of treatment on percent of on-task behavior were less clear although two of four subjects evidenced significant improvements in on-task behavior. Homework Problem Checklist scores improved significantly for two of four subjects. Social validity of the procedures was supported by parent ratings on standardized questionnaires. Methodological contributions and limitations are discussed as are suggestions for further research.
INTRODUCTION

As ubiquitous as homework might seem, particularly to students, teachers, and parents, its importance and contribution to learning has been debated. Those speaking against homework have suggested that it is an unwholesome activity that lacks professional supervision and allows children to practice their mistakes (Paschal, Weinstein, & Walberg, 1984). Others propose that homework interferes with important family and community activities thus decreasing children's play and leisure time and adversely affecting family life (LaConte, 1981; McDermott, Goldman, & Varenne, 1984). In contrast, proponents of homework believe that it fosters a closer relationship between home and school and promotes independent work and study habits (McDermott et al., 1984). However, much of the literature on homework consists of opinion pieces or methodologically flawed studies. Indeed, relatively few homework studies are empirical and results between studies are often conflictual (Foyle & Bailey, 1988; Keith, 1982; Paschal et al., 1984). However, many reviews of empirical research on homework conclude that it has favorable effects on learning (Goldstein, 1960; Hedges, 1971; Keith, Reimers, Fehrman, Pottebaum, & Aubey, 1986; Paschal et al., 1984).
Homework problems are common and a source of conflict for many families (Anesko & O'Leary, 1982). Unfortunately, few studies have examined methods of improving children's homework performance. Goal setting and contingency contracting are two procedures used successfully to modify academic and other problem behaviors. This review provides a detailed summary of the literature within three areas: homework, goal setting, and contingency contracting.

Homework and Academic Achievement

In the United States, average scores on achievement tests have declined for several decades. Cross-national studies on academic achievement reveal that American children exhibit only mediocre levels of achievement in mathematics and science as compared to Chinese and Japanese children (Stevenson, Lee, & Stigler, 1986; Stigler, Lee, Lucker, & Stevenson, 1982; Stigler, Lee, & Stevenson, 1987; Walberg, 1984). For example, Chen and Stevenson (1989) analyzed interview, questionnaire, and achievement test data from 60 schools in American, Chinese, and Japanese cities. American children receive the least homework and family help. Children in cultures that give longer homework assignments obtain higher scores on achievement tests. American students might therefore increase achievement scores through increased amounts of assigned homework (Chen & Stevenson, 1989).
Although research suggests that homework generally exhibits a moderate, positive effect on student achievement, other variables such as time, study skills, and student characteristics are rarely differentiated from those effects (Keith, 1982). Using a large, nationally representative sample of American high school seniors (N=20,364), Keith and his colleagues utilized path analysis to investigate the relation between homework time and high school grades and between homework and achievement test scores (Keith, 1982; Keith & Page, 1985). Results indicated that amount of time spent on homework is an important predictor of students' grades even after controlling for other variables such as race, family background, and field of study. Further, increased homework time is positively associated with increased achievement, regardless of ability level. In comparison, then, to other variables (e.g., race, SES, family background), homework is a manipulable variable that can be used as an intervention, both at a system and individual level, to improve academic achievement (Keith & Page, 1985).

Support for the relation of homework to academic achievement also can be drawn from research on academic response rate. Academic achievement is positively associated with the amount of time students spend actively attending to instructional tasks (Graden,
Thurlow, & Ysseldyke, 1983; Leach & Dolan, 1985; Rosenshine, 1979; Rosenshine & Berliner, 1978). Thus, any procedure that increases time on-task or engaged time will enhance learning. For example, in one study, student engaged time accounted for 58% of the variance in mathematics achievement (Leach & Tunnecliffe, 1984). Thus, homework, an activity that provides students with increased opportunities to attend and respond to instructional tasks, can also augment students' engaged time and thus enhance academic achievement.

Parent Involvement with Homework: Help or Hindrance?

It appears that homework generally enhances learning and achievement. Does parent involvement in the homework process further enhance students' achievement? Few studies have specifically addressed this question. Research on homework generally has not investigated the degree or value of parent involvement in homework.

Parent involvement is negatively correlated with achievement (Chen & Stevenson, 1989; Epstein, 1983; Wolf, 1979). That is, students receiving more parent help with homework exhibit lower levels of achievement. This negative relationship may indicate that teachers are encouraging parental assistance for children needing additional help, that parents recognize their children's weaknesses and offer help, or that low achieving children request or require parental help more frequently.
(Epstein, 1983). Based on the negative correlation between parent involvement in homework and academic achievement, Chen and Stevenson (1989) concluded that parent involvement with homework may serve a remedial function. However, these studies generally suffer from small sample sizes, definitional problems, retrospective reports, and unequal cell sizes, in addition to the problems inherent with any correlational research (e.g., spuriousness & directionality) (Cooper, 1989).

Maertens and Johnston (1972) conducted an experimental study in which approximately 400 children received one of three interventions: (a) no homework, (b) homework with immediate parent feedback, and (c) homework with delayed parent feedback. Both homework conditions significantly improved test scores over the no homework condition. In addition, parent involvement resulted in consistent completion of homework assignments. However, differences between immediate and delayed feedback were not obtained. Maertens and Johnston (1972) therefore suggested that planned parent involvement was a significant contributor to the effectiveness of the homework treatment. Thus, data concerning the relation between homework and academic achievement are conflicting. Clearly, empirical research on parent involvement as a mediating variable influencing the effect of homework is needed.
Homework Interventions

Although generally viewed favorably, the effects of parent involvement on children's homework performance are unclear. Definitive conclusions cannot be drawn from the literature (Cooper, 1989). Further, the paucity of research on techniques for increasing homework completion and accuracy is unfortunate. Interventions for increasing completion and accuracy possess social validity given the relation between homework and scholastic achievement, as well as the prevalence of homework problems in the general population (Anesko & O'Leary, 1982; Keith, 1982; Keith & Page, 1985).

Increasing Homework Completion

Many studies targeting homework completion also were designed to improve classroom performance. Many times, researchers failed to distinguish intervention effects on homework separate from other target behaviors. For example, Cantrell, Cantrell, Huddleston, and Woolridge (1969) targeted classwork and homework completion in a student who exhibited low rates of work completion, careless work, and noncompliance to instructions. A contingency contract was designed with points earned for class and homework completion. In addition, off-task behavior was ignored. Six weeks after the implementation of treatment, the subjects improved one to two letter grades in three of six classes. However, lack of
observational data to ascertain treatment integrity limit the generalizability of results. Further, use of a multiple baseline design across behaviors would have more efficiently validated the efficacy of the contracting procedure (Cantrell et al., 1969).

In a similar study, homework completion rates were increased in two delinquent boys (Kirigin, Phillips, Fixsen, & Wolf, 1972). In this study, a homework card on which subjects were required to record their homework assignments was completed daily. Teachers indicated whether the previous day's assignment had been turned in and the boys were rewarded at home for homework completion. Both subjects increased their rate of homework completion from 50% at baseline to 100% post-treatment. Again, lack of observational and reliability data collection limit the degree to which strong conclusions can be made from these results.

Using a multiple baseline design, Dougherty and Dougherty (1977) used a daily report card to provide feedback in three areas of school performance: schoolwork, homework, and classroom behavior. Teachers completed a daily report card indicating percentage of homework completion and occurrence of talking out in class. Parents were instructed to praise good ratings and constructively discuss poor ratings with their children. The procedure successfully increased the
number of children completing their homework from 65% to 83%. Strengths of the study include the operationalization of target behaviors, use of an experimental design, and minimal teacher and parent training. However, data on quality or accuracy of homework were not specifically evaluated.

Similarly, Hall, Cristler, Cranston, and Tucker (1970) targeted low rates of completing required reading assignments in a ten-year-old girl. For each minute less than 30 that she spent reading, she was required to go to bed one minute early. The procedure increased reading time from a mean of 11.5 minutes per day at baseline to 30 minutes per day post-treatment. An interesting aspect of this study is that the child's mother served as the primary observer and experimenter, an economical and practical approach. Although only one child served as a subject, observational data were collected and reliability of the observation procedures were demonstrated.

Fish and Mendola (1986) targeted homework completion alone in three elementary school students. The students were enrolled in a special education class for emotionally disturbed children and all exhibited intellectual functioning within the average range as measured by the WISC-R. Students were provided with self-instruction training as it would be applied during
homework. Training was based on the procedure outlined by Meichenbaum and Goodman (1971) in which an experimenter models task performance after which the subject performs the task, first overtly then covertly.

Homework completion increased for all subjects from below 50% to a mean of 75%. Further, treatment effects were maintained 13 weeks post-treatment. Unfortunately, data on treatment integrity were not provided and observed improvements in completion rates may have been due to increased contingent reinforcement for homework completion rather than the effects of self-instruction (Fish & Mendola, 1986). Also, lack of data on accuracy of completed work is unfortunate. However, this study does point to the potential usefulness of self-instruction as a procedure for enhancing homework completion.

Increasing Homework Completion and Accuracy

Although increasing students' homework completion is an important goal, accuracy of completed homework should certainly be considered. It seems reasonable that a complete assignment containing numerous errors would not foster optimal learning and achievement. Only two studies sought to concurrently increase homework completion and accuracy (Goldberg, Merbaum, Even, Getz, & Safir, 1981; Harris & Sherman, 1974). Harris and Sherman (1974) conducted the only study in which contingencies
for homework completion were manipulated solely by teachers. The investigators sought to evaluate the effects of homework on academic performance in the classroom and to increase the number of students completing homework at a reasonable level of accuracy. Teachers rewarded those students achieving 80% or more correct on homework assignments by allowing them to leave school 15 minutes early. Results indicated that homework completion, without regard for accuracy, had little effect on academic performance. However, when accurate homework completion was paired with positive reinforcement, high rates of homework completion, as well as improved accuracy of homework resulted. The authors concluded that homework may enhance classroom performance only when completed at a reasonable level of accuracy.

Goldberg et al. (1981) investigated the effectiveness of operant conditioning techniques in comparison with other treatment procedures for improving the quantity and quality of homework behavior. Mothers were assigned to one of four treatment conditions: Operant, Feedback, Psychotherapy, and Control. Mothers in the Feedback and Control groups received no direct contact with experimenters during any stage of treatment. However, a school to home feedback system was employed in both the Feedback and the Operant treatment groups in which the teacher provided information regarding the
quantity and quality of homework performance. The Feedback group was instructed to inspect and sign the note every night but was provided with no further guidance or suggestions. The Operant group received specific instructions concerning positive reinforcement and contingency contracting based on the notes sent home. The Operant condition also entailed identification of treatment goals, individual problems, and attitudes towards behavior change. In addition, mothers were instructed in the use of positive reinforcement and contingency contracting. The Psychotherapy group was mother-centered and focused on developing insight, interpersonal sensitivity, and communication skills. No formal training with regard to homework was involved.

Results indicated that only the Operant group achieved significant quantitative and qualitative improvements on homework performance. None of the other groups, treatment or control, evinced any significant changes. However, several mothers in the Operant group complained that the procedure resulted in a certain degree of spouse conflict. For example, mothers and fathers experienced conflict in the application of contingency contracts to homework performance. In the future, inclusion of fathers in treatment might serve to avoid conflict and increase parental consistency.
The literature reviewed thus far suggests that both completion and accuracy of children's homework are reasonable targets for behavior change. Furthermore, it has been empirically established that behavior change can be achieved via the application of behavioral techniques by teachers and parents. It should be noted that the majority of studies primarily relied on teachers to evaluate homework and did not target the homework process, per se (Cantrell et al., 1969; Hall et al., 1970; Harris & Sherman, 1974; Kirigin et al., 1972). That is, contingencies were based on homework products and no specific interventions were directed at improving the manner in which children approached or completed their homework. Regardless, all interventions that were examined successfully modified homework completion and/or accuracy.

Homework Problems and Parent-Child Conflict

Two studies specifically examined interventions aimed at alleviating parent-child conflict over homework (Anesko & O'Leary, 1982; Kuhlman, 1973). Kuhlman (1973) provided a brief behavioral parent training program for parents of children identified as deficient in math skills. The intervention focused primarily on completion of math homework and provided the students with math tutoring. The experimental group achieved significantly greater increases in academic behavior at home and a
significantly greater favorable change in academic attitude over a no-treatment control group and a noncontingent rewards group. However, the differential effects of tutoring and parent training were not reported.

Anesko and O'Leary (1982) evaluated the effectiveness of a parent training program designed to remediate the homework problems of "normal" children. A brief, didactic parent training group was conducted during which parents were taught to identify and record target behaviors and received instructions on behavioral contracting, development of a good homework routine, coping strategies, and problem solving skills. Group sessions involved group discussion and direct practice of techniques via behavioral rehearsal, modeling, and home assignments. The intervention resulted in significant desirable changes in parent and child behavior compared to a well matched control group, as assessed by direct observation. Parents in the experimental group reported significant positive behavior change and significantly fewer homework problems at post-treatment. Treatment effects were maintained at 6-month follow-up, as measured by the Homework Problem Checklist (HPC) (Anesko et al., 1987; Anesko & O'Leary, 1982). However, this study exhibited several methodological shortcomings. For example, control group parents did not report significant
treatment effects following group training. The authors suggested that a treatment effect may not have been obtained because training was conducted during the last four weeks of school. In addition, observational sessions of homework were brief and were conducted in a laboratory setting which may have accounted for initially high levels of on-task behavior. Also, teacher ratings of children's homework performance would have provided valuable convergent validity to parents' ratings. Overall, however, results of this study appear to be reliable given the use of observational data, valid and reliable assessment techniques, and a well matched control group.

Thus, the studies conducted by Kuhlman (1973) and Anesko and O'Leary (1982) differed from previous research in their targets for intervention. That is, they targeted parent-child conflict rather than homework productivity. Unfortunately, Anesko and O'Leary (1982) provided no data concerning whether a concurrent increase in homework completion or accuracy was noted. Such data would be valuable in choosing treatments for children exhibiting poor rates of productivity as well as significant conflict over homework issues.

Conclusions and Clinical Implications

At this point, research aimed at improving the quality and quantity of homework is promising but still
in initial stages of empirical development. Parent involvement in the homework process appears to be positive, particularly when parents are taught to provide accurate, constructive feedback and to interact in a reinforcing manner during homework sessions. Several studies support the use of behavioral interventions whereby children earn privileges contingent upon their behavior. Such programs have resulted in increased productivity and accuracy.

In spite of these overall positive findings concerning behavioral interventions for homework difficulties, numerous methodological limitations are found in existing studies. The studies reviewed failed to isolate homework completion as a separate dependent variable or did not evaluate treatment effects on homework completion and accuracy. Thus, specific intervention effects cannot be determined. An intervention that increases completion without concurrently increasing accuracy may fail to enhance learning. In addition, many studies failed to use clinical samples in their programs for remediating homework problems. Thus, the generality of these findings to clinical samples is unknown.

Given that 94% percent of teachers in one study reported significant problems in assigning homework (Salend & Schliff, 1989) and that parent involvement can
positively influence the amount of time students spend on homework (Keith et al., 1986), the conjoint efforts of parents and teachers in improving students' homework practices is strongly suggested.

Several suggestions for improving students' homework performance can be gleaned from the literature. First, establishing an appropriate homework routine is recommended. For example, the homework environment should be quiet, secluded, and all pertinent materials (e.g., paper, pencils, calculator, dictionary, etc.) should be readily accessible (Cooper, 1989). Additionally, parents have been successfully trained to use a variety of techniques, such as positive reinforcement, problem solving skills, and behavioral contracting (Anesko & O'Leary, 1982; Goldberg et al., 1981). These techniques may be used to increase accuracy and completion and to decrease parent-child conflict concerning homework.

One treatment strategy receiving much support in the literature but not applied to improving of homework performance is goal setting. The procedure has been successfully applied in laboratory and classroom settings and may be efficacious in the remediation of homework difficulties. That which follows is a general discussion of the goal setting literature.
Goal Setting

Goal setting represents an important means of self-motivation and consists of comparisons of personal standards against present performance level (Bandura, 1977). Setting performance goals may function as a powerful antecedent to desired behavior (O'Leary & Dubey, 1979). Also, if performance contingencies for goal achievement are specified, then the identification of these contingencies might serve as a discriminative stimulus for goal achievement (Kelley & Stokes, 1984). Through this process, children learn to evaluate and reinforce their own behavior: possibly an important step toward self-management of behavior. Further benefits of goal setting include improved task engagement and academic achievement, as well as enhanced self-esteem and motivation (Bandura, 1977; Brownell, Colletti, Ersner-Hershfield, Hershfield, & Wilson, 1977; Kelley & Stokes, 1984; McLaughlin, 1982; Schunk, 1983a, 1983b, 1984, 1985).

Although much goal setting research has been conducted within the field of organizational psychology on adult populations, several researchers have successfully applied goal-setting procedures to other classes of behavior and populations. For example, Kausler (1959) reported superior performance of undergraduate students in a goal-setting condition to
control subjects on an arithmetic task and Warner and DeJung (1969) found similar results with educable mentally retarded adolescents on a laboratory spelling task. Based on these results, the application of goal setting procedures in the classroom was suggested (Fryer, 1964; Warner & DeJung, 1969).

Research involving both high school (Gardner & Gardner, 1978) and college students (Morgan, 1985, 1987) has demonstrated the efficacy of goal setting procedures on academic performance. Gardner and Gardner (1978) utilized goal setting to improve spelling and vocabulary test performance in 16 high school students from a remedial resource classroom. The procedure was simple and consisted of asking students to state how many spelling and vocabulary words they each expected to get correct on a test the next day. Experimental subjects obtained significantly higher spelling and vocabulary test scores compared to a control group. Using a sample of college students, Morgan (1985, 1987) examined the use of self-monitoring and goal setting procedures during private study. Goal setting consisted of setting daily goals in specific performance terms (e.g., topics to be covered, number of pages to be read) and recording goal attainment. Subjects in the experimental condition performed significantly better on final examinations than either placebo-control or untreated control conditions.
They also spent significantly less time studying and manifested higher levels of intrinsic interest in the target subject than those students instructed to set distal, comprehensive goals or goals concerning time spent on study (Morgan, 1985).

Goal properties, such as specificity, difficulty level, and proximity, are central to the goal setting process (Bandura, 1977; Latham & Yukl, 1975; Locke, 1968; Locke, Shaw, Saari, & Latham, 1981). Considerable research has been conducted on the effects of goal setting and the influence of goal properties on children's academic performance. For example, in two studies, the efficacy of proximal goals on children's math skills, self-efficacy judgments, and interest in mathematics were examined (Bandura & Schunk, 1981; Schunk, 1985). During treatment, children were engaged in a self-directed learning program focusing on subtraction skills. Experimenters suggested that children in the proximal goal treatment complete seven pages of instructional items each session. Children in the distal goal treatment were told to consider setting the goal of completing 42 pages by the end of the seventh session (Bandura & Schunk, 1981). In the second study, the effects of proximal goals were compared to a no goals condition (Schunk, 1985). Proximal goals resulted in significant gains on measures of mathematical skill
performance, progress in the self-directed learning program, interest in mathematics, and self-efficacy. Also, children instructed to set proximal goals obtained significantly higher scores on all measures than children instructed to set distal goals. That is, children setting proximal goals progressed more rapidly in self-directed learning, demonstrated greater mastery of subtraction skills, and evinced greater intrinsic interest in subtraction than other groups (Bandura & Schunk, 1981). Schunk and Gaa (1981) suggested that proximal goals are especially influential with young children who tend to focus on the present.

A positive, linear relation between goal difficulty and task performance has been established. That is, difficult goals result in superior performance over easy-to-achieve, lenient goals (Locke, 1968; Locke et al., 1981). In an effort to extend these findings, Brownell et al. (1977) compared the effects of stringent and lenient performance goals that were either externally or self-determined. Overall, results supported the superiority (e.g., higher problem solving rate) of stringent standards over lenient ones, a finding that has been replicated (McLaughlin, 1982; Schunk, 1983b). Also, self-determined performance goals were superior in eliciting on-task behavior over externally imposed goals. However, rate and accuracy of problem solution was
equivalent for the self-determined and externally imposed groups.

Using a sample of 10 special education students, McLaughlin (1982) also examined effects of self-determined and externally imposed high performance standards on academic performance. Superior performance was noted for both treatment conditions over a control condition. Subjects in the externally imposed high performance standards group spelled significantly more words correctly than the self-determined group.

Similarly, Schunk (1985) examined whether direct participation in goal setting, as compared to assigned goals, enhanced self-efficacy and subtraction skills. Children who set their own goals displayed significantly higher ratings of self-efficacy and subtraction skill than children in an assigned goal and a no goal condition. However, self-determined and assigned goals resulted in equivalent rates of problem solution.

Finally, Kelley and Stokes (1984) implemented a self-determined goal setting procedure with a group of disadvantaged adolescents working toward their high school diploma examination. Goal setting was not implemented, however, until after a student-teacher contracting procedure had significantly increased the students' academic productivity. Self-determined goal setting maintained productivity rates equivalent to those
obtained with contracting. However, the sample in this study was significantly older (Mean=17 years, 7 months) than those in previous studies (e.g., Brownell et al., 1977; Schunk, 1985).

Therefore, research suggests that stringent performance standards yield greater performance than lenient standards, whether or not the goals are self-determined or externally imposed (Brownell et al., 1977; McLaughlin, 1982; Schunk, 1985). Also, the superior performance of children adhering to stringent standards generally is attained without sacrificing accuracy (Schunk, 1983b).

With regard to self-determined versus assigned goals, the results are less clear. Although self-determined standards may positively effect time on-task, skill improvement, and judgments of self-efficacy, research suggests that students decrease their standards over time when they are allowed to determine criteria for reinforcement (Bandura & Perloff, 1967; Felixbrod & O'Leary, 1973, 1974; Santogrossi, O'Leary, Romanczyk, & Kauffman, 1973). Several authors have recommended that the effectiveness of goal setting procedures might be enhanced if children are initially trained on how to set challenging but attainable goals (Sagotsky, Patterson, & Lepper, 1978; Tollefson, Tracy, Johnsen, & Chatman,

Finally, the effects of performance contingent reinforcement on children's goal achievement is unclear. Several studies included contingent reinforcement as a treatment component although they failed to evaluate the differential effects of goal setting and reinforcement for goal attainment (Brownell et al., 1977; Kelley & Stokes, 1984; McLaughlin, 1982). To address this issue, Schunk (1984) evaluated the effects of performance contingent rewards and goal setting on children's skillful performance and judgments of self-efficacy. Math-skill deficient elementary school children were randomly assigned to either a rewards only, goals only, or combined goals and rewards condition. Goal instructions were similar to those used in previous research (Schunk, 1983a, 1983b). Although rate of problem completion was equivalent for all three treatment conditions, children in the combined goals and rewards group demonstrated the highest levels of division skill and self-efficacy. Thus, combining performance contingent rewards with proximal goals led to significantly better division performance than either treatment alone. Combining goals with rewards appears to enhance performance (Locke, 1968; Locke et al., 1981).
The efficacy of goal setting for improving children's academic performance has thus been amply demonstrated. The procedure has been implemented in experimental as well as naturalistic settings and appears to be effective with children across a wide range of ages and abilities (e.g., learning disabled and average students). Overall, proximal, stringent, and specific goals more effectively enhance performance than distal, lenient, or general goals. Further, the beneficial effects of goal setting are enhanced with the addition of performance contingent rewards. Contingency contracting is a technique which explicitly specifies behavior-consequence relations and might serve as an ideal complement to goal setting procedures.

Contingency Contracting

Contingency contracting is a structured therapeutic technique involving a written agreement between two or more parties which delineates behavioral requirements and the positive and negative consequences for their fulfillment. A contract should be prepared so that it clearly and explicitly specifies behavior, the conditions under which this behavior is to occur, and the ensuing consequences. Generally, a contract increases the likelihood that mutually beneficial performance will occur (DeRisi & Butz, 1975; Homme, 1970; O'Banion & Whaley, 1981).
Contingency contracting has been applied to a variety of clinical problems including, but not limited to, weight control (Mann, 1972; Harris & Bruner, 1971), smoking cessation (Lando, 1977), pain management (Knapp & Peterson, 1976), and marital discord (Stuart, 1969). In addition, several researchers have focused on the use of contingency contracting with adolescents. These procedures have effectively reduced parent-adolescent conflict and disruptive school behavior (Brigham, Hopper, Hill, De Armas, & Newsom, 1985; Robin & Foster, 1989).

Contingency contracting also has been used to modify academic deficiencies. Parents, teachers, and college students have served as contingency managers for elementary, middle, and high school students, as well as adolescents working toward their GED. Overall, contingency contracting procedures have successfully remediated the deficits to which they have been applied (Blechman, Kotanchik, & Taylor, 1981; Blechman, Taylor, & Schrader, 1981; Cantrell et al., 1969; Kelley & Stokes, 1982, 1984; Schwartz, 1977).

For example, Schwartz (1977) trained undergraduate students as reading tutors and contingency managers for a sample of seventh graders whose reading skills fell within the remedial range of achievement. Reading contracts were drawn such that all reading behaviors earned a specified number of points. For example,
subjects could earn points for arriving on time to tutoring sessions, paying attention, answering oral comprehesion questions correctly, and making satisfactory grades (an A or a B) on book reports. Target behaviors and their assigned point values were listed on the contract and points were later exchanged for prizes. After 10 weeks of treatment, subjects evidenced significant increases in reading grade scores and substantial improvement in target behaviors. Six-month follow-up demonstrated that treatment gains were maintained and grade scores continued to improve. Unfortunately, Schwartz (1977) did not provide any information concerning student productivity (Kelley & Stokes, 1982).

With a sample of economically disadvantaged adolescents enrolled in a vocational training program, Kelley and Stokes (1982, 1984) demonstrated the efficacy of a student-teacher contracting procedure. During baseline, students were paid for school attendance. The experimental manipulation involved rearranging contingencies such that students were paid contingent on contract fulfillment. Contracts included both daily and weekly academic productivity goals which were stated in terms of the number of workbook items to be completed correctly. The intervention successfully increased the youths' school attendance and doubled academic
productivity. In addition, teachers and students reported liking the intervention thus providing evidence for the social validity of the procedure (Kelley & Stokes, 1982). Subsequently, Kelley and Stokes (1984) implemented a student goal setting procedure to maintain productivity levels acquired during contracting. The procedure was effective and treatment effects were maintained for up to six-weeks, thus providing evidence for the efficacy of combining these two interventions.

Using parents as contingency managers, Blechman and her colleagues targeted high risk elementary school students for a collaborative school-home intervention (Blechman, Kotanchik, & Taylor, 1981). Parents and children received instructions on how to write and carry out contingency contracts that targeted the academic subject (math or reading) in which the child's performance was most inconsistent throughout baseline. On days in which the child's performance equaled or exceeded baseline performance, a "Good News Note" was sent home. Parents, in turn, provided the reward specified in the contract upon receipt of the note. Compared to a control group, experimental subjects significantly reduced the variability of their work in the target subject and achieved borderline increases in accuracy and self-ratings of academic success (Blechman, Kotanchik, & Taylor, 1981).
In another study, Blechman, Taylor, and Schrader (1981) compared the effects of the intervention described in Blechman, Kotanchik, and Taylor (1981) (family problem solving) to a home-note intervention and a no treatment condition. The home-note condition differed from family problem solving in that parents in the home-note condition were encouraged to praise and provide rewards to their child for bringing home a "Good News Note" but were not instructed in the use of contingency contracts. Both interventions significantly improved classwork consistency, the principal objective of the study. However, children in the family problem solving condition maintained their classwork accuracy during intervention and were significantly more accurate during nonreinforced intervention probes than during baseline. Indeed, children in the home-note and control conditions became less accurate during the intervention. Overall, the combination of a home-note with contingency contracting demonstrated broader effectiveness than the home-note alone (Blechman, Taylor, & Schrader, 1981). Perhaps, contingency contracting was more effective because it concretely specified child behaviors that were expected and their consequences. Also, parents may have provided rewards more consistently in the contracting condition, one of the benefits of contingency contracting (O'Banion & Whaley, 1981).
Thus, the efficacy of contracting procedures targeting academic behaviors has been empirically demonstrated. Parents, teachers, and undergraduate students have been successfully trained to implement the procedure with children exhibiting a range of academic and behavior deficits. In addition, the use of contingency contracting in conjunction with other procedures (e.g., school home notes, goal setting, tutoring) promotes enhanced performance, generalization, and response maintenance (Kelley & Stokes, 1984; Schwartz, 1977; Blechman, Taylor, & Schrader, 1981).

Summary and Purpose

Despite longstanding controversy, homework appears to have beneficial effects on learning and academic achievement. Unfortunately, difficulties with homework are common and often serve as a source of conflict for families with school-age children (Anesko & O'Leary, 1982). Although research has been directed at increasing homework completion and accuracy, the scope of treatments offered has been limited and studies are often plagued by small sample size and methodological flaws (Cooper, 1989).

Goal setting and contingency contracting are two procedures that have been effectively applied to a variety of child behavior problems and academic deficits. Goal setting can be viewed as a form of self-monitoring
in which students evaluate and reinforce themselves for achieving self-imposed performance standards. In this manner, goal setting fosters the development of self-management. In addition, contingency contracting procedures encourage children to actively participate in their own behavior management through contract negotiation and contract fulfillment thus enhancing self-control and communication skills. Notably, goal setting is most efficacious when used in conjunction with a reward system, such as contingency contracting.

Thus, the primary purpose of this study was to investigate the efficacy of goal setting and contingency contracting on children's homework performance. This study was more methodologically rigorous than past research on homework interventions in that standardized naturalistic observations were routinely conducted and treatment was introduced systematically across subjects in order to establish experimental control. In addition, a withdrawal design (ABAB) was implemented in order to demonstrate that the treatment exerted control over the target behaviors (Barlow & Hersen, 1984; Kazdin, 1982).

In particular, it was hypothesized that goal setting and contingency contracting would result in (a) increased on-task behavior, (b) increased work accuracy, (c) decreased scores on the Homework Problem Checklist, and
(d) decreased levels of parent and child aversive behavior.
METHOD

Subjects

Subjects were four parent-child dyads who were recruited from outpatient clinical settings or had responded to a newspaper article describing the study. Written, informed consent was obtained from parents regarding their own participation and the participation of their child. The consent form is presented in Appendix A.

Subject selection criteria included: (1) scores on the Homework Problem Checklist (HPC) (Anesko et al., 1987) at least one standard deviation above the mean, as completed by a parent, (2) homework accuracy rates below 80% and/or on-task rates below 70% during baseline observations, and (3) scores on the Woodcock-Johnson Psycho-Educational Battery-Revised-Tests of Achievement not more than one standard deviation below the mean. These criteria aided in selecting subjects who were having difficulties completing their homework despite average or better academic skills.
**Demographic Characteristics**

Table 1 presents information on the demographic characteristics of each subject. All subjects were white and of middle to upper-middle socioeconomic status (Hollingshead, 1975). Subjects' parents had all completed high school and at least some college coursework with the exception of Richard's father who had completed high school. Ann's parents both completed

<table>
<thead>
<tr>
<th></th>
<th>Adam</th>
<th>Ann</th>
<th>Jenny</th>
<th>Richard</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td>11</td>
<td>9</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td><strong>Grade</strong></td>
<td>6th</td>
<td>4th</td>
<td>5th</td>
<td>5th</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td>White</td>
<td>White</td>
<td>White</td>
<td>White</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td>Married</td>
<td>Married</td>
<td>Divorced</td>
<td>Divorced</td>
</tr>
<tr>
<td><strong>Siblings</strong></td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>Mother Education</strong></td>
<td>Some Master</td>
<td>Some</td>
<td>Some</td>
<td>Some College</td>
</tr>
<tr>
<td><strong>Father Education</strong></td>
<td>Some Master</td>
<td>Bachelor</td>
<td>High</td>
<td>Degree School</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td>&gt;$50,000</td>
<td>&gt;$50,000</td>
<td>$20,000-24,999</td>
<td>$20,000-24,999</td>
</tr>
</tbody>
</table>
master degrees. All fathers in the study were employed full-time outside of the home, as were all mothers with the exception of Ann's mother who worked as a homemaker. With the exception of Jenny and Richard's parents who were divorced, all of the parents were married and living in the same household.

Adam was an 11-year-old, sixth grader who typically failed to bring books or assignments home and frequently fought with his parents over homework. Prior to participation in this study, Adam's parents had become so exasperated with his homework performance that he was living with his grandmother on weekdays to avoid continued, escalating conflict. He often refused to complete homework and typically did not turn completed work in to his teachers. On the HPC, Adam's mother indicated that he exhibited the majority of homework problems often or very often. He received a total score of 51 (Range 0-60) on the HPC, which is greater than five standard deviations above the mean.
Tables 2 and 3 present subjects' T-scores for each

Table 2. Conners Parent Rating Scale (CPRS-48) T-Scores

<table>
<thead>
<tr>
<th>Scale</th>
<th>Adam</th>
<th>Ann</th>
<th>Jenny</th>
<th>Richard</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conduct</strong></td>
<td>81*</td>
<td>70*</td>
<td>67</td>
<td>72*</td>
</tr>
<tr>
<td><strong>Learning</strong></td>
<td>82*</td>
<td>78*</td>
<td>78*</td>
<td>67</td>
</tr>
<tr>
<td><strong>Psychosomatic</strong></td>
<td>73*</td>
<td>44</td>
<td>71*</td>
<td>91*</td>
</tr>
<tr>
<td><strong>Impulsivity/Hyperactivity</strong></td>
<td>89*</td>
<td>75*</td>
<td>62</td>
<td>68</td>
</tr>
<tr>
<td><strong>Anxiety</strong></td>
<td>44</td>
<td>55</td>
<td>59</td>
<td>52</td>
</tr>
<tr>
<td><strong>Hyperactivity</strong></td>
<td>92*</td>
<td>79*</td>
<td>61</td>
<td>85*</td>
</tr>
</tbody>
</table>

Note. * Scales elevated within the clinical range as indicated by T-scores greater than 70.
Table 3. Conners Teacher Rating Scale (CTRS-28) T-Scores

<table>
<thead>
<tr>
<th>Scale</th>
<th>Adam</th>
<th>Ann</th>
<th>Jenny</th>
<th>Richard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct</td>
<td>75*</td>
<td>49</td>
<td>49</td>
<td>44</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>71*</td>
<td>65</td>
<td>57</td>
<td>45</td>
</tr>
<tr>
<td>Inattention/Passivity</td>
<td>73*</td>
<td>86*</td>
<td>88*</td>
<td>47</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>71*</td>
<td>73*</td>
<td>67</td>
<td>46</td>
</tr>
</tbody>
</table>

Index

Note. * Scales elevated within the clinical range as indicated by T-scores greater than 70.

scale on the CPRS-48 and CTRS-28, respectively. As seen in Tables 2 and 3, Adam received T-scores greater than 70 on most scales of the CPRS and the CTRS, indicating that his behavior was significantly problematic in the realms of conduct, inattention, expression of physical symptoms, academic performance, impulsivity, and hyperactivity.

Ann was a 9-year-old, fourth grader who often completed homework quickly yet inaccurately. Her parents reported that her attention span was short and she exhibited a tendency to daydream while completing homework. On the HPC, Ann's mother reported that Ann often had to be reminded to begin homework, responded poorly when told to correct homework, and was easily
frustrated by homework assignments. Ann received a total score of 28 on the HPC, which is greater than two standard deviations above the mean for girls her age. As seen in Tables 2 and 3, Ann's mother and teacher rated her behavior as problematic (i.e., T-scores greater than 70) in the realms of conduct, academic performance, inattention, impulsivity, and hyperactivity.

Jenny was an 11-year-old, fifth grader with a long history of poor school performance despite indications that she was capable of completing assigned work. Her mother complained that homework precipitated much conflict as Jenny often requested her mother's aid but subsequently criticized and argued with her mother. On the HPC, her mother indicated that Jenny whined and complained, was easily frustrated, and procrastinated very often during homework. Her total score on the HPC was 38, which is greater than three standard deviations above the mean. On the CPRS, Jenny's mother's responses produced elevated scores with regard to academic performance and expression of physical symptoms while her teacher's responses on the CTRS produced an elevated score suggesting difficulty with inattention and passivity.

Richard was a 10-year-old, fifth grader who was easily frustrated and distracted during homework. Although he frequently asked his mother for help, he
typically responded poorly to her suggestions. For example, Richard exhibited much whining and complaining during homework and yelled at his mother when asked to correct his homework. On the HPC, Richard's mother indicated that he often denied having homework assignments and often needed to be reminded to begin homework. He received a total score of 27 on the HPC, which is greater than two standard deviations above the mean. Richard's mother's responses to the CPRS produced T-scores greater than 70 on three scales indicating problems in conduct, expression of physical symptoms, and hyperactivity. However, none of the scales on the CTRS were elevated.

**Setting**

The intake interview was conducted in a clinic setting. Subsequent training sessions and data collection occurred in subjects' homes during a time designated for homework.

**Measures**

Homework Problem Checklist (HPC). The HPC is a 20-item checklist designed to assess homework problems. The HPC is internally consistent (alpha=.91), content valid, and sensitive to treatment effects (Anesko et al., 1987). The HPC was administered pre- and post-treatment and is shown in Appendix B.
Conners Rating Scales (CPRS-48 & CTRS-28). The Conners Parent Rating Scale (see Appendix C) provides a general measure of problem behavior in children (Goyette, Conners, & Ulrich, 1978). The CPRS-48 demonstrates adequate interparent agreement and is sensitive to treatment effects (Barkley, 1987). The Conners Teacher Rating Scale (CTRS-28) (see Appendix D) consists of 28 items and was administered in order to provide a general description of teacher perceptions of school-related behavior. The CTRS-28 has been shown to demonstrate satisfactory test-retest reliability (Barkley, 1987). The CPRS-48 and the CTRS-28 were administered prior to treatment.

Percent of Homework Completed Accurately. Accuracy of completed work was calculated on a daily basis by a parent. Problems having more than one part were scored such that each problem part was counted as one answer. See Appendix E for a detailed explanation of scoring procedures. These procedures were adapted from Kelley and Stokes (1984) and were used consistently across students and days. Reliability checks were randomly conducted once weekly for each subject by a research assistant.

Treatment Evaluation Inventory-Short Form (TEI-SF). The treatment acceptability of goal setting and contingency contracting was evaluated via the TEI-SF, a
9-item questionnaire designed to assess parents' acceptance of interventions for behavior problem children. Each item is rated on five-point Likert-type scale ranging from "Strongly Disagree" to "Strongly Agree". Total scores range from 9 to 45 with higher scores indicating greater acceptability. A total TEI-SF score of 27 represents moderate acceptability (Kelley, Heffer, Gresham, & Elliott, 1989). The TEI-SF is presented in Appendix F.

**Parent's Consumer Satisfaction Questionnaire (PCSQ).** The PCSQ, as presented in Appendix G, was adapted from the work of Forehand and McMahon (1981) and samples parent satisfaction with the overall program, the therapist, and the difficulty and usefulness of the teaching formats used. Parents respond to items on a seven-point Likert-type scale with higher scores indicating greater degrees of satisfaction, ease of understanding, and utility.

**Observation Codes**

**Homework Interaction Coding System-Revised (HICS-R).** The HICS-R is a revision of a code devised by Anesko and O'Leary (1982), based on the work of Patterson, Ray, Shaw, and Cobb (1969), Campbell (1973), and Robinson and Eyberg (1981). For complete observation code definitions, see Appendix H. The version of the HICS-R used here included the following child categories:
aversive, requests help, academic answer, self-instruction, positive and negative performance evaluation, and conversation. The child also was coded as being either on- or off-task. Parent categories coded were: aversive, approval, gives answer, prompts, redirect, and conversation. Observers coded the academic subject (e.g., math, reading, spelling, social studies, etc.) and the type of activity in which the student was engaged (e.g., individual seatwork, seatwork with parent help, individual studying, & studying with parent help). Seatwork and studying were distinguished in that seatwork had an identifiable written product that was to be turned in to a teacher while studying did not.

Interaction Behavior Code-Revised (IBC-R). All contingency contracting and goal-setting sessions were coded to assess the degree to which the sessions were characterized by parent-child conflict and compromise. The code is an adaptation of the Interaction Behavior Code (IBC) which assesses global impressions of parent-adolescent problem-solving communication behavior (Prinz & Kent, 1978). The general categories, positive and negative solution generation, were derived by collapsing across several categories of the IBC. These were coded as being emitted by either the parent or the child. For complete observation code definitions, see Appendix I.
Treatment Integrity Questionnaire. Treatment integrity was assessed via a 10-item questionnaire, as presented in Appendix J, designed specifically for this study and not validated. Each item assesses compliance with treatment recommendations. The measure assesses whether the goal setting worksheet and timer are used, who is involved in goal setting, whether the parent praises or criticizes the child, and whether the child remains seated and takes any telephone calls during the observation. Observers completed this questionnaire after each observation. Reliability checks were conducted on 20% of home observations.

Design and Procedure

A combination of withdrawal (ABAB) and multiple baseline designs was utilized to evaluate the effects of goal-setting and contingency contracting on subjects' homework performance (Barlow & Hersen, 1984; Kazdin, 1982). Baseline observations were carried out for 3 (Richard), 4 (Jenny), 5 (Adam), and 9 (Ann) days.

Experimental Conditions

Parent Intake Interview. An initial interview was conducted to fully describe procedure and treatment protocols. An assessment of children's homework and school performance was conducted via parent and child interview. Academic subjects were ranked according to perceived level of difficulty as indicated by the parent.
and child. At this time, parents also completed the Homework Problem Checklist (HPC), the Conners Parent Rating Scale (CPRS-48), and a demographic questionnaire (See Appendix K). In addition, ground rules were explained to parents regarding observational sessions (to be explained below) (See Appendix L).

Teacher Interview. Teachers were interviewed to assess their perceptions of the children's homework and in-class performance, both behaviorally and academically. At this time, teachers completed the Conners Teacher Rating Scale (CTRS-28).

Baseline. During baseline, parents and children conducted homework normally with the exception that it was conducted in a quiet, secluded location. All pertinent materials (e.g., paper, pencils, calculator, dictionary, etc.) were readily accessible. Throughout the study, all observations were conducted on the same academic subjects in the same order, with the most problematic assignments being completed first.

During baseline, parents used the monitoring sheet, as presented in Appendix M, to record the amount of time spent as well as the number and type of homework problems completed in all academic subjects. For example, parents recorded the time at which their child began and finished each academic subject. They also recorded the type of problems completed (e.g., multiple choice questions,
copying spelling words) and the number of each type completed.

Goal Setting and Contingency Contracting.
Treatments offered to improve homework performance were goal setting and contingency contracting. Parents and children were taught to divide homework assignments into specific, small goals. Based on percent of goals achieved, children earned rewards as specified by a contingency contract. These procedures are detailed below.

Following baseline, parents were provided with a treatment rationale and instructions for implementation of goal setting. Training was conducted by the experimenter and consisted of the provision of written materials (See Appendix N), discussion, practice, and performance feedback. The experimenter first reviewed the written hand-out with parents and provided examples of how to implement treatment procedures. Parents then had the opportunity to ask questions. In the experimenter's presence, parents explained the treatment procedures to their children. The experimenter was also present during the initial goal setting session to answer questions and provide performance feedback to families. For example, families were corrected if they were not implementing procedures correctly or if they were setting goals that appeared too easy or difficult.
The **Homework Goals Worksheet**, as presented in Table 4, was used as the format by which the goal setting

Table 4.  Homework Goals Worksheet

Time Homework Started:_______

Time Homework Finished:_______

<table>
<thead>
<tr>
<th>Job</th>
<th>Subj</th>
<th>Child Goal</th>
<th>Parent Goal</th>
<th>Compromise Goal</th>
<th>Time to Complete Goal?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>amount/time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total number of goals set:____  Number of goals achieved:____

Percent of goals achieved (\# Goals Achieved/Total Goals Set):____
process was organized. Homework was divided into small specific goals. Initially, the parent and child each suggested a goal. Then, a compromise homework goal was recorded (e.g., the child will complete 6 math problems in the next 10 minutes). Parents and children were instructed to set challenging yet attainable goals. Initially, ten minute goals were recommended. If children completed goals in significantly less time than allotted, goals were made more difficult by either decreasing the amount of time or increasing the number of problems specified in the goal. However, if goals appeared too difficult as evidenced by children becoming frustrated or not being able to complete a reasonable amount of work in one goal period, goals were made less stringent. Once a goal was determined, a timer was set for the amount of time specified in the compromise goal. Parent involvement was minimal as children were permitted to request help only once during each goal. At the end of goal periods, children evaluated whether goals were achieved and parents confirmed children's judgments. Incomplete or inaccurate problems were incorporated into the next goal. This process continued until homework was complete.

Parents were trained in the use of contingency contracts via a written handout (See Appendix O), discussion, practice, and performance feedback. Training
was similar to that used in the training of goal setting procedures.

Each week, parents and children negotiated contracts that specified daily and weekly rewards contingent on appropriate homework behavior. Parents were taught to specify observable and measurable behaviors for each contract. For example, they were encouraged to identify a specific percent of goal achievement necessary for children to earn daily rewards. Parents were also instructed to identify several rewards from which their children could choose and to change the rewards made available each week to prevent children from becoming bored with reward choices. Parents were instructed to include their children in the contracting procedure and to practice good communication when negotiating contracts. For example, parents were encouraged to listen carefully, offer a variety of solutions, avoid criticism, and be willing to compromise with their children. Parents were asked to write down the contract, using the contract form presented in Appendix P, so that they and their children could remember what was agreed upon. Finally, parents were encouraged to consistently provide promised rewards.

Families were instructed to determine if necessary homework materials were brought home and calculate percent of homework goals attained. If the child met all
of the behavioral requirements specified in the contract, he or she earned one of the specified rewards. If the child failed to meet the requirements, he or she did not earn a reward that day. Also, the contract specified a sanction to be implemented if the child did not bring home all necessary homework materials. Larger, weekly rewards were specified which were provided contingent upon the number of days in which all materials necessary for homework were brought home and the number of days in which a specified percentage of goals were met. Parents recorded the daily and weekly rewards earned by their children on the Contract Monitoring Sheet (See Appendix Q).

Data Collection and Reliability

Observational Sessions. Each family was observed in their homes at pre-arranged times approximately three to four times weekly, for 40-minute intervals during which the child was completing homework. During observations, the television was turned off, only family members were present, the target child remained in view of the observers, and the mother was within hearing distance of the observers. Observers were instructed to refrain from interacting with families during observations. All questions were referred to the experimenter.

Interactions were coded using a 15-second continuous time sampling procedure, for a total of 40 minutes.
Observers alternated between the HICS-R, while subjects were engaged in homework completion, and the IBC-R, while subjects and their parents were engaged in goal-setting. The Coding Sheet, presented in Appendix R, allowed them to alternate between codes. The two codes were not used simultaneously.

In contrast, contracting sessions were audiotaped and coded at a later time. This procedure was chosen as contracting typically occurred in the clinic or at home when observers were not present. Initially, contracting occurred in the clinic so that the therapist could provide guidance through the contracting procedure. The IBC-R was used to code contracting sessions.

Observer training. Undergraduate and graduate students were trained to observe parent and child behavior during homework. Training consisted of the provision of written materials, discussion, practice sessions, and performance feedback. Practice was conducted on videotapes of children completing homework and on pilot subjects. Observers were required to pass a test of written proficiency as well as to demonstrate overall agreement of 80% before being assigned to family observations. Following assignment, observers continued to meet weekly to review code definitions in order to prevent observer drift.
RESULTS

Reliability

Throughout baseline and treatment, interobserver reliability was assessed for 25% of the home observations. Occurrence reliability was derived by dividing the number of agreements by the number of agreements plus disagreements and then multiplying by 100. Mean agreement between observers was 95% across categories (range 83-100%). Reliability for on- and off-task averaged 97% and 89%, respectively.

Homework was scored by a parent across all experimental conditions. Reliability of homework scoring procedures was assessed once weekly by trained observers. Mean agreement across subjects was 100%.
Richard Figure 1 presents on-task data across all subjects. The figure shows the percent of on-task behavior across sessions for each subject: Richard, Jenny, Adam, and Ann. The x-axis represents the sessions, and the y-axis represents the percentage of on-task behavior.

Figure 1. Percent of on-task behavior across subjects.
four subjects in a multiple baseline withdrawal design. As seen in Figure 1, Richard exhibited a mean on-task rate of 68% (range 64-71%) during the initial baseline phase which increased to 97% (range 93-100%) on implementation of treatment procedures. Percent of on-task behavior decreased to a mean of 67% (range 55-85%) upon withdrawal of treatment and again increased to a mean of 97% (range 95-100%) on reintroduction of goal setting and contingency contracting. Richard's performance during treatment phases was consistent and exhibited little variability.
Figure 2 presents accuracy data for all four subjects.

Figure 2. Percent of homework completed accurately across subjects.
subjects. Experimental control over the accuracy of Richard's completed homework assignments was clearly demonstrated. As seen in Figure 2, Richard's accuracy averaged 64% (range 60-69%) during baseline and increased to 85% (range 79-96%) during treatment. This figure decreased to a mean of 45% (range 6-60%) during return to baseline conditions and again increased to a mean of 92% during the final treatment phase (range 70-100%).

Richard did not exhibit difficulties bringing his homework materials home so this behavior was not targeted for intervention. For Richard, total length of time required to complete all experimental conditions was twelve weeks.

Jenny As seen in Figure 1, Jenny's level of on-task behavior during baseline averaged 74% (range 70-78%). Percentage of on-task behavior improved to a mean of 91% (range 83-98%) during treatment and decreased to an average of 65% (range 53-77%) during return to baseline. With reintroduction of goal setting and contingency contracting, percent of on-task behavior improved to 95% (range 86-100%).

Figure 2 presents Jenny's accuracy data across experimental conditions. During baseline, Jenny achieved a mean accuracy level of 64% (range 50-73%) which increased to 92% (range 84-100%) on implementation of treatment. Return to baseline conditions resulted in a
decrease in accuracy to a mean of 75% (range 73-76%) which again increased to an average of 90% (range 80-98%) when treatment was reinstituted.

Jenny brought home necessary materials on only 40% of days during the initial baseline period. With the introduction of treatment, this figure increased to 89% of all days. During both return to baseline and reintroduction of treatment, Jenny brought required materials home everyday (100%). Total length of time required to complete all experimental conditions for Jenny was eight weeks.

Adam Figure 1 presents Adam's on-task data across experimental conditions. As seen in Figure 1, Adam's level of on-task behavior averaged 60% (range 21-85%) and was variable during the initial baseline period. Introduction of treatment conditions produced an increase in on-task behavior to a mean of 88% (range 85-93%) which remained stable throughout following experimental conditions.

As seen in Figure 2, accuracy of Adam's completed work averaged 71% (range 60-86%) during baseline and was variable. This level increased to 91% (range 83-100%) with the implementation of treatment and decreased to a mean of 70% (range 56-80%) with the subsequent withdrawal of treatment conditions. When treatment was reintroduced, Adam's accuracy again increased to a mean
of 91% (range 84-100%). Adam did not exhibit difficulties remembering to bring his homework materials home. Length of involvement across the four experimental conditions was six weeks for Adam.

**Ann** The percent of intervals in which Ann was on-task are depicted in Figure 1. Ann was on-task for an average of 83% (range 64-92%) across initial baseline observations which increased to a mean of 94% (range 86-99%) with treatment implementation. Her levels of on-task behavior remained high throughout all following experimental conditions.

However, more dramatic changes were observed with respect to Ann's level of accuracy across experimental conditions, as seen in Figure 2. Baseline levels of accuracy averaged 64% (range 40-92%) and were quite variable across the condition. Implementation of treatment increased the mean accuracy level to 88% (range 68-100%) and withdrawal of treatment conditions decreased mean accuracy to 69% (range 50-90%). Ann increased her accuracy to a mean of 92% (range 88-97%) when goal setting and contingency contracting were reinstituted.

With regard to bringing pertinent materials home, Ann successfully did so on only 55% of days during baseline. During the initial treatment phase, this figure increased to 75% and again increased to 100% during both treatment withdrawal and treatment
reintroduction. For Ann, total length of time required to complete all experimental conditions was eight weeks.

**Homework Problem Checklist**

Parents' Homework Problem Checklist scores are presented in Table 5. As seen in Table 5, parents' HPC scores did not all reflect significant improvement, despite observed behavior changes. Jenny's mother's score decreased from 38 (pre-treatment) to 21 (post-treatment) which is within two standard deviations of the mean for girls her age. Richard's mother rated his homework behavior as significantly improving as evidenced by a pre-treatment score of 27 which improved to a post-treatment score of 9.

**Table 5. Homework Problem Checklist: Pre- and Post-Treatment Scores**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Pre-Treatment</th>
<th>Post-Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adam</td>
<td>51</td>
<td>47</td>
</tr>
<tr>
<td>Ann</td>
<td>28</td>
<td>26*</td>
</tr>
<tr>
<td>Jenny</td>
<td>38</td>
<td>21*</td>
</tr>
<tr>
<td>Richard</td>
<td>27</td>
<td>09*</td>
</tr>
</tbody>
</table>

*Note.* Post-treatment scores less than two standard deviations above the mean.
In contrast, Ann's and Adam's mothers' scores did not appreciably improve with treatment. For example, Ann's mother indicated an improvement of only 2 points from pre- to post-treatment. Similarly, Adam's mother indicated a change of 4 points, with a post-treatment score still greater than four standard deviations above the mean.

**Homework Interaction Coding System-Revised**

The percent of intervals in which each category of the HICS-R was observed for each subject is presented in Appendix S. In general, the behaviors coded in the HICS-R occurred at very low frequencies and did not vary significantly across experimental conditions.

**Interaction Behavior Code-Revised**

The IBC-R was used to evaluate parent and child behavior during goal setting. Table 6 presents percent
Table 6. Interaction Behavior Code-Revised: Goal Setting. Percent of Intervals in which each IBC-R Category Was Observed

<table>
<thead>
<tr>
<th>Subject</th>
<th>Positive Solution Generation</th>
<th>Negative Solution Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Parent</td>
<td>Child</td>
</tr>
<tr>
<td>Adam</td>
<td>76%</td>
<td>49%</td>
</tr>
<tr>
<td>Ann</td>
<td>42%</td>
<td>35%</td>
</tr>
<tr>
<td>Jenny</td>
<td>66%</td>
<td>48%</td>
</tr>
<tr>
<td>Richard</td>
<td>78%</td>
<td>61%</td>
</tr>
</tbody>
</table>

of intervals in which each category of the IBC-R was exhibited by parents and children. As can be seen in Table 6, goal setting for Adam, Ann, and Richard was generally characterized by positive behaviors likely to produce effective problem solving. Jenny, however, exhibited significantly more negative behaviors not conducive to problem solving such as sarcasm, arguing, and name-calling.

Percent of positive and negative behaviors exhibited by parents and children are presented graphically across time in Appendix T. Inspection of IBC-R data across time revealed that rates of both positive and negative behavior remained stable across treatment phases.
Table 7 presents results of the IBC-R for audiotaped contract sessions. Sessions were primarily characterized by positive interactions, with both parents and children effectively working together to generate solutions. Relatively no instances of negative parent or child behavior were coded for Adam, Ann, and Richard. In contrast, Jenny exhibited a number of negative behaviors not conducive to effective problem solving. Again, rates of positive and negative behavior did not change across time.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Positive Solution Generation</th>
<th>Negative Solution Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Parent</td>
<td>Child</td>
</tr>
<tr>
<td>Adam</td>
<td>57%</td>
<td>25%</td>
</tr>
<tr>
<td>Ann</td>
<td>98%</td>
<td>52%</td>
</tr>
<tr>
<td>Jenny</td>
<td>85%</td>
<td>36%</td>
</tr>
<tr>
<td>Richard</td>
<td>82%</td>
<td>74%</td>
</tr>
</tbody>
</table>
Treatment Integrity

Treatment integrity was assessed via the Treatment Integrity Questionnaire. Interobserver reliability on this measure was assessed for 20% of home observations. Mean agreement between observers was 96% (Range 90-100%).

Generally, parents and children followed treatment recommendations as provided by the therapist. Of the ten behaviors assessed for treatment integrity, overall compliance figures were 88% for Adam, 83% for Ann, 94% for Jenny, and 96% for Richard. Adam and his mother did not use the provided timer but did use an appropriate alternative (i.e., wall clock). Ann requested more than the one recommended help on four occasions although she never asked for more than three helps. All of the subjects' parents failed to praise successful goal attainment at times. Adam and Ann's mothers, though, failed to praise more often than the other parents (77% & 55% of observations, respectively). Ann and Richard's mothers criticized their children's homework performance more than the other mothers (33% & 27%, respectively).

Social Validity

Social validity of procedures was evaluated via the Treatment Evaluation Inventory-Short Form (TEI-SF) (Kelley, Heffer, Gresham, & Elliott, 1989) and an adapted version of the Parent's Consumer Satisfaction Questionnaire (PCSQ) (Forehand and McMahon, 1981). Using
the TEI-SF, mothers evaluated the acceptability of goal setting and contingency contracting following completion of the study. Total scores on the TEI-SF range from 9 to 45 with a score of 27 representing moderate acceptability. All parents rated goal setting and contingency contracting as highly acceptable procedures that did not exhibit significant negative side effects. Total TEI-SF scores were 37 for Adam, 32 for Ann, 35 for Jenny, and 40 for Richard.

Parents' scores on the adapted PCSQ are presented in Table 8. Parents rated satisfaction with the overall Table 8. Parent's Consumer Satisfaction Questionnaire Scores

<table>
<thead>
<tr>
<th></th>
<th>Adam</th>
<th>Ann</th>
<th>Jenny</th>
<th>Richard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Program</td>
<td>51</td>
<td>45</td>
<td>56</td>
<td>62</td>
</tr>
<tr>
<td>(Range 10-70)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulty</td>
<td>14</td>
<td>16</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>(Range 3-21)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usefulness</td>
<td>14</td>
<td>17</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>(Range 3-21)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Therapist</td>
<td>33</td>
<td>29</td>
<td>30</td>
<td>34</td>
</tr>
<tr>
<td>(Range 5-35)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Score</td>
<td>112</td>
<td>107</td>
<td>119</td>
<td>134</td>
</tr>
<tr>
<td>(Range 21-147)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
program (range 10-70), difficulty (range 3-21) and usefulness (range 3-21) of the teaching methods used, and therapist behavior (range 5-35). Total scores were derived by summing across these four dimensions (range 21-147). Total scores for each subject were 112 for Adam, 107 for Ann, 119 for Jenny, and 134 for Richard. Generally, parents evaluated goal setting and contingency contracting as highly useful procedures that were easy to implement. They expressed confidence in their ability to manage homework difficulties and reported being satisfied with their children's progress. The teaching methods used were judged as easy to understand and useful. Parents' evaluations of the therapist's teaching skills, empathy, and helpfulness were uniformly positive.
DISCUSSION

The effects of goal setting and contingency contracting on the homework performance of children identified by their parents as exhibiting significant homework difficulties were examined. Time on-task and accuracy of completed work were the dependent variables of primary interest. The functional relation between treatment procedures and dependent variables was demonstrated via a multiple baseline withdrawal design. Goal setting and contingency contracting produced significant improvement in work accuracy for all subjects. Experimental control was established by both the withdrawal and multiple baseline designs with subjects exhibiting increased work accuracy and, in three of four subjects, increased consistency across treatment phases. On treatment withdrawal, all subjects exhibited significant decreases in work accuracy thereby indicating that the treatment was responsible for observed improvements in accuracy.

Treatment efficacy with regard to on-task behavior was less clear. Two subjects demonstrated clear increases in percent of on-task behavior during treatment phases as well as significant decreases during baseline phases. Thus, for those two subjects, treatment procedures clearly exerted control over the dependent variable.
However, experimental control of on-task behavior for the remaining two subjects was equivocal. For Ann, there may have been a ceiling effect as her initial levels of on-task behavior were quite high (i.e., 83%), thereby limiting the degree to which her behavior could improve. Mean differences in on-task behavior between experimental conditions were so small so as to preclude clear inferences about the effects of treatment on Ann's levels of on-task behavior. Adam, on the other hand, initially exhibited low and variable levels of on-task behavior which increased with treatment implementation but did not decrease during the return to baseline phase. The multiple baseline across subjects suggests that increases in time on-task were not time-related. That is, across the four subjects, none evidenced change in their rate of on-task behavior prior to treatment implementation.

Several hypotheses may be considered in efforts to understand the failure of the present results to provide clear evidence for the efficacy of goal setting and contingency contracting for improving subjects' on-task behavior. One hypothesis is that the treatment did not exert control over this target behavior. Although on-task behavior was a dependent variable, it was not specifically targeted by the treatment procedures as were goal achievement and problem completion. Another
consideration involves length of the second baseline phase for both Adam and Ann. Had these phases been extended, clearer downward trends may have developed. However, due to time constraints, it was not possible to extend the second baseline phases. Finally, on-task behavior may have generalized more readily for these two subjects and failure of the data to reflect treatment withdrawal may represent maintenance of behavior change. Further research is necessary to clarify the effects of goal setting and contingency contracting with regard to on-task behavior.

It was hypothesized that the implementation of goal setting and contingency contracting would reduce observed parent and child aversive behavior. However, initial levels of aversive behavior were low for all subjects and it was therefore not possible to evaluate treatment effects.

It is unclear why some parents' Homework Problem Checklist (HPC) scores did not improve with treatment. Despite increases in work accuracy and/or time on-task for all subjects, parent perceptions of problematic homework behavior did not change for two children. In addition, inspection of the checklists reveals inconsistencies between observed behavior and parent perceptions of children's homework behavior. For example, Ann's mother indicated that Ann often daydreamed
during homework although observations revealed very high rates of on-task behavior.

In another study investigating the effects of an intervention on homework performance, parents reported little or no change on the HPC despite having positively evaluated the intervention (Anesko & O'Leary, 1982). As treatment was implemented during the last four weeks of the school year, the authors hypothesized that parents had little opportunity to practice the skills they had learned. The current study is similar in that the second treatment phase occurred in the final weeks of school and in some instances was ended prematurely due to the end of the school year. Anecdotally, parents who did not report significant change on the HPC reported that the last treatment phase should have been extended, if possible, to provide greater opportunities for skill development.

Children's global behavioral functioning may have also been related to treatment outcome as measured by the HPC. The children who exhibited the greatest number of clinically significant behavior problems, as rated by their parents and teachers, were those whose HPC scores did not improve. Whether this reflects the children's actual behavior or their parents' perceptions is unclear. Children whose parents perceive them to have more severe behavior problems may be more resistant to behavior change and require more intensive or comprehensive
treatment. Another hypothesis is that parents of behavior problem children are less likely to alter their perceptions of their children's behavior following treatment, particularly when treatment focuses on a discrete behavior like homework.

In some cases, adjunctive therapy focusing on behaviors other than homework performance may be indicated. For example, children presenting with behavior problems across several domains, as did Adam and Ann, may require more intensive treatment focusing on issues such as compliance or self-control. In addition, Jenny exhibited a significant degree of negative behavior during goal setting and contracting. Thus, assessment of communication behaviors and provision of communication skills training may have been beneficial. Adjunctive therapy, in some cases, may enhance the efficacy of goal setting and contingency contracting.

The combined use of goal setting and contingency contracting offers several positive, unique features over other interventions. Specifically, these procedures provide a heuristic for completing homework and introduce increased structure into the homework routine. Prior to treatment implementation, subjects approached homework one problem at a time and parents did not become involved with homework until children requested help. Dividing assignments into several small goals required parents and
children to carefully evaluate the parameters of each assignment (i.e., number of problems, type of problems) as well as behavioral expectations for child performance. Prior research suggested that goal setting might be enhanced if children are trained to set challenging yet attainable goals. In this study, children initially suggested goals and received parent feedback concerning the appropriateness of the goals. Over time, parents provided less feedback as children learned to identify suitable goals. Also, children were required to evaluate their own behavior during goal setting by determining whether they had achieved their goals. In this manner, children learned to monitor their own behavior, an important step toward self-control, which is associated with increased accuracy in many curricular areas (Ballard & Glynn, 1975; Koegel, Koegel, & Ingham, 1986).

Another benefit of goal setting concerns parent feedback which differed in several important ways during treatment as compared to baseline. During baseline, parents generally did not provide feedback until homework was completed. During goal setting, however, children were provided with immediate and specific performance feedback, possibly important contributants to attentiveness and skill development (Drabman & Lahey, 1974; Pellegrino & Goldman, 1987).
The social validity of the use of goal setting and contingency contracting for the remediation of homework difficulties was supported by this study. Via standardized questionnaires, parents reported liking the procedures and finding them to be appropriate for the remediation of homework problems. Unstandardized interviews conducted after completion of the project indicated that parents felt very positively about the procedures as they provided structure for homework completion. Also, parents perceived their children as being more interested in homework and as completing homework more independently.

Children's perceptions of the treatment procedures were uniformly positive. Anecdotally, children reported that goal setting helped focus their attention on homework and that they were able to complete their homework more quickly and accurately. All of the children reported being glad they had participated in the project and hoped to continue using the procedures in the future.

The current study provided several methodological contributions to the literature. For example, this was the first study to specifically target children with clinically significant homework problems as judged by their parents' responses to a standardized questionnaire, significant levels of off-task behavior, and low levels
of work accuracy. The use of several measures provided converging indices suggesting that the subjects in this study exhibited significant homework problems. In addition, multiple assessment measures allowed for the concurrent evaluation of homework completion and accuracy. Previous studies have often focused solely on completion. During baseline, all subjects in this study completed their homework each night. However, each one exhibited significant difficulties with work accuracy and all but one subject exhibited significant levels of off-task behavior. The exclusion of any one measure would have resulted in the loss of valuable information concerning treatment effects.

Although goal setting and contingency contracting produced marked and immediate treatment effects, there are a number of methodological limitations in the current study. Final treatment phases were generally brief due to time constraints. Therefore, conclusions about the efficacy and generalizability of these procedures are limited. In addition, social validity of these procedures is not clear as parents' ratings did not consistently reflect behavioral improvement. The addition of subjective comparison methods and teacher ratings of homework would have provided stronger evidence for the clinical significance of goal setting and contingency contracting.
The next step in the evaluation of goal setting and contingency contracting as an intervention package for homework problems would be to examine whether these procedures produce a concurrent improvement in academic achievement. The present study confirms that parent involvement in homework can be helpful but the effects of the intervention on achievement remain to be determined. In addition, research examining the relation between homework problems and other child behavior problems is needed. Specifically, the degree to which homework and behavior problems co-exist in children and whether their relation affects treatment outcome should be examined. Until these issues are elucidated, comprehensive assessment of homework problems should include the assessment of other areas of child behavior.

Further considerations in future research should include replication of the current results and evaluation of other modalities of treatment delivery, such as group treatment. Also, follow-up data would provide evidence for the generalization and maintenance of treatment effects. Finally, the present study focused exclusively on children exhibiting average levels of academic achievement. The efficacy of goal setting and contingency contracting with students exhibiting low academic achievement or learning disabilities should be addressed.
REFERENCES


Hollingshead, A.B. (1975). Four factor index of social status. (Available from A.B. Hollingshead, Department of Sociology, Yale University, New Haven, CT 06520).


APPENDIX A. CONSENT FORM

The purpose of this study is to train parents in the use of certain procedures aimed at improving their children's homework performance. If you decide to participate, you will be asked to complete two questionnaires concerning your child's behavior. In addition, you will receive instruction in the use of specific procedures which are aimed at improving homework performance: goal setting and contingency contracting. Treatment will last approximately six to eight weeks. During this time, trained observers will observe your child in the home four times a week for 40 minutes a session.

With your permission, your child's teacher will be contacted for an interview. The teacher will be asked to complete a questionnaire concerning your child's classroom behavior.

All of the information collected in this study will be confidential and used for research purposes only. Please feel free to ask any questions you may have. You may withdraw from this study at any point in time, but we hope you will agree to participate.

I voluntarily agree to participate in this study.

Signature ______________________ Date __________
PLEASE NOTE

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University Microfilms International
APPENDIX E. HOMEWORK SCORING PROTOCOL

For every item completed correctly, the student earns one point. Incorrect items are scored as zero. One point is awarded for correctly completing an item. Problems having more than one part are scored such that each problem part is counted as one point. For example, if a problem requires the student to correctly divide a four syllable word, four points are awarded for correct word division. If an item is skipped, it is counted as incorrect. When an answer key is available, answers to items must match those found in the key. As student work is graded, a "1" is placed next to a correct item and an "X" is placed next to an incorrect item. After the assignment is graded, all of the "1"s and "X"s for each subject area will be summed. At the top of each page, the total number correct over the total number incorrect will be indicated.
Please evaluate the use of goal setting and contingency contracting for the treatment of homework problems. Evaluate the treatment as it was applied in your home by placing a checkmark on the line next to each question that best indicates how you feel about the treatment. Please read the items very carefully because a checkmark accidentally placed on one space rather than another may not represent the meaning you intended.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I find this treatment to be an acceptable way of dealing with the child's problem behavior.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I would be willing to use this procedure if I had to change the child's problem behavior.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I believe that it would be acceptable to use this treatment without children's consent.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4. I like the procedures used in this treatment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I believe the child will experience discomfort during the treatment.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7. I believe this treatment is likely to result in permanent improvement.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I believe it would be acceptable to use this treatment with individuals who cannot choose treatments for themselves.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>9. Overall, I have a positive reaction to this treatment.</td>
<td></td>
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</tr>
</tbody>
</table>
APPENDIX G. PARENT'S CONSUMER SATISFACTION QUESTIONNAIRE

The following questionnaire is part of our evaluation of the treatment program that you have received. It is important that you answer as honestly as possible. The information obtained will help us evaluate the program we offer. Your cooperation is greatly appreciated.

A. The Overall Program

In this section we would like to get your opinion of how goal setting and contingency contracting worked for you and your family. Please check the response that most closely describes your opinion.

1. At this point, the major problem(s) that originally prompted me to begin treatment for my child is (are):

   ______ Considerably worse.
   ______ Worse.
   ______ Slightly worse.
   ______ The same.
   ______ Slightly improved.
   ______ Improved.
   ______ Greatly improved.
2. My feelings at this point about my child's progress are that I am:

_____ Very dissatisfied.
_____ Dissatisfied.
_____ Slightly dissatisfied.
_____ Neutral.
_____ Slightly satisfied.
_____ Satisfied.
_____ Very satisfied.

3. At this point, my expectation for a satisfactory outcome of the treatment is:

_____ Very pessimistic.
_____ Pessimistic.
_____ Slightly pessimistic.
_____ Neutral.
_____ Slightly optimistic.
_____ Optimistic.
_____ Very optimistic.
4. I feel that using goal setting and contingency contracting for my child’s homework problems in the home is:
   ______ Very inappropriate.
   ______ Inappropriate.
   ______ Slightly inappropriate.
   ______ Neutral.
   ______ Slightly appropriate.
   ______ Appropriate.
   ______ Very appropriate.

5. Would you recommend goal setting and contingency contracting to a friend or relative?
   ______ Strongly recommend.
   ______ Recommend.
   ______ Slightly recommend.
   ______ Neutral.
   ______ Slightly not recommend.
   ______ Not recommend.
   ______ Strongly not recommend.
6. How confident are you in managing current homework problems in the home on your own?

_____ Very confident.
_____ Confident.
_____ Somewhat confident.
_____ Neutral.
_____ Somewhat unconfident.
_____ Unconfident.
_____ Very unconfident.

7. How confident are you in your ability to manage future homework problems in the home using what you learned from this program?

_____ Very unconfident.
_____ Unconfident.
_____ Somewhat unconfident.
_____ Neutral.
_____ Somewhat confident.
_____ Confident.
_____ Very confident.
8. I feel that using goal setting and contingency contracting is:
   _____ Extremely difficult.
   _____ Difficult.
   _____ Somewhat difficult.
   _____ Neutral.
   _____ Somewhat easy.
   _____ Easy.
   _____ Extremely easy.

9. I feel that using goal setting and contingency contracting is:
   _____ Not useful at all.
   _____ Not useful.
   _____ Somewhat not useful.
   _____ Neutral.
   _____ Somewhat useful.
   _____ Useful.
   _____ Extremely useful.
10. My overall feeling about the treatment program for my child and family is:

- Very negative.
- Negative.
- Somewhat negative.
- Neutral.
- Somewhat positive.
- Positive.
- Very positive.

B. Difficulty

In this section, we would like to get your ideas on the difficulty of the following types of teaching. Please indicate your difficulty in understanding each teaching method. Circle the response that most closely describes your opinion.
C. Usefulness

In this section, we would like to get your ideas of how useful each of the following types of teaching is for you now. Please circle the response that most clearly describes your opinion.
(1) Not Useful (4) Neutral (7) Extremely At All Useful

<table>
<thead>
<tr>
<th>Written Materials</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Discussion of Written Materials</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Demonstration of Skills by the Therapist</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

D. **The Therapist**

In this section we would like to get your ideas about your therapist. Please mark the response that best expresses how you feel.
1. I feel that the therapists teaching was:
   _____ Very poor.
   _____ Fair.
   _____ Slightly below average.
   _____ Average.
   _____ Slightly above average.
   _____ High.
   _____ Superior.

2. The therapists preparation was:
   _____ Very poor.
   _____ Fair.
   _____ Slightly below average.
   _____ Average.
   _____ Slightly above average.
   _____ High.
   _____ Superior.
3. Concerning the therapists interest and concern in me and my problems with my child, I was:
   ____ Extremely dissatisfied.
   ____ Dissatisfied.
   ____ Slightly dissatisfied.
   ____ Neutral.
   ____ Slightly satisfied.
   ____ Satisfied.
   ____ Extremely satisfied.

4. At this point, I feel that the therapist was:
   ____ Extremely not helpful.
   ____ Not helpful.
   ____ Slightly not helpful.
   ____ Neutral.
   ____ Slightly helpful.
   ____ Helpful.
   ____ Extremely helpful.

5. Concerning my personal feelings toward the therapist:
   ____ I dislike her very much.
   ____ I dislike her.
   ____ I dislike her slightly.
   ____ I have a neutral attitude toward her.
   ____ I like her slightly.
   ____ I like her.
   ____ I like her very much.
APPENDIX H. HOMEWORK INTERACTION CODING SYSTEM—REVISED

The following parent and child behaviors are included in the observation system.

### Parent Behaviors

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Behavior Category Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Aversive</td>
</tr>
<tr>
<td>AP</td>
<td>Approval</td>
</tr>
<tr>
<td>GA</td>
<td>Gives Answer</td>
</tr>
<tr>
<td>P</td>
<td>Prompts</td>
</tr>
<tr>
<td>RD</td>
<td>Redirect</td>
</tr>
<tr>
<td>C</td>
<td>Conversation</td>
</tr>
</tbody>
</table>

### Child Behaviors

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Behavior Category Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Aversive</td>
</tr>
<tr>
<td>RQ</td>
<td>Requests Help</td>
</tr>
<tr>
<td>+P</td>
<td>Self-evaluation, positive</td>
</tr>
<tr>
<td>-P</td>
<td>Self-evaluation, negative</td>
</tr>
<tr>
<td>SI</td>
<td>Self Instruction</td>
</tr>
<tr>
<td>An</td>
<td>Academic Answer</td>
</tr>
<tr>
<td>C</td>
<td>Conversation</td>
</tr>
<tr>
<td>ON</td>
<td>On-task</td>
</tr>
<tr>
<td>OFF</td>
<td>Off-task</td>
</tr>
</tbody>
</table>

In addition to the above parent and child behaviors, information will also be obtained about the type of
activity and the academic subject in which the target child is engaged.

**Symbol** | **Activity**
--- | ---
SW | Seat work
SWP | Seat work with parent
ST | Studying
STP | Studying with parent

**Symbol** | **Academic Subject**
--- | ---
M | Mathematics
SS | Social Studies
S | Spelling
R | Reading
O | Other

**Parent Code - Definitions**

I. **Task Feedback** - Parent's feedback directed to the child that conveys the parent's reaction to the child's performance on the homework assignment.

   **A - Aversive:** Clear expression of disapproval, criticism, or negative feedback about the child's performance or ability. May include yelling, angry statements, ridicule, or sarcasm.

   **AP - Approval:** Clear expression of approval, praise, or positive feedback about the child's performance or ability. Statement made by the parent whose purpose is to maximize the likelihood that the child will persist in his or her efforts to complete the
assignment. Parent's statement reflects a recognition of the effort exerted by the child and/or the difficulty of the task.

II. Academic Instruction - Statement which provides information about homework assignment and/or its solution, coded according to the level of specificity as:

GA -Gives Answer: Giving the answer to a problem or question or implying the correct answer. This includes parents reading the wording of a problem to the child if it appears the child is struggling with the written text. Giving the answer without providing the opportunity for the child to think/solve/try out the answer.

P -Prompts: Focusing attention on an aspect or portion of the assignment, structuring the task by having the child sound out a word, breaking a task into its elements, and/or attempts to elicit the answer to a question. Includes general suggestions about the solution of the assignment which define the task or suggest a new approach. Also includes academic prompts which are statements aimed at maintaining the child's involvement in the homework task rather than returning his/her attention to the homework.

RD -Redirect: Statement aimed at controlling the child's behavior by redirecting his or her attention back to the assignment when the child is presently engaged in off-task behavior.
C -Conversation: Irrelevant conversation with the child which is not necessary for homework completion; the parent makes no reference to the homework task.

Child Code - Definitions

I. Child responses to parent concerning homework.

A -Aversive: Clear expression of disapproval, criticism, or negative feedback toward the parent. May include yelling, angry statements, ridicule, or sarcasm.

RQ -Requests Help: Child asks parent for help in homework assignment solution. Child tries to elicit an answer about a homework problem or feedback about the correctness of his or her answer.

II. Comment on Performance -Child refers to his or her own ability to complete homework exercise or to his or her progress. This category would be rated as being either positive or negative.

+P -Positive Performance/Self-evaluation: Statement child makes to self which indicates that s/he is happy or satisfied with own performance or that the material is easy or manageable.

-P -Negative performance/Self-evaluation: Statement child makes to self which indicates that s/he is unhappy or dissatisfied with own performance or that the material is too difficult.

SI -Self Instruction: Statement child makes to self which provides information about the homework assignment
and/or its solution. Can include focusing attention on an aspect or portion of the assignment, structuring the task by breaking it into its elements and maintaining attention to the task.

An **Academic Answer**: Child's response to task related inquiry by parent that represents an attempt to provide the correct solution or explanation of the task (the correctness of the response does not matter).

C **Conversation**: Comments not related to the academic task at hand.

III. **On/Off-Task** -Reflects whether child is actively engaged in homework.

Off **-Off-task** will be recorded if the child manipulates non-task related objects such as toys, papers, and desks, does not attend to the task (e.g., gaze around room, look out of the window, engage in conversation), or leaves his or her seat without permission. Off-task will be coded if a child engages in off-task behavior for five seconds or longer during one 15-second interval.

On **-On-task** will be recorded at the end of the interval if the child is observed completing his or her work with his/her eyes and head oriented towards work materials. On-task will be coded if no instances of off-task behavior are recorded during the interval.
IV. Activity - Reflects specific type of activity in which child is engaged at beginning of each interval.

SW - Seatwork-individual: Seatwork will have an identifiable written product that is to be turned in to the teacher. This category will be coded only when the child is engaged independently and a parent is not involved in any way (e.g., no prompting, instructions, or help of any kind.

SWP - Seatwork with the help of a parent: Same as Seatwork with the exception that a parent is actively involved in homework completion. The parent may be prompting the child, explaining directions, reading words aloud, or engaging in any other behavior that can be viewed as aiding the child with homework completion.

ST - Studying-individual: Studying is defined as academic products not to be turned in to the teacher. This may include memorizing words, completing practice problems, reading, or any other behavior related to studying.

STP - Studying with the help of a parent: Same as Studying with the exception that a parent is actively helping the child to study.
V. **Academic Subject** - Reflects academic content of assignment in which child is initially engaged at beginning of each interval.

- **M** - Mathematics
- **R** - Reading
- **SS** - Social Studies
- **O** - Other
- **S** - Spelling
APPENDIX I. INTERACTION BEHAVIOR CODE-REVISED

(1) +SG -Solution generation-parent-positive or +sg -Solution generation-child-positive: These categories will be coded if any of the following behaviors occur during the interval.

Stating the other's opinion—an effort to express the other person's views in a noncondemnatory fashion, e.g., by paraphrasing without losing the original intent.

Making suggestions—offering solutions and possible ideas (without demanding) of things that can be done differently in the future.

Praising, complimenting—expressing approval of the other person; to commend, say something positive about the other.

Asking what the other would like—attempting to find out what the other person wants, expects, or prefers.

Compromise—modifying original intentions or preferences, willingness to do so.

Willingness to listen—paying attention to what the other has to say; showing interest with questions and acknowledgements.

(2) -SG -Solution generation-parent-negative or -sg -Solution generation-child-negative: These categories will be coded if any of the following behaviors occur during the interval.

Giving short unhelpful responses—answering questions
or statements with utterances that have no benefits to the discussion, e.g., "uh-huh", "I don't know".

**Making demands**—clear-cut commands; requests which require action.

**Arguing over small points (quibbling)**—disputing minute, trivial, or discussion irrelevant aspects.

**Disregarding the other person's points**—lack of acknowledgement of other's statements; speaking as though the other person did not say anything.

**Quick, negative judgement of other's suggestions**—to negate, reject, or criticize the other person's suggestions without verbal or temporal signs of taking the suggestions under consideration.

**Silence, ignoring other**—refusing to participate, avoiding questions, not talking (for longer than a couple of seconds).

**Repeating one's opinion with insistence**—excessively and repeatedly stating the same opinion.
APPENDIX J. TREATMENT INTEGRITY QUESTIONNAIRE

Please answer the following questions after each observation.

Date: Child's Name:

1. Was a timer used? Yes No

2. Was the Goal Setting Worksheet completed? Yes No

3. Who was present during goal setting? Parent Child Both Other

4. On average, how many "helps" were provided during each goal? 0 1 2 3 more than 3

5. Did the parent praise the child for achieving goals? Yes No

6. Were non-family members present during homework? Yes No

7. Did the parent ridicule or criticize the child? Yes No

8. Where was the parent located during homework? At table In room Out of room

9. Did the child remain seated during most of the observation? Yes No

10. Did the child make or receive any phone calls? Yes No
APPENDIX K. DEMOGRAPHIC QUESTIONNAIRE

1. Age: 0-19____ 20-29____ 30-39____
       40-49____ 50 or older____

2. Sex: Male____ Female____

3. Marital Status: Married____ Single____
       Divorced____ Separated____

4. Race: Black____ White____ Hispanic____
       Oriental____ Other____

5. Please list the members of your household.

<table>
<thead>
<tr>
<th>Name</th>
<th>Relationship</th>
<th>Age</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

6. Education: What is the highest level of education completed by:
Yourself

___ 8th grade or less
___ some high school
___ graduated high school
___ some college/university
___ graduated from 4-yr college
___ graduated from vocational training
___ graduate degree

Your Spouse

___ 8th grade or less
___ some high school
___ graduated high school
___ some college/university
___ graduated from 4-yr college
___ graduated from vocational training
___ graduate degree

7. **Occupation:** What is your occupation?___________
    Your spouse's?________________________

8. **Income:** What is the total annual income of your household (combine income of all people living in your house now)?

___ $0 - $4,999
___ $5,000 - $14,999
___ $15,000 - $19,999
___ $20,000 - $24,999
___ $25,000 - $29,000
___ $30,000 - $34,999
___ $35,000 - $39,999
___ $50,000 or above

9. **Psychological Services:** Have you ever received any psychological services for your children? Yes ___ No ___
    If yes, where and when?________________________


APPENDIX L. HOMEWORK OBSERVATION GUIDELINES

Observational data yields a great deal of information about family interactions and also aids in treatment planning and in the evaluation of how well our treatment program works for you. Families who have participated in this type of research in the past have found it to be important to their understanding of their children's behavior. Also, families have found the observers to be professional and friendly and have readily gotten used to having someone observe them and found that it did not interfere greatly with their routines. The observers are well trained prior to visiting your home and have been instructed to preserve your privacy and confidentiality.

During all observations, please remember the following:

(1) Continue with all normal routines and react to your child in your normal manner.

(2) The child should be located in the same quiet, well illuminated location during every observation. Also, all pertinent materials (e.g., books, pencils, dictionary) should be within the child's reach.

(3) The child should complete his or her homework in the same order every night with most difficult subjects being completed first and easiest subjects last. Your child should complete his/her homework
in the following order:

1)___________  2)___________

3)___________  4)___________

5)___________  6)___________

(4) The child must be within view of the observer at all times.

(5) The observers will not be able to talk to you or your child during the observation period. Both you and your child should pretend that the observer is not there.

(6) The child should not make or receive any telephone calls during observations. If someone calls for the child, please ask them to call back upon completion of the observation session.

(7) All questions about the experiment will be referred to Deborah Miller.

(8) Please let me know if there are any problems with the observers (e.g., if they are late, miss sessions, or are rude).

(9) If you have any questions or problems, do not hesitate to call me at 388-1494.
APPENDIX M. HOMEWORK COMPLETION MONITORING
SHEET-BASELINE

Please indicate the time at which your child begins and finishes his or her homework in each subject. Also, please note what type of problems your child completes (e.g., addition problems, fill in the blank sentences, answering reading comprehension questions) and how many problems of each type are completed.

Date:_______

Necessary homework materials brought home? Yes No N/A

Subject:________

Time started:____ Time finished:____

<table>
<thead>
<tr>
<th>Type of assignment</th>
<th>Number of problems completed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

Subject:________

Time started:____ Time finished:____

<table>
<thead>
<tr>
<th>Type of assignment</th>
<th>Number of problems completed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Subject:________

Time started:____ Time finished:____

<table>
<thead>
<tr>
<th>Type of assignment</th>
<th>Number of problems completed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>
APPENDIX N. HOMEWORK AND GOAL SETTING: PARENT HANDOUT

What Is Goal-Setting?

When a work assignment or large project is broken down into several smaller components to be completed one at a time, a person is setting goals. Homework assignments are an example of something that can be broken down in this way.

Example: One evening, Sally has homework assignments in spelling, math, and social studies. Her first goal might be to copy her spelling words twice each within 15 minutes. A second goal would be to spell all of the words correctly, as her mother or father reads them, in less than 10 minutes. Sally could also break down her math and social studies assignments in a similar manner.

Why Set Goals?

Goal-setting helps children learn to organize their work more efficiently. Also, successful goal attainment can increase children's academic achievement, self-worth, and interest in their schoolwork.
How To Set Goals

1. **State Goals in Terms of Time and Performance Demands.**

   When stating goals, specify the number of problems to be completed (or pages to be read, etc.) and the amount of time in which they should be completed.

   **Example:** Ross must complete 10 addition problems in 15 minutes.

2. **Determine Reasonable Goals.**

   Goals should neither be too hard nor too easy. Let your child suggest a goal and then discuss whether the goal is appropriate. If not, agree on a compromise goal. As your child gets used to the procedure and his or her performance improves, make the goals more difficult.

3. **Use a Timer.**

   Use a kitchen clock or timer and set it for how long the goal was set for. You can then instruct the child that his or her work must be complete when the bell rings. This way, you and your child know exactly when the time period is over.

4. **Provide Specific Instructions.**

   Tell your child in very specific terms what needs to be accomplished in order to achieve each goal. Also, indicate exactly when your child should begin working on each goal and make it clear that work will temporarily stop when the timer rings.
5. **Help Only Once During each Time Period.**

   During each time period, try to let your child complete the work on his or her own. Tell the child that he or she may ask for help only once. Ignore all other requests for help.

6. **Evaluate Whether the Goal was Met.**

   Ask your child to evaluate whether the goal was met and either confirm or disconfirm the child's judgment. Be sure to praise your child for successfully meeting the goal and for correctly evaluating whether the goal was met. Be sure to help your child determine the reason(s) that the goal was not met and identify possible solutions that will improve future performance.

7. **Set a New Goal.**

   If your child completed the previous goal, then set a new goal. If some of the problems from the last goal were not finished, include them in the new goal. Continue to set new goals until the entire homework assignment is completed satisfactorily.

8. **Praise Goal Achievement.**

   Be sure to praise your child for successful goal attainment each and every time he or she meets the desired goal. Praise should be immediate and specific. In addition, maintain reasonable standards and try not to criticize your child when goals are not met 100% of the time.
APPENDIX O. HOMEWORK AND CONTINGENCY CONTRACTING: PARENT HANDOUT

WHAT IS CONTINGENCY CONTRACTING?

A contingency contract is an agreement between two or more people that is understandable and acceptable to everyone involved. Contingency contracts specify what types of behavior people must display to earn certain rewards. With respect to homework, contracts will specify parental expectations for homework completion and homework accuracy, as well as rewards to be earned.

Example: If Billy remembers to bring all of his schoolbooks home and finishes his homework on time, he may stay up 30 minutes later than his usual bedtime.

WHY CONTRACT?

Contracting helps children learn what behaviors are desirable. They also let your child know that he or she can expect to be rewarded for good behavior.

HOW TO CONTRACT

1. Describe the Behaviors for the Contract in Observable and Measurable Terms.
   --Observable - We are able to see or hear it.
   --Measurable - We are able to count each instance of the behavior.

Example: Rather than saying that Jenny should "do a good job on her homework" to earn rewards, specify that she must complete all of her homework within 1 hour and
miss fewer than 10% of the problems in order to earn a reward.

2. **Determine Rewards.**

Both small daily rewards and larger weekly rewards should be given when children meet the goals specified by the contract. Daily rewards should be those now available to your child that you are willing to provide only when your child achieves his or her goal. It is a good idea to include several from which your child may choose.

**Examples:** TV in the evening
- Late bedtime
- Special time with mom or dad
- Stories at bedtime

Weekly rewards are those you provide when children achieve their goals on most days during the week. Again, include several rewards from which your child may choose.

**Examples:** Allowance
- Lunch at McDonalds
- Trip to the park
- Movie
- Friend over

Include your child when setting up the contract. Children enjoy planning what activities good behavior
will earn. Be sure and change rewards from week to week to avoid having your child get bored with the choices.

3. **Practice Good Communication.**

While negotiating the contract with your child, practice communication behaviors that help rather than interfere with the negotiation process. These behaviors include: 

- a. Listen carefully.
- b. Stay on the topic.
- c. Offer several solutions to problems.
- c. Avoid criticizing.
- d. Repeat what the other person has just said to clear up potential misunderstandings.
- e. Be willing to compromise.

4. **Write Down the Agreement.**

Record in "black and white" the negotiated agreement so that parents and children know what rules they agreed upon. Be sure to write the contract so that everyone can understand it. It may be helpful to ask your child to explain to you what the contract means. In this way, you can correct any misperceptions your child may have about the contract.

5. **Be Consistent.**

Consistently praise your child for behaving in ways you enjoy and for improving homework performance. **Always** provide the rewards earned. Also, avoid giving in or
giving extra chances when your child does not meet the standards in the contract.

6. **Renegotiate the Contract Each Week.**

   As your child's performance improves, make the contract slightly more difficult. If a previous contract appeared too difficult, make the next one a little easier. Also, remember to change the rewards each week so that your child does not become bored.
APPENDIX P. HOMEWORK CONTRACT

Name: ___________________ Week of: __________ To: __________

Necessary homework materials: _________________________________

(1) If the student remembers to bring home all of the materials necessary to complete that evening's homework assignment, then he or she may earn one of the following rewards: (a) __________
(b) __________
(c) __________

However, if the student forgets to bring home some of his or her homework materials, then: ____________________________.

(2) The student will earn the following rewards for earning the associated percentage of goals met:

<table>
<thead>
<tr>
<th>Percentage Points</th>
<th>Rewards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(3) If the student completes ___% or greater of his/her goals on at least ___ days, then s/he will earn one of the following extra bonuses:

(a) __________
(b) __________
(c) __________

Child Signature: _______________ Parent Signature: _______________
<table>
<thead>
<tr>
<th>Name: ______________________</th>
<th>Week of: ______________________</th>
<th>To: ______________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Mo) (Day)</td>
<td>(Mo) (Day)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Brought Materials Home? (Y or N)</th>
<th>Consequences Delivered:</th>
<th>Percent Goals Achieved:</th>
<th>Consequences Delivered:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon.</td>
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<td></td>
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<tr>
<td>Tues.</td>
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<tr>
<td>Wed.</td>
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<tr>
<td>Thur.</td>
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<tr>
<td>Fri.</td>
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<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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APPENDIX R. CODING SHEET

<table>
<thead>
<tr>
<th>Time: Start:</th>
<th>End:</th>
<th>Subject/Activity</th>
<th>Parent</th>
<th>Child</th>
<th>Goal-Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>M SS S RO</td>
<td>A AP GA</td>
<td>A RQ An</td>
<td>On</td>
<td>+SG</td>
<td>-SG</td>
</tr>
<tr>
<td>SW ST SW(P) ST(P)</td>
<td>P RD C</td>
<td>+P -P SI C</td>
<td>Off</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>M SS S RO</td>
<td>A AP GA</td>
<td>A RQ An</td>
<td>On</td>
<td>+SG</td>
<td>-SG</td>
</tr>
<tr>
<td>SW ST SW(P) ST(P)</td>
<td>P RD C</td>
<td>+P -P SI C</td>
<td>Off</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>M SS S RO</td>
<td>A AP GA</td>
<td>A RQ An</td>
<td>On</td>
<td>+SG</td>
<td>-SG</td>
</tr>
<tr>
<td>SW ST SW(P) ST(P)</td>
<td>P RD C</td>
<td>+P -P SI C</td>
<td>Off</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>M SS S RO</td>
<td>A AP GA</td>
<td>A RQ An</td>
<td>On</td>
<td>+SG</td>
<td>-SG</td>
</tr>
<tr>
<td>SW ST SW(P) ST(P)</td>
<td>P RD C</td>
<td>+P -P SI C</td>
<td>Off</td>
<td>C</td>
<td>C</td>
</tr>
</tbody>
</table>

| M SS S RO   | A AP GA | A RQ An | On     | +SG | -SG | OFF |
| SW ST SW(P) ST(P) | P RD C | +P -P SI C | Off | C | C | |
| M SS S RO   | A AP GA | A RQ An | On     | +SG | -SG | OFF |
| SW ST SW(P) ST(P) | P RD C | +P -P SI C | Off | C | C | |
| M SS S RO   | A AP GA | A RQ An | On     | +SG | -SG | OFF |
| SW ST SW(P) ST(P) | P RD C | +P -P SI C | Off | C | C | |

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**Coding Instructions.** Each row on the observation form represents one 15-second interval. Each block on the form represents one minute of recorded time. Behavior is to be coded for continuous 15-second intervals.

At the beginning of every 15-second interval record the academic subject (M, SS, S, R, or 0) and type of activity (SW, ST, SW(P), or ST(P)) the child is engaged in at the start of the interval. The activity may change during the interval but only the activity in which the child is initially engaged will be coded.

Parent behaviors are to be coded as occurring or not occurring every 15-seconds. Circle all parent behaviors that occur during each interval. Two or more behaviors may be circled for each interval.

Child behaviors are to be coded as occurring or not occurring every 15 seconds. If at the end of the 15-second interval the child did not display off-task, then circle on-task.

Only code Goal Setting categories if the parent and child are actively engaged in goal setting during the interval. Do not code Goal Setting categories if the child is engaged in homework. Similarly, do not code Homework Behavior categories during goal setting.
APPENDIX S. HOMEWORK INTERACTION CODING SYSTEM-REVISED.

PERCENT OF INTERVALS IN WHICH EACH HICS-R CATEGORY WAS OBSERVED

ADAM

<table>
<thead>
<tr>
<th>Category</th>
<th>B1</th>
<th>T1</th>
<th>B2</th>
<th>T2</th>
</tr>
</thead>
<tbody>
<tr>
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APPENDIX T. INTERACTION BEHAVIOR CODE-REVISED. PERCENT OF INTERVALS OF POSITIVE AND NEGATIVE BEHAVIOR FOR PARENTS AND CHILDREN ACROSS TREATMENT PHASES

ADAM

Goal Setting - Positive

Goal Setting - Negative

Sessions
Goal Setting - Negative

Goal Setting - Positive

Sessions

Parent

Child

ANN
VITA

Deborah Lynn Miller was born on April 9, 1965 in Wilmington, Delaware. She received her B.A. from Vanderbilt University in 1987 and her M.A. from Louisiana State University in 1989, both in psychology. She attended the Brown University Clinical Psychology Internship Consortium in 1991-1992. Research interests include homework, pediatric psychology, and treatment acceptability.
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Deborah Lynn Miller

Major Field: Psychology

Title of Dissertation: The Use of Goal Setting and Contingency Contracting for Improving Children's Homework Performance

Approved:

Mary Kelley
Major Professor and Chairman

Daniel Foyle
Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination: July 16, 1992