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# Reducing homework problems in ADHD adolescents: a comparison of two self-management interventions

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REDUCING HOMEWORK PROBELMS IN ADHD ADOLESCENTS:  
A COMPARISON OF TWO SELF-MANAGEMENT INTERVENTIONS

A Thesis

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  
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in

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by  
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## ABSTRACT

Self-managed interventions can be especially beneficial during the adolescent years, as expectations of a child's academic independence increase. Self-monitoring, a type of self-managed intervention, has been used to assess problem behaviors, evaluate treatment effectiveness, promote behavior change, and increase homework production. Goal-setting, another form of self-management has been associated with improvements in behavior, academics, and homework. However, no known studies have compared the effectiveness of self-monitoring and goal-setting homework interventions in ADHD adolescents. The current study compares two self-managed interventions, goal-setting and self-monitoring, in an attempt to determine their effectiveness with ADHD adolescents with problematic homework behavior. Participants were trained in establishing a structured homework routine and taught one of two student-managed homework interventions in which they either monitored their homework routine and homework completion or monitored their homework-specific goal achievement. Homework problems, as defined by the Homework Problem Checklist (HPC), and teacher-reported homework grades were monitored. No significant treatment effects were observed. Finding implications are discussed.

## INTRODUCTION

Attention-Deficit/ Hyperactivity Disorder (ADHD) is a disorder commonly diagnosed in childhood, with prevalence rates ranging from 3% to 7% (American Psychiatric Association, 2000). The main identifying characteristics are levels of inattention, hyperactivity, and/or impulsivity that are inconsistent with the child's age or developmental stage. Children often neglect to give close attention to detail, fail to follow through on instructions, have difficulty organizing tasks and activities, are easily distracted by extraneous stimuli, and avoid tasks that require sustained mental effort (American Psychiatric Association, 2000). Teachers report greater variability in the homework, test scores, and classroom performance of ADHD students as compared to undiagnosed children (Barkley, 1990).

Although a small percentage of ADHD adolescents will overcome their symptoms, approximately 70-80% will continue to experience symptoms of the disorder (Barkley, 1990). Additionally, overall levels of academic achievement in ADHD adolescents are significantly below those of normal comparisons (Barkley, 1990). Reportedly, the adolescent years are increasingly difficult because of heightened demands for independent, responsible conduct (Barkley, 1990). Therefore, self-management techniques, such as self-monitoring or goal-setting, may be appropriate ways of targeting these problem behaviors. Such techniques may aid in the transition from adult controlled contingencies to more independent, self-managed functioning.

### Self-Management

Self-management involves applying behavioral principles to one's own behavior in an attempt to promote behavior changes. This involves the self-directed implementation of strategies in which antecedents and consequences of a target behavior are modified, making the target behavior more or less likely to occur in the future,

depending on the goals of the intervention (Miltenberger, 2001). The overall basis of self-management is that the reward contingency is under the control of the individual.

There are a variety of types of self management procedures (Nelson, Smith, Young, & Dodd, 1991; Evans & Sullivan, 1993). Self-monitoring, one type of self-management, is the act of systematically observing one's behavior. Self-monitoring is useful in the assessment of problem behaviors, in evaluating treatment effectiveness, and in promoting behavior change (Evans & Sullivan, 1993). The overall success of self-monitoring depends on a child's ability and willingness to record behavior, on the choice of a recording method, and on the accuracy of recording (Evans & Sullivan, 1993).

Another type of self-management is self-instruction, during which a child is responsible for teaching themselves the designated intervention (Nelson, Smith, Young, & Dodd, 1991). Self-reinforcement, another type of self-management, involves the individual evaluating whether one's behavior reaches criteria for rewards and then rewarding oneself (Bornstein & Quevillon, 1976).

The final method of self management is self-assessment, or self-evaluation. Self-evaluation involves comparing a behavior to a set standard and determining if the behavior matches or exceeds that standard (Evans & Sullivan, 1993). If the behavior matches or exceeds the standard, then the child self-rewards (Evans & Sullivan, 1993).

Goal setting, a form of self-management where students evaluate and reinforce themselves for reaching self-imposed standards (Miller & Kelley, 1991), is one type of intervention that would be included under the self-evaluation category. Overall, findings show that more difficult goals may lead to higher rates of problem-solving and achievement (Schunk, 1983). A critical review of laboratory and field studies by Locke, Shaw, Saari, & Latham (1981) found that specific, challenging goals lead to a better performance than easy, "do your best" goals, or no goals at all. These goals affect

performance by directing student attention, mobilizing effort, increasing persistence, and motivating strategy development for homework assignments. Students are most likely to improve their performance under a number of conditions, such as when goals are specific, challenging, yet not frustrating and when goal achievement is followed by feedback and rewards (Locke, Shaw, Saari, & Latham, 1981). Goal setting is more effective when the experimenter/manager is supportive and when assigned goals are accepted by the individual (Locke, Shaw, Saari, & Latham, 1981). Locke, Shaw, Saari, & Latham (1981) reported that the benefits of goal-setting on performance is one of the most robust and replicable findings in psychological literature.

Studies have found that self-management techniques can foster independent growth and development of children's academic and social skills (Fish & Mendola, 1986). Research shows that self-management can effectively be used in a variety of settings and with a variety of people. It can be successfully employed at home or in the classroom (Cole & Bambara, 1992) to target academic and behavior problems, even with behavior disordered (Nelson, Smith, Young, & Dodd, 1991), learning-disabled (Reid & Harris, 1993), and emotionally disturbed children (Lenendoski & Cartledge, 2000).

Studies show that self-management techniques have been effective with ADHD children, including those receiving pharmacological interventions (Mathes & Bender, 1997). In a study by Mathes & Bender (1997), a multiple baseline design was used to assess the effects of self-monitoring on the on-task classroom behavior of three ADHD males ages eight to eleven. Subjects were selected because psychostimulant medications were not adequately effective in managing their behavior (Mathes & Bender, 1997). Overall, self-monitoring increased on task behavior beyond the improvements obtained with pharmacological interventions (Mathes & Bender, 1997). Further support was provided in a study by Edwards, Salant, Howard, Brougher, & McLaughlin (1995) who

found that self-management improved task attention and reading comprehension in three ADHD children.

### Homework

One area in which ADHD children consistently struggle is homework. Cooper (1989, p. 7) defined homework as “tasks assigned to students by school teachers that are meant to be carried out during non-school hours.” Olympia, Sheridan, & Jenson (1994, p. 62) modified this definition by defining homework as “academic work assigned in school that is designed to extend the practice of academic skills into other environments during non-school hours.” A critical review of the homework literature by Olympia, Sheridan, & Jenson (1994) indicate that for homework to effectively lead to skill acquisition and fluency it must include a clear purpose, clear instructions, and result in a specific product. Additionally, a good homework program should use variety in the given assignments and be completed within a reasonable amount of time with at least an 80% success rate. Finally, homework should be assigned regularly and students should receive feedback about their completed assignments (Olympia, Sheridan, & Jenson, 1994).

There are many proposed positive effects of homework, as it is an important part of evening routines for most school-aged children (Cooper & Valentine, 2001). A critical literature review by Cooper & Valentine (2001), reported that homework may increase comprehension and retention of newly learned material. Additionally, homework may improve study skills, a student’s attitude towards school, and teach students that learning can take place in any environment (Cooper & Valentine, 2001). Finally, homework allows parents to become more involved in their children’s schooling (Hoover-Dempsey, Bassler, & Burrow, 1995; Cooper & Valentine, 2001).



Homework appears to be an important factor associated with school success and achievement in students from elementary school to high school. However, simply assigning homework does not improve achievement; homework assignments must be attempted and/or completed (Kelley & Kahle, 1995). The research consistently indicates that student achievement is best when homework is graded, contains positive comments, and is reviewed or checked by parents (Walberg, Paschal, & Weinstein, 1985).

Aside from ability, time spent on homework is one of the best predictors of achievement (Olympia, Sheridan, & Jenson, 1994; Leone & Richards, 1989) with daily homework showing a larger effect than less frequent homework (Walberg, Paschal, & Weinstein, 1985). Findings show that time on-task is considered to be predictive of how much is learned, with the highest achievement groups reporting spending the most time on homework (Walberg, Paschal, & Weinstein, 1985).

Self-report data from 401 students grades five through nine indicates that students spend roughly 6.4% of their time, or 6.5 hours per week, on homework (Leone & Richards, 1989). Another study reported that junior high students spend more time on homework than elementary students (Patton, Stinard, & Roth, 1983). Although research consistently links homework to increased achievement in elementary and secondary students, this relationship is often moderated by a student's age, grade level, or intelligence (Walberg, Paschal, & Weinstein, 1985; Cooper & Valentine, 2001; Olympia, Sheridan, & Jenson, 1994). Overall, findings indicate that homework is associated with greater achievement in middle school than in elementary school (Cooper & Valentine, 2001; Cooper, 1989). This finding may exist for a number of reasons. For instance, younger children have more difficulty ignoring extraneous environmental stimuli, making a home study environment less effective (Cooper & Valentine, 2001). Additionally, younger children may have less effective study habits, may not be assigned as much

homework, and may be assigned homework that serves a different purpose than it does in older students (Cooper & Valentine, 2001).

### Homework Problems

Despite the benefits, numerous parents report significant problem behaviors from their children during homework. Typically, problems begin in elementary school (Olympia, Sheridan, & Jenson, 1994) and extend through the upper grades, with a reported 60% of junior high students not doing their homework (Cooper, 1989).

Homework problems can include poor motivation, task avoidance, distractibility, and poor study habits (Olympia, Sheridan, & Jenson, 1994; Anesko, Schoiock, Ramirez, & Levine, 1987; Patton, Stinard, & Routh, 1983). Careless work completion, behaviors such as whining, procrastinating, and nagging that lead to more time required for homework completion, and subsequent poor homework grades, are other problems encountered during homework (Anesko, Schoiock, Ramirez, & Levine, 1987).

### Homework Interventions

Homework is an area where parents and schools can easily intervene to increase a students' academic achievement (Paschal, Weinstein, & Walberg, 1984). However, there are few studies examining socially valid methods of improving homework performance (Kelley & Kahle, 1995). Those homework interventions that have been developed typically fall into one of three categories: parent-implemented interventions, teacher implemented interventions, and student-implemented interventions (Kelley & Kahle, 1995; Olympia, Sheridan, & Jenson, 1994).

Parent-Implemented Interventions. Literature shows that in most cases, parental involvement with homework is positive, especially when parents are providing accurate, constructive feedback and interacting with their child in a reinforcing manner (Miller & Kelley, 1991). A study by Anesko & O'Leary (1982) found a combined parent manual

group training program to be effective in reducing children's homework problems. Treatment consisted of three weekly, ninety minute meetings during which experimenters presented behavioral techniques and reviewed the need for homework routines, an appropriate work area with necessary materials, and scheduling specific times for homework completion. Overall, the experimental group reported significantly fewer homework problem behaviors, as indicated by the Homework Problems Checklist and Louisville Behavior Check List, compared to the waitlist control group. The treatment group continued to show gains at six month follow-up.

The effectiveness of a parent training program was further confirmed in a study by Rhoades & Kratochwill (1998) which consisted of a brief parent training program with four male children in grades four through six who exhibited problems with homework completion. Parents were instructed, using the *Homework Solution* book, in different homework interventions, such as creating a homework log and distinct study periods for the child, and behavioral interventions, such as dual parent support and reinforcement techniques. Following the intervention, teachers reported improved homework completion, and parents reported improved child compliance with home study requirements through the HPC.

Teacher-Implemented Interventions. The literature indicates that teacher involvement can also improve a student's performance on homework (Kelley & Kahle, 1995). Findings show that homework is more likely to be accurately completed if teachers provide clear, specific instructions for completion, along with the necessary prerequisite skills for homework completion (Kelley & Kahle, 1995). Additionally, in an attempt to increase completion, assignments should be individualized as much as possible according to a student's abilities and should be evaluated and commented upon (Kelley & Kahle, 1995). Furthermore, teachers can implement contingent rewards, daily report

cards, or response cost programs to monitor the homework completion of their students (Olympia, Sheridan, & Jenson, 1994; Kelley & Kahle, 1995).

Self-Management Interventions. The majority of homework interventions appear to be designed for younger students and incorporate parent and teacher components that may not be appropriate for older students (Kelley & Kahle, 1995). Additionally, it is reported that some parents refuse to be involved with their children's homework routine (Toney, Kelley, & Lanclos, 2003) and some secondary students with learning disabilities may be resentful when parents remind them of their work requirements (Trammel, Schloss, & Alper, 1994). Parental involvement in treatment interventions is also problematic if the parent implements the intervention incorrectly or is unable to maintain consistent participation (Olympia, Sheridan, & Jenson, 1994).

Some findings show that students with higher levels of parental assistance may have lower levels of achievement. A survey conducted by Cooper, Lindsay, & Nye (2000) questioned 709 parents about their involvement in their children's homework routines. Overall, more parental support for child independence was associated with higher standardized test scores, higher class grades, and more completed homework (Cooper, Lindsay, & Nye, 2000).

Self-management offers a practical and developmentally appropriate way to improve independent homework completion in adolescents. Student-mediated interventions attempt to minimize the role of external factors, such as parents or teachers, and allow students to have more control over their own behavioral contingences (Olympia, Sheridan, & Jenson, 1994). Since parents and teachers expect older student to take on more responsibility for the organization and completion of their homework, self-management appears to represent a natural progression in homework from supervised

study to independent practice (Toney, Kelley, & Lanclos, 2003; Olympia, Sheridan, & Jenson, 1994).

Glomb & West (1990) used a self-management program called WATCH to teach two high school-aged learning- and behavior-disordered children with incomplete homework or seatwork to improve the neatness, completion, and accuracy of their creative writing homework. Four strategies were included in the intervention: 1) Teach the fundamentals of behavior change; 2) Teach the students to use self instruction; 3) Teach the students to set goals and implement plans to achieve their goals; and 4) Teach the students to accurately evaluate their work. Data was collected on the completeness, accuracy, and neatness of participants' creative writing homework for one week prior to the start of the study, as well as every week during the study. Interrater reliability was high on all measures. Overall, the self-management intervention resulted in increases in neat, accurate, and completed writing assignments. The experimenters point out that the WATCH program, particularly the goal-setting and implementation and self-evaluation and matching strategies, can be successful with middle-school aged students.

A study by Olympia, Sheridan, Jenson, & Andrews (1994) examined the effectiveness of self-managed individual and group contingency procedures on improving completion & accuracy rates in the daily math homework of sixteen sixth-grade math students. A single-subject reversal design yoked across two conditions was implemented. Four self-management techniques- self-monitoring, self-instruction, self-evaluation, and self-reinforcement- were incorporated into three "team" roles with the fourth team member serving as the "pinch hitter" and filling in for the other members. One team employed self-selected performance criteria, while the other team employed teacher-selected performance criteria. Once performance criteria were met, students were rewarded either individually or as a group. Students generally used the self- management

procedures reliably although students who participated in homework teams completed less practice problems than their classmates did. Overall, improvements were seen in homework completion over baseline for the majority of students, as the self-management training led to significant gains on standardized measures of academic achievement and fewer parent-reported homework-related problems at home. Findings showed that students who selected their own performance goals made slightly greater improvements than those who had teacher selected goals, which may be due to the fact that typically student-selected goals were less difficult leading to higher reinforcement rates.

A self-management treatment package consisting of self-monitoring, self-evaluation, and self-graphing resulted in increased homework completion in eight learning disabled, high school students (Trammel, Schloss, & Alper, 1994). A multiple baseline design was used to examine treatment effectiveness. Students used self-monitoring to track homework assignments and homework completion. Students were taught to graph their progress and set goals for overall homework completion. Goals were reconsidered every three days. Findings showed that self-monitoring alone was effective in increasing homework completion, and the addition of self-evaluation and self-graphing enhanced the overall treatment effect.

A study by Carrington, Lehrer, & Wittenstrom (1997) provided further support for self-management techniques by targeting homework problems in forty-two elementary- and junior high-aged students. The treatment group learned the self-management technique, based on the *Winning at Homework* (W-H) notion of alternating between periods of work and play, through an audiocassette and written materials and was later compared to a waitlist control group. Pre-treatment and post-treatment scores were compared on a homework-problems severity scale for all participants. Findings

showed that the treatment group had lower ratings of homework problem behaviors following the intervention.

Toney, Kelley, & Lanclos (2003) examined self-monitoring in isolation, as opposed to part of a treatment package, to determine its effectiveness as a homework intervention. Since self-monitoring behavior is found to increase from early to late adolescence (Pledger, 1992), it is one type of homework intervention that has been found to be effective with middle school-aged children (Toney, Kelley, & Lanclos, 2003). Toney, Kelley, & Lanclos (2003) compared the effectiveness of student- versus parent-monitoring of homework in a sample of thirty-seven middle school-aged students. The study consisted of parent-monitoring, self-monitoring, and waitlist control groups. In the parental-monitoring condition, participants were trained in creating a structured homework routine and parents completed a checklist regarding their child's homework-related behavior, as well as time spent monitoring and homework start/stop times. Checklist items included sentences such as "My child turned in homework" and "My child began homework within thirty minutes of arriving home." Rewards were given to children based on earning good scores on 80% of checklist items. In the self-monitoring condition, participants were also trained in developing a structured homework routine. However, in this condition students completed a checklist, identical to the parent-monitoring version except that it was written in the first person and contained "parent reminder" questions such as "I needed parent reminders to complete all my homework." Students were rewarded for completing a checklist regarding their own homework behaviors. The waitlist control condition did not receive treatment until the study concluded. Overall, Homework Problem Checklist scores decreased for both experimental groups, as compared to the waitlist control group. Since both treatment groups decreased homework problem behaviors effectively, it is suggested that

adolescents, when given the necessary skills and rewards, can improve their homework problem behaviors with minimal parent influence. Limitations of the study include a small sample size, a short follow-up period, and limited generalizability.

Goal-setting is another form of self-management homework intervention that has proven to be effective. A study by Kahle & Kelley (1994) compared the effectiveness of parent training versus goal-setting with contingency contracting in forty elementary school-aged students. Four groups were included: a no contact control, a homework monitoring control, a goal-setting group, and a parent training group. Participants in the goal-setting condition were trained in setting up a specific homework routine and were then trained in the goal-setting intervention, which included breaking the homework into small, specific goals that included the number of items to be completed, as well as a time limit. A contingency contract was written to lineate rewards for meeting the agreed upon goals.

Participants in the parent training condition received training based on Anesko & O'Leary (1982) that included help in establishing a homework routine and were trained in behavior management techniques, such as positive and negative attention, to employ during homework time. The monitoring control group received no homework training and simply had parents monitor their child's homework behavior. Finally, a no-contact control group received the questionnaires through the mail but did not receive homework problems management training until the conclusion of the study. Daily measures for groups included Homework Problems Report Card scores and homework accuracy and answers correct per minute. Overall, HPC ratings decreased significantly for both the goal-setting and parent training groups. Homework accuracy and answers correct per minute improved in the goal-setting group but remained unchanged in both the monitoring and parent monitoring groups. Overall, the children in the goal-setting group



gave higher ratings of treatment satisfaction, even though goal-setting and parent training appear to be equally effective. Kahle & Kelley (1994) point out that goal-setting may offer some advantages over parent-monitoring or self-monitoring if productivity is an issue, as they saw a near doubling of homework productivity for the goal-setting group. Increases in academic responses and in homework accuracy were also with the goal-setting group. Limitations of the study included a small sample size, non-random assignment to the no contact control group, and a limited population. Further empirical validation of the treatments is still needed, especially to evaluate treatment efficacy with older students.

Miller & Kelley (1994) designed a homework intervention that combined goal-setting and contingency contracting in four parent-child dyads using an ABAB design. Following an intake interview, baseline data was collected for two weeks. Parents were then trained in goal-setting and contingency contracting through which dyads were trained in dividing homework assignments into small, specific goals. The contingency contract was renegotiated every week. Experimenters examined Homework Problem Checklist ratings, as well as accuracy of completed homework and on-task behavior, for all participants. Overall, there was increased work accuracy for all participants. However, HPC ratings only improved for one subject. Miller & Kelley (1994) reported that the combined use of goal setting and contingency contracting has several unique features. These include: providing a heuristic for completing homework and introducing structure into the homework routine; dividing assignments into small goals that allow parents to assess components of assignments and their expectations for their child's performance; requiring children to analyze their own behavior by seeing if they have achieved the goals; and teaching the children to monitor their own behavior. There were

some noted limitations to this study including brief treatment phases, limited efficacy & generalizability, and a needed inclusion of teacher ratings of homework performance

Finally, the use of self-management homework interventions has been specifically examined with ADHD adolescents. A study by Meyer (2005) further examined the use of a self-monitoring homework intervention with ADHD adolescents. This study compared the effectiveness of three groups: study skills plus parental monitoring, study skills plus self-monitoring, and waitlist control. Participants were trained in the SQ4R study strategy and homework completion skills, in addition to their specific monitoring intervention. Homework problems were examined by using the Homework Problem Checklist (HPC) and the Classroom Performance Survey (CPS). Results indicated that both interventions were successful in improving HPC and CPS scores, as well as percent of completed homework, as compared to the waitlist control group. Therefore, this study provides empirical support for the use of a self-monitoring homework intervention with ADHD adolescents.

## STUDY RATIONALE

Homework is one of the largest predictors of a student's academic achievement. Homework's role in a student's academic career is especially pronounced in middle school as the number of homework assignments increase along with expectations for a student's academic independence. However, many students exhibit problematic behavior during their homework or fail to complete homework. ADHD children have additional difficulties with inattention and time management. Therefore, it is clear that interventions are needed to address homework problems with these students.

Many homework interventions target younger students and therefore may not be appropriate for middle school-aged children. Self-managed, or student-mediated, interventions are especially useful during the adolescent years, as the expected level of a child's academic independence increases. Self-monitoring is one such intervention that has been used to assess problem behaviors, evaluate treatment effectiveness, promote behavior change, and increase homework production. Goal-setting is another self-management intervention that has been associated with improvements in behavior, academics, and homework. Both have been shown to be effective in increasing adolescent academic productivity in the classroom. However, no known studies have utilized a comparison of self-management homework interventions in ADHD adolescents. The purpose of the current study is to compare two self-managed interventions, goal-setting and self-monitoring, in an attempt to determine their effectiveness with ADHD adolescents with problematic homework behavior.

## HYPOTHESES

1. Both goal-setting and self-monitoring of homework completion will be effective in reducing the number of problems associated with homework. Both will be more effective than the wait-list control group.
2. The goal-setting group will be more effective than the self-monitoring group in reducing the number of problems associated with homework completion.
3. Both goal-setting and self-monitoring will be effective in improving teacher-reported homework grades. This is thought to be due to the fact that the treatment package will help students to become more independent in completing their homework.
4. The goal-setting group will be more effective than the self-monitoring group in improving teacher-reported homework grades.

## METHOD

### Participants

Voluntary participants were recruited through advertising at local public and private middle schools, pediatrician offices, psychologist offices, the Louisiana State University Psychological Services Center, and through a local newspaper. Inclusion criteria for participants included: 1) ADHD diagnosis; 2) Homework assignments in most classes at least three days a week; 3) Parent report of significant problems with homework completion; and 4) A rating of 19 or greater, on the Homework Problems Checklist (HPC) (Anesko et al, 1987). Subjects were excluded if they were enrolled in special education classes.

A total of 53 families responded to the advertisements. (See Table 1). Thirty-three families met initial screening criteria and scheduled appointments to meet with the examiner. Ten families did not attend their scheduled appointments, despite phone call reminders about their appointment time, and failed to reschedule. A total of twenty-five potential participants met with the examiner to complete the screening process for ADHD and homework problems. One child participant opted not to sign the assent form, and the meeting was discontinued. One participant failed to meet ADHD diagnostic criteria and was therefore excluded from the study. Another participant, who was to be assigned to the self-monitoring group, withdrew before homework training began because they needed a “more intensive” homework intervention.

Twenty-two students (15 boys and 7 girls) and their parents received the homework skills training. The mean age of participants was 12.18 (SD=.80; Range: 11 to 14 years). Participant socioeconomic status was established using the Hollingshead Index (1975,) which uses the parents’ education using the Hollingshead Index (1975,) which uses the parents’ education level and occupation. Participants were predominantly

white (72.7%), from intact families (77.3%), and within the upper one third of the SES Index (86.4%). One-way ANOVA and Chi-square analyses were run on demographic variables. Groups did not significantly differ.

Table 1. Characteristics of Sample Responding to Study Advertisements.

	n	%
Appointment Made, Attended	22	41.5
Appointment Made, No-Showed by Participant	10	18.9
Appointment Made, Needed a More Intensive Intervention	1	1.9
Appointment Made, Did Not Meet Full Study Criteria	1	1.9
Appointment Made, Child Opted Not to Participate	1	1.9
No Appointment Made, Never Returned Experimenters Messages	6	11.3
No Appointment Made, No ADHD Diagnosis	4	7.5
No Appointment Made, Child Wrong Age for Study	3	5.7
No Appointment Made, Busy Schedule	1	1.9
No Appointment Made, Lived Out of State	1	1.9
No Appointment Made, Needed More Intensive Intervention	1	1.9
No Appointment Made, No Transportation	1	1.9
No Appointment Made, Child in Resource/Special Education Classes	1	1.9
Appointment Made, Child Opted Not to Participate	1	1.9

ADHD diagnoses were confirmed through parent- and child- administered semi-structured interviews. All participants met diagnostic criteria for ADHD as outlined in the *Diagnostic and Statistical Manual of Mental Disorders (4<sup>th</sup> Edition text revision)* (American Psychiatric Association, 2000). Eighty-six percent of participants reported

taking prescribed medication to help manage their attention problems. Mean T-scores for the samples' Conners' Parent and Teacher Rating Scales were, respectively, 73.64 and 63.53. Treatment groups did not differ significantly on mean Conners' Parent T-scores, but did differ significantly on mean Conners' Teacher T-scores, with a significant difference between the goal-setting and self-monitoring groups. The mean T-score for the CBCL Attention Problems subscale was 70.55. No significant differences existed between group scores.

Participants also reported their achievement test scores. Due to the variety of achievement tests administered by the schools, percentile ranks were reported. Mean percentile rank scores for reading, math, and language respectively were 58.53%, 67.60%, and 59.13%. No significant differences were found.

Following group assignments, five participants opted to withdraw from the study (four from the goal-setting group and one from the control group). The participant from the control group withdrew following an expulsion from school. The goal-setting participants withdrew for a variety of reported reasons: family health problems (1 participant), extensive parent travel/ inability to be present during homework time (1 participant), and child not using the homework intervention (2 participants). No significant differences existed between those participants who withdrew from or remained in the study based on demographic, CBCL Attention Problems, and Conner' Rating Scale variables.

Seventeen students (12 boys and 5 girls) completed the study. The mean age of participants was 12.18 (SD=.88; Range: 11-14 years). Remaining participants were predominantly white (76.5%), from intact families (76.5%), and within the upper one third of the SES Index (88.2%). (See Table 2). One-way ANOVA and Chi-square analyses were run on demographic variables. Groups did not significantly differ. Mean

T-scores for the remaining participants' Conners' Parent and Teacher Rating Scales were, respectively, 73.41 and 64.85, and the mean T-score for the CBCL Attention Problems subscale was 70.12. No significant differences existed between group scores on these measures.

Table 2. Characteristics of the Sample Completing Study (n=17)

	Group		
	Goal-Setting	Self-Monitoring	Control
Total	3	6	8
Child's Age			
Mean (SD)	12.00 (.00)	11.67 (.82)	12.63 (.92)
Child's Sex			
Male: n/ %	3/ 100%	4/ 67%	5/ 63.5%
Female: n/ %	0/ 0%	2/ 33%	3/ 37.5%
Child's Grade			
6 <sup>th</sup> : n/ %	0/ 0%	3/ 50%	1/ 12.5%
7 <sup>th</sup> : n/ %	3/ 100%	3/ 50%	6/ 75%
8 <sup>th</sup> : n/ %	0/ 0%	0/ 0%	1/ 12.5%
Parent Marital Status			
Married: n/ %	2/ 67%	6/ 100%	5/ 62.5%
Other: n/ %	1/ 33%	0/ 0%	3/ 37.5%
Child's Race			
White: n/ %	2/ 67%	4/ 67%	7/ 87.5%
Other: n/ %	1/ 33%	2/ 33%	1/ 12.5%
Conners' Parent			
Total T Score Mean (SD)	74.33 (8.33)	76.50 (7.48)	70.75 (14.48)
Conners' Teacher			
Total T Score Mean (SD)	58.00 (5.66)	71.33 (8.96)	59.80 (9.55)
Parent CBCL Attention Problems			
Total T Score Mean (SD)	68.00 (6.93)	70.50 (7.74)	70.63 (11.89)

#### Diagnostic Measures for ADHD

Achenbach Behavior Scales (Achenbach, 2001). The Achenbach Child Behavior Checklist (CBCL) is a 118-item parental report measure that assesses a wide range of child behavior problems for children aged 6 to 18. Two broad scales, Internalizing Problems and Externalizing Problems, are indicated by parent report. Subscales include: Withdrawn/Depressed, Anxious/Depressed, Somatic Complaints, Social Problems,



Thought Problems, Attention Problems, Rule-Breaking Behavior, and Aggressive Behavior. For the purpose of this study, only the Attention Problems subscale was analyzed. One-way ANOVAs were run on the Attention Problems subscale to assess for group differences across symptomatology. The analysis revealed that the groups did not differ significantly in terms of the Attention Problems subscale scores,  $F(2, 14)=.08, ns$ .

Conners' Rating Scales (Conners, 1997a & b). The Conners' Parent Rating Scale-Revised: Short (CPRS-R: S) is a 27-item parent-report measure of behavior and conduct problems. The CPRS-R:S has primarily been used in the evaluation of Attention-Deficit/ Hyperactivity Disorder (ADHD). This measure consists of a variety of behaviors related to ADHD and provides the following subscale scores: Oppositional, Cognitive Problems/ Inattention, Hyperactivity, and Conners' ADHD Index.

The Conners' Teacher Rating Scale-Revised: Short (CTRS-R:S) is a 28-item questionnaire that measures behavior problems in the classroom across several areas. The subscales are identical to those used on the CPRS-R:S. Thirteen teachers submitted CTRS-R:S scores for their students.

One-way ANOVAs were run on the Conners' Parent and Teacher Rating Scale scores. Analyses revealed that groups did not significantly differ based on mean Conners' Parent Rating Scale scores,  $F(2, 14)= .43, ns$ , nor on Conners' Teacher Rating Scale scores,  $F(2, 10)= 2.97, ns$ .

Anxiety Disorders Interview Schedule for DSM-IV-Externalizing Disorders portion (ADIS P/C; Silverman & Albano, 1996). The ADIS is a structured interview used to diagnose a variety of disorders, such as anxiety disorders, affective disorders, and externalizing disorders, in children and adolescents according to the diagnostic criteria of the DSM-IV. Both parent and child versions are available. For the purpose of this study,

only the Externalizing Disorders portion of the interview was administered to parent and child participants to diagnose ADHD.

### Dependent Measures

Homework Problem Checklist (HPC; Anesko, Schoiock, Ramirez, & Levine 1987). The HPC measures the frequency and intensity of homework behavior problems. The questionnaire consists of twenty items of frequently reported homework problems with elementary school-aged children. Questions include items such as “Denies having homework assignments” and “Forgets to bring assignments back to class.” The HPC has been found to be internally consistent (.91) and sensitive to changes produced by interventions. Parents completed the HPC at pretreatment, post-treatment, and two-week follow-up. No significant group differences were found between the groups’ initial HPC scores,  $F(2, 14) = 2.42, ns$ .

Teacher Reported Homework Grades. Teachers indicated the adolescent’s homework grades on a weekly basis. Sixteen participants submitted pre-treatment homework grades to the examiner. No significant group differences existed,  $F(2, 13) = .23, ns$ .

Consumer Satisfaction Questionnaire (CSQ; Forehand & McMahon, 1981). Both parents and adolescents completed the CSQ in regards to their satisfaction with the treatment procedures. The CSQ is a non-standardized measure of treatment satisfaction. Participants rated whether the treatment helped, whether they would use it again in the future, and whether the treatment improved the child’s grades.

Treatment Evaluation Inventory- Short Form (TEI-SF; Kelley et al 1989). The TEI-SF is a 9-item measure designed to evaluate the acceptability of various treatments. Parental-, student-, and teacher-mediated interventions were presented as way of treating homework problems in an ADHD adolescent. Each treatment was rated on a five-point

Likert-type scale. Total scores range from 9 to 45, with a score of 27 representing moderate acceptability. Both parents and adolescents completed the TEI-SF.

### Daily Response Measures

A Self-Monitoring Sheet or Goal-Setting sheet was completed daily by the adolescent, depending on assignment of experimental condition. Forms were faxed, mailed, called in, or emailed to the experimenter to be used as a measure of treatment integrity.

### Design and Procedures

A between groups design with three treatment groups was used to compare the effects of a no treatment (wait-list control), a goal-setting group, and a self-monitoring group. Students and their parents were randomly assigned to one of the three groups.

Intake Session. The purpose of the study was explained and voluntary consent / assent were obtained from all participants. Consent forms were signed (see Appendix A). Parents then completed the demographic questionnaire and the Homework Problems Checklist. A brief interview was also conducted to gain information about the current homework environment and current homework problems.

An assessment of ADHD diagnostic criteria and symptomatology also took place during the intake session. Parents were administered the CPRS-R:S and the CBCL questionnaires. A semi-structured interview, the ADIS- Externalizing Disorders portion, was also conducted with both parents and adolescents to assess for ADHD diagnostic criteria.

Participants were instructed to bring their homework to the first treatment session and asked to complete homework as they normally do until then. They were asked to sign a participation contract, in which they agree to attend treatment sessions and comply with the intervention procedures. However, participants were informed that they may

withdraw from the study at any time. Academic achievement test scores were brought to the first homework training session. Consent was given to contact teachers and contact information for the student's current academic teachers (i.e. math, English, science, social studies, etc.) was obtained and the teachers were contacted and asked to report the participant's current homework grades. Letters explaining the study were sent to teachers. Teachers were asked to report homework grades on a weekly basis by emailing, mailing, calling, or faxing the information to the examiner. Due to "current grading procedures" and "limited free time," many of the participants' teachers opted not to participate (submit weekly homework grades.) Those students who had access to their homework grades submitted them to the examiner.

Goal-Setting Condition. Parents and adolescents, with parents playing a listening role, were instructed on establishing a homework routine. They were told to record assignments daily, list materials needed for daily homework completion, designate a regular time and distraction-free place for homework, and establish an order for homework completion. They were also told to complete homework independently, review class notes for at least 15 minutes per day, and organize their backpack for the next day.

Participants were provided a handout describing goal- setting (see Appendix L), as well as a verbal explanation. Participants were taught to divide assigned homework into small, specific goals that stated the number of items to be completed and time limit for completion. Participants were instructed to specify realistically attainable goals and to increase the stringency as goal attainment was demonstrated. The participants were told to record goals on a worksheet and to set a timer for the designated amount of time. At end of the time period, goal achievement was to be evaluated and recorded on the

goal-setting sheet. Goals not met were incorporated into the next goal and were not be reinforced.

After the procedure was described, the adolescent composed and completed three goals of their own in the presence of their parent and the examiner using their homework. Feedback was provided regarding the appropriateness of the goals. Adolescents were instructed to use goal setting on all homework assignments. Parents were instructed to prompt the adolescent to begin their homework, complete their checklist, and pack their booksack. However, there were not to monitor actual homework completion.

A written contract with contingent rewards was composed with the adolescent and parent. Eighty percent of daily goals must be met in order to earn a daily reward. Daily rewards for goal completion included small adolescent-selected rewards, such as phone time or television time. Daily rewards must be achieved three days in order to receive a weekly reward (Kahle & Kelley, 1994). Weekly rewards were larger and included things such as a dinner out at a restaurant or a movie rental.

Participants were instructed to complete goal-setting sheets daily and return them to the experimenter via fax, email, phone calls, or mail. The intervention took place over a four week period. Additional sessions were held, should participants request one, to answer questions or address issues of noncompliance. Two participants attended an additional session, although they were offered to all participants.

Self-Monitoring Condition. Participants were instructed on how to establish an effective homework routine, in the same manner that was used with the Goal-Setting Condition. Participants were then given a handout and instructed in self-monitoring using the Student Homework Monitoring Checklist (Toney, Kelley, & Lanclos, 2003). The self-monitoring list included behaviors such as turning in that day's assigned homework, completing homework within thirty minutes of arriving home, and needing

parental reminders with the homework routine. Participants used the self-monitoring checklist in the presence of the examiner with the homework they brought to the session. Feedback was provided. Parents were instructed to prompt the adolescent to begin their homework, complete their checklist, and pack their booksack, but were discouraged from monitoring actual homework completion.

A written contract with contingent rewards was composed with the adolescent and parent. The contract specified that the Student Monitoring Homework Checklist must be completed in order to receive rewards (Toney, Kelley, & Lanclos, 2003). Daily and weekly rewards for checklist completion were provided in the same way they were provided for the goal-setting group.

Participants were instructed to complete self-monitoring checklists daily and return them to the experimenter via mail, fax, email, or phone call. Participants employed the intervention for a four week period. Additional sessions were offered, and two participants attended such a session, although they were offered to all participants in the self-monitoring group.

Waitlist Control Condition. Participants assigned to the waitlist control condition completed pretreatment questionnaires but did not receive the homework intervention at the same time as the experimental conditions. Teachers were asked to report homework grades throughout all phases of the study and participants completed the post-treatment questionnaires. The self monitoring intervention was conducted with all waitlist control participants at the conclusion of the study.

Treatment Condition Differences. While both treatment conditions involve self-management techniques used for homework completion, as well as the delivery of rewards for the completion of homework self-management, there is one main difference between the two conditions. In the self monitoring condition, rewards were delivered

based on monitoring and carrying out the components of an effective homework routine. However, during goal-setting conditions, rewards were delivered when participants completed the goal-setting sheet and met the majority of goals. This allowed the experimenter to compare the effects of monitoring homework routine-targeted behavior and goal achievement on reported homework problems.

Treatment Integrity. Participants in both experimental conditions were asked to return their goal-setting or self-monitoring worksheets to the examiner on a daily basis via email, mail, phone call, or fax. This procedure was implemented to lessen noncompliance as well as forged goal-setting or self-monitoring sheets.

Post-Treatment. Following the conclusion of the intervention, participants were asked to meet with the experimenter for a session. Parents completed the HPC, TEI, and CSQ. Adolescents completed the TEI and CSQ. Teachers were asked to report homework grades.

Follow-up. Follow-up data, in the form of homework grades and a Homework Problems Checklist, was collected two weeks after the post-treatment session to assess for maintained treatment gains. Participants were debriefed and thanked for their participation at this time.

## RESULTS

### Treatment Integrity

Overall, treatment integrity for experimental groups was mediocre, despite phone call and email reminders to participating families and offers to meet for a review of treatment procedures. A total of four participants (two from the self-monitoring group and two from the goal-setting group) opted to attend intervention review sessions.

Mean treatment integrity for the goal-setting group was 44.67% and mean treatment integrity for the self-monitoring group was 59.83%. No significant difference existed between mean treatment integrity of the two treatment groups,  $t(7) = -.46, ns$ . Only four participants (three self-monitoring and one goal-setting) achieved 100% treatment integrity throughout the intervention time frame. One parent in the self-monitoring group reported completing occasional monitoring forms for her son when he “forgot.” These parent-completed forms were not included in the measure of treatment integrity. The majority of participants reported using the intervention, or a “modification of the intervention” (i.e. verbally using goal-setting in the car while completing homework), but not completing and/or submitting the accompanying paperwork. Due to the low sample size, participants were not excluded from the study for poor treatment integrity.

### Treatment Effectiveness Measures

Measures of treatment effectiveness consisted of Homework Problem Checklist scores (HPC) and teacher-reported homework grades (Grades). Separate one-way ANOVAs were run to assess pre-treatment group differences. Analyses revealed that the groups did not differ in terms of pre-treatment HPC scores,  $F(2, 14) = 2.42, ns$  (See Table 4 and Figure 1). Additionally, analyses revealed the groups did not significantly differ on initial teacher-reported homework grades,  $F(2, 13) = .23, ns$  (See Table 5 and Figure 2).



Table 4: Homework Problem Checklist Scores, Group Means and Standard Deviations

<b>Group</b>	<b>Pre-treatment Mean (SD)</b>	<b>Post-treatment Mean (SD)</b>	<b>Follow-up Mean (SD)</b>
<b>Goal-Setting</b>	46.33 (6.66)	24.33 (15.57)	22.33 (13.87)
<b>Self-Monitoring</b>	43.50 (10.33)	19.33 (7.12)	20.17 (5.81)
<b>Control</b>	33.63 (11.08)	29.75 (12.67)	26.13 (12.25)

Table 5: Teacher Reported Homework Grades, Group Means and Standard Deviations

<b>Group</b>	<b>Pre-treatment Mean (SD)</b>	<b>Post-treatment Mean (SD)</b>	<b>Follow-up Mean (SD)</b>
<b>Goal-Setting</b>	100.00 (0)	100.00 (0)	100.00 (0)
<b>Self-Monitoring</b>	86.67 (23.09)	89.67 (17.90)	87.67 (21.36)
<b>Control</b>	75.38 (34.76)	80.36 (28.15)	62.60 (51.42)

A 3 (group) x 2 (time) mixed design repeated measures ANCOVA was run with group as the between subjects variable, HPC scores at post-treatment and follow-up times at the within subjects variable, and HPC scores at pre-treatment time as the covariate. Analyses indicated that sphericity was violated and the Greenhouse-Geisser correction was used. Analyses revealed a significant relationship between pre-treatment HPC scores (covariate) and the dependent variable,  $F(1, 13)=5.68, p<.05$ . Analyses revealed no significant main effect for treatment group on HPC scores,  $F(2, 13)=3.24, p=.07, ns$ , no main effect of time on HPC scores,  $F(1, 13)=.03, ns$ , and no interaction between group and time of measurement,  $F(1, 13)=1.68, ns$ .

A 3 (group) x 2 (time) mixed design repeated measures ANCOVA was run for those students with teacher-reported homework grades with group as the between subjects variable, Grades at post-treatment and follow-up times at the within subjects

## Homework Problem Checklist Scores

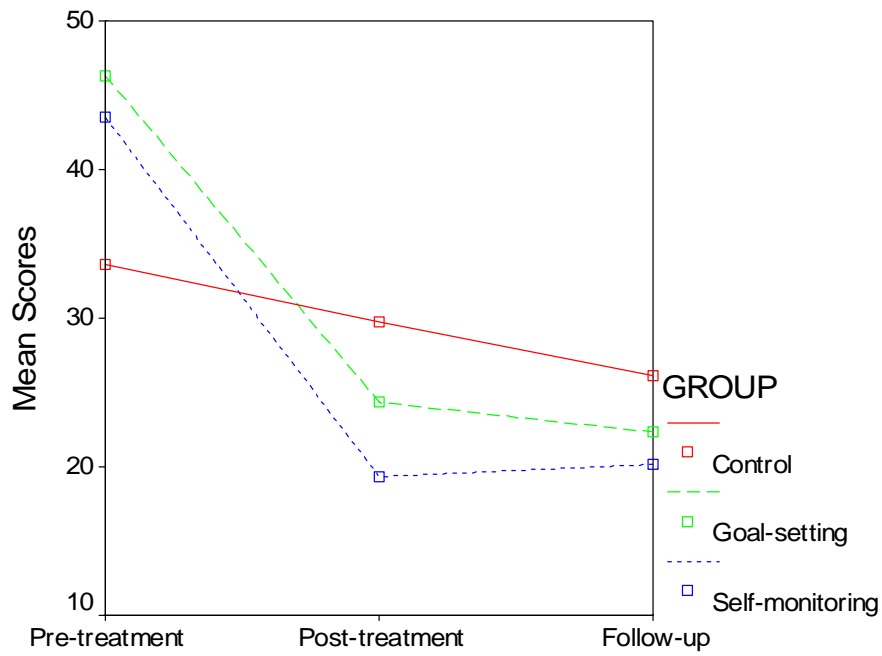


Figure 1. Homework Problem Checklist Scores.

## Teacher Reported Homework Grades

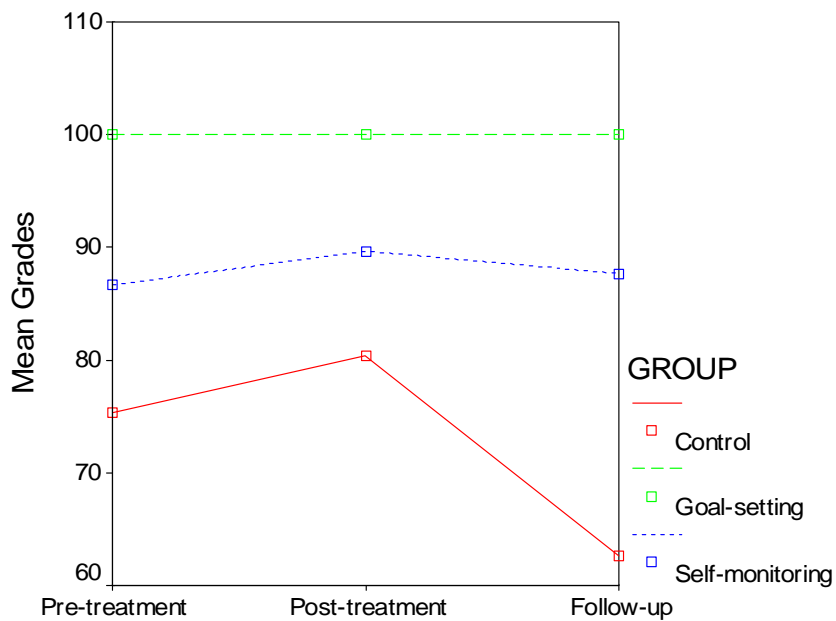


Figure 2. Teacher Reported Homework Grades.

variable, and Grades at pre-treatment time as the covariate. Analyses indicated that sphericity was violated and the Greenhouse-Geisser correction was used. Analyses revealed a significant relationship between pre-treatment Grades (covariate) and the dependent variable,  $F(1, 5)=112.98, p<.05$ . Analyses revealed no significant main effect for treatment group on Grades,  $F(2, 5)=.43, ns$ , no effect of time on Grades,  $F(1, 5)=5.81, p=.06, ns$  and no interaction between group and time of measurement,  $F(1, 5)=.30, ns$ .

### Treatment Satisfaction

Social validity consisted of Consumer Satisfaction Questionnaire (CSQ) ratings, provided by both parents and children of both treatment groups. The nine treatment group families who completed the study completed the CSQ. A one-way ANOVA was performed on student CSQ scores to assess for treatment group differences. No significant differences were found. A one-way ANOVA was performed on parent CSQ scores to assess for treatment group differences. No significant differences were found. A paired-samples  $t$  test was conducted to assess for differences between student and parent CSQ scores. A significant difference was found,  $t(8)= -2.72, p<.05$ , with parents expressing more overall satisfaction with the interventions than the students did.

Of the students who completed the study in the goal-setting group ( $n=3$ ), one student reported that the goal-setting was helpful (33%), one student reported it was somewhat helpful (33%), and one reported it was unhelpful (33%). Two of the three parents (67%) reported that goal-setting was helpful and one parent (33%) was neutral about the treatment. All three parents (100%) reported that they would recommend goal-setting to a friend. One of the three parents (33%) reported that their child's grades are better, with the other two parents (67%) reporting that grades are somewhat better or unchanged.

Of the students who completed the study in the self-monitoring group (n = 6), one (17%) reported that the self-monitoring was helpful, four (67%) reported it was somewhat helpful, and one (17%) reported that they were neutral about it. Four parents (67%) reported that the self-monitoring treatment was helpful and two (33%) reported that it was somewhat helpful. All six parents (100%) reported that they would recommend self-monitoring to a friend. One parent (17%) reported that grades are better, with the remaining five parents (83%) reporting that grades are somewhat better.

Many participants provided comments in the additional space provided on the CSQ. All parents from the goal-setting group provided comments. Comments included wishing that the program had begun earlier in the year because of the drastic improvement in her child's homework grades. Another parent expressed a desire for weekly meetings, since the student did not respond to phone calls from the experimenter or parent reminders for completing his goal-setting sheet. The final parent commented that the time structure was not beneficial for her child, although she felt that it would be beneficial for other children. Only one parent from the self-monitoring group provided a comment. It was positive in nature regarding her son's progress with homework completion.

### Treatment Evaluation

Social validity of current parent-, student-, and teacher-mediated homework interventions was examined through the Treatment Evaluation Inventory-Short Form (TEI-SF). Both parents and students completed this measure. The following interventions were presented: school-home note, structured homework routine, student-monitoring checklist, parent-monitoring checklist, student goal-setting, teacher implemented, and parent training group. On average, the students found all treatments to be at least moderately acceptable, with means ranging from 29.47 to 32.12. On average,

the parents found all treatments to be at least moderately acceptable, with means ranging from 31.59 to 35.82. All means are presented in Table 4. Paired-sample *t*-tests were conducted, utilizing the Bonferroni correction, to assess for differences between parent and student ratings of acceptability for the seven interventions. A significant difference was found between mean student and parent ratings of the Structured Homework Routine intervention,  $t(16) = -3.55, p < .01$ . No other significant differences were found.

Table 4: Treatment Evaluation Inventory-SF Acceptability Means, Parent and Student

Treatment	Student	Parent
School-Home Note Mean(SD)	31.24 (4.41)	33.00 (4.65)
Structured Homework Routine Mean (SD)	31.76 (4.40)	35.82 (2.90)
Self-Monitoring Mean (SD)	31.71 (5.19)	33.18 (4.61)
Parent-Monitoring Mean (SD)	32.12 (4.57)	31.59 (6.48)
Student Goal-Setting Mean (SD)	30.82 (4.61)	34.41 (4.40)
Teacher Implemented Mean (SD)	31.53 (6.53)	35.47 (4.65)
Parent Training Group Mean (SD)	29.47 (6.86)	32.53 (5.95)

## DISCUSSION

The current study compared the effectiveness of two student-managed interventions, self-monitoring and goal-setting, in reducing homework problems of ADHD middle school students. This is the first known study to compare self-management homework interventions in ADHD adolescents. Based on the findings of this study, neither treatment produced a significant effect on reducing homework problems in ADHD adolescents. This finding does not support this study's hypotheses. This finding is also contrary to previous research which has supported the effectiveness of self-monitoring (Olympia et al., 1994; Trammel et al., 1994; Toney et al., 2003; Meyer, 2005) and goal-setting (Kahle & Kelley, 1994) at reducing homework problems.

This study also examined the effects of self-management homework interventions on teacher-reported homework grades. Based on the findings of this study, there was no significant effect of self-management interventions at increasing teacher-reported homework grades in ADHD adolescents. This finding does not support the study's hypotheses.

Several hypotheses should be considered when attempting to understand the lack of support for the two interventions. First, the sample size was very small, which affects the overall power of the study results. For this reason, a repeated ANCOVA was conducted to increase the power of the analyses for detecting treatment effects (Maxwell & Delaney, 2000). Although significant treatment effects were not found at a  $p=.05$  level, it should be noted that the main effect for treatment group on HPC scores was approaching significance,  $F(2, 13)=3.24, p=.07$ . Additionally, visual inspection of changes in Homework Problem Checklist scores over time (see Figure 1) gives promise to a significant treatment effect with a larger sample size.

A second hypothesis for these contrary findings is that overall treatment integrity in this study was mediocre, with only four participants achieving 100% treatment integrity. If the homework interventions were not carried out as designed, it is reasonable to expect that their effectiveness would be diminished.

A third hypothesis is that a more intensive or more frequent training period may have been needed. Since ADHD adolescents are known to have difficulties with sustained attention and difficulty organizing materials (American Psychiatric Association, 2000), the possibility remains that a more intensive homework intervention was needed. One parent commented that more frequent meetings would have been beneficial for their family.

A fourth hypothesis for the lack of treatment effect is that the majority of previous homework studies implementing student-managed interventions have included additional components such as specific study skills training (Meyer, 2005), increased parent involvement (Kahle & Kelley, 1994; Toney et al., 2003), and nonclinical samples (Olympia et al., 1994; Kahle & Kelley, 1994; Toney et al., 2003). Thus, the possibility exists that the procedures from those previously mentioned studies do not generalize to the environment or sample utilized in the present study.

A fifth potential reason for the lack of treatment effects is that the sample utilized in this study was more diverse than those samples utilized in previous homework intervention studies. For example, a study by Meyer (2005) utilized self-monitoring as part of a treatment intervention package. Participants in the Meyer (2005) study were 93% white, 100% middle class, and 90% from intact families. Participants who completed the current study were slightly more diverse, being 76.5% white, 88.2% from the upper one third of the SES Index, and 76.5% from intact families. It can also be hypothesized that a different type of sample was attracted to this study and that this

study's sample differed significantly on some unmeasured variable, such as current levels of parent involvement or motivation to change, from the samples utilized in other homework intervention studies. Thus, certain procedures utilized in past interventions may not be as effective with or generalize to the current study.

A final hypothesis for the lack of treatment effect, particularly in relation to the dependent variable of teacher-reported homework grades, is the limited willingness of teachers to participate in the current study. This lack of consistent participation may indicate low levels of school-home communication and collaboration in addressing homework problems. It also may indicate that the grades reported in this study are skewed.

The majority of both parents and students who completed the study reported being pleased with the homework interventions that they received. Sixty-seven percent of goal setting students and 84% of self-monitoring students reported that the homework interventions were at least somewhat helpful to them. Only one student, from the goal-setting group, said the homework intervention was unhelpful. Sixty-seven percent of goal-setting group parents and 100% of self-monitoring group parents reported that the intervention was at least somewhat helpful for their families. It is important to note that four participants withdrew from the goal-setting condition before completion of the study. No participants withdrew from the self-monitoring group. Since opinions from the families who withdrew are not available, this may suggest that the self-monitoring intervention is more acceptable than goal-setting for families with ADHD middle school students, although this hypothesis needs to be further evaluated.

Parent and student participants in this study rated various parent-, student-, and teacher-mediated interventions for homework problems. The specific interventions to target homework problems were school-home notes, structured homework routines,



student-monitoring checklists, parent-monitoring checklists, student goal-setting, teacher implemented interventions, and a parent training group. Overall, both parents and students found all interventions to be at least moderately acceptable, which is promising for future research on homework interventions. Parents and students rated all interventions, with the exception of the structured homework routine, similarly in acceptability.

Overall, there were many limitations to the present study. First, the sample size was very small. This was partially due to the timing of recruitment efforts, as recruitment took place in late February through late March and again from mid-August until early October. Recruitment efforts were limited by both the time frame available for this study, as well as by the students' school calendar year, as students had to be enrolled in school and receiving homework in order to participate. Additionally, some principals opted not to advertise the study at their schools due to standardized achievement test preparation, a lack of interest, more pressing topics that parents needed to be informed of, or due to an influx in students attending their schools following Hurricane Katrina. This small sample size makes the results of this study difficult to generalize and therefore, they should be interpreted with caution.

An additional limitation of the present study is the homogenous sample that was used. Although this sample was more heterogeneous than samples utilized in some previous studies (Meyer, 2005), participating families were typically white, intact, and from the upper one third of the SES Index. Therefore, it is difficult to generalize these findings to more heterogeneous samples.

Treatment integrity was another limitation of the current study. Overall, treatment integrity was low, with only four participants reaching 100% treatment integrity. This low integrity may exist because late submissions of monitoring sheets, as

well as parent-completed monitoring sheets, were not included in treatment integrity calculations. Additionally, the treatment periods were interrupted by school holidays, standardized testing, and inconsistent homework assignment.

Another limitation of the current study is subject attrition. Five participants withdrew, for various reasons, from the study. It would have been beneficial to obtain post-treatment data from these participants, particularly on the CSQ, in order to fully assess the two self-management treatments utilized.

One final limitation to the current study is the inconsistent teacher involvement. Many teachers were willing to complete initial Conners' Rating Scales for their students. However, due to large class sizes or due to their current homework grading methods, some teachers opted not to participate in reporting their students' homework grades. Additionally, due to the time limits of the current study, some students' homework grades were not received. Overall, it would have been beneficial to have complete homework reports for all participants.

Overall, these findings can be viewed as pilot data for future studies comparing goal-setting and self-monitoring in ADHD adolescents with homework problems. Although no significant findings were achieved due to low sample size, based on visual inspection of data, promise remains that self-management interventions may contribute to a significant decrease in homework problems in ADHD adolescents. A larger sample size will be required, as well as potential study modifications, in order to further assess and compare the effectiveness of goal-setting and self-monitoring homework interventions.

Despite the lack of empirical support provided by this study for self-management interventions, research should continue in this area. Future research should address more intensive self-management training with ADHD middle school students. Additionally,

studies should be conducted with larger, more diverse samples. It may also be beneficial to examine the effectiveness of student-managed homework interventions with high school or college aged students.

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## APPENDIX: CONSENT FORMS

### PARENT CONSENT FORM

1. **Study Title:** Reducing Homework Problems in ADHD Adolescents: A Comparison of Two Self-Management Interventions
2. **Performance Sites:** Middle schools in East Baton Rouge Parish
3. **Names and Telephone Numbers of Investigators:** The following investigators are available for questions about this study, M-F, 8:00 a.m.-4:30 p.m:  
  
Mary Lou Kelley, Ph.D. and Valerie Paasch at (225)987-9034.
4. **Purpose of the Study:** The purpose of this study is to compare the effectiveness self-monitoring, goal-setting, and no treatment in reducing homework problems and increasing homework completion.
5. **Participant Inclusion:** Parents and their adolescent children in grades 6 through 8. These adolescents will have a diagnosis of ADHD, will have homework at least 3 nights per week, and will have parent reported homework problems.
6. **Number of Participants:** 52
7. **Study Procedures:** First you and your child will be interviewed, and then your child will be evaluated for ADHD. The evaluation will consist of interviews and questionnaires. You will be asked to fill out two questionnaires asking about you child's school and home behavior. Your child's teacher will be asked to fill out similar questionnaires. You will also be asked to fill out a questionnaire regarding your child's homework related problems. If your child meets criteria, you will be invited to continue participating in this study. Participants will then be randomly assigned to one of three groups: control group, self-monitoring group, and goal-setting group.  
  
In the control group, you and your child will complete the initial questionnaire, but no treatment will be given at that time. In the self-monitoring group, you and your child will attend a training session. You will be asked to prompt your child to use the checklist and to give him or her rewards for completing the checklist. You will also be asked to be available to answer any questions your child may have about homework, but you will be instructed to allow him or her to complete on their own. In the goal-setting group you and your child will attend a training session. Your child will receive training in establishing a homework routine and the use of goal-setting to break down their homework assignments into small, specific goals with specified time limits. They will be trained to complete goal-setting sheets. You will be asked to prompt your child to use goal-setting and to give him or her rewards for meeting 80% of their goals. You will also be asked to be available to answer any questions your child may have about homework, but you will be instructed to allow him or her to complete on their own.
8. **Benefits:** Possible benefits of participating in this study include a decrease in your child's homework related problems. Not only may your child personally benefit from participation, the results of our study will add to the literature on treating adolescents with ADHD and will benefit others in the future.
9. **Risks:** It is possible that your child may not appreciate the interventions being used in this study. The researchers involved in this study are mandatory reporters of any child



abuse or neglect. If child abuse or neglect is suspected, it will be reported to the Office of Community Services (OCS).

10. **Right to Refuse:** Participation in this study is voluntary, and your child will become a part of this study only if you both agree to participate. Participants may choose not to participate or to withdraw from the study at any time without penalty or loss of any benefit to which you may otherwise be entitled.
11. **Right to Privacy:** The information gathered on you and your child will be kept confidential. Your child will be identified by a code rather than by name. Results of the study may be published, but no names or identifying information will be included in the publication. Participant identity will remain confidential unless disclosure is required by law.
12. **Financial Information:** There is no cost for participation in the study, nor is there any compensation to the subjects for participation.
13. **Alternatives:** If you and your child decide not to participate in this study or decide to withdraw at any time, it is possible that your child may benefit from other treatment for ADHD. You should consult a school guidance counselor, child psychologist, or pediatrician in order to learn about more treatment options.

14. **Signatures:**

“This study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have questions about participants’ rights or other concerns, I can contact Robert C. Matthews, Chairman, LSU Institutional Review Board, (225) 578-8692. I agree to participate in the study described above and acknowledge the researchers’ obligation to provide me with a copy of this consent form if signed by me.”

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

The study participant has indicated to me that he/she is unable to read. I certify that I have read this consent form to the participant and explained that by completing the signature line above, the participant has agreed to participate.

\_\_\_\_\_  
Signature of Reader

\_\_\_\_\_  
Date

## CHILD ASSENT FORM

- 1. Study Title:** Reducing Homework Problems in ADHD Adolescents: A Comparison of Two Self-Management Interventions
- 2. Performance Sites:** Middle schools in East Baton Rouge Parish
- 3. Names and Telephone Numbers of Investigators:** The following investigators are available for questions about this study, M-F, 8:00 a.m.-4:30 p.m:  
  
Mary Lou Kelley, Ph.D. and Valerie Paasch at (225)987-9034.
- 4. Purpose of the Study:** The purpose of this study is to compare the effectiveness self-monitoring, goal-setting, and no treatment in reducing homework problems and increasing homework completion.
- 5. Participant Inclusion:** Parents and their adolescent children in grades 6 through 8. These adolescents will have a diagnosis of ADHD, will have homework at least 3 nights per week, and will have parent reported homework problems.
- 6. Number of Participants:** 52
- 7. Study Procedures:** First you and your parent will be interviewed, and then you will be evaluated for ADHD. The evaluation will consist of interviews and questionnaires. Your parents will be asked to fill out two questionnaires asking about your school and home behavior. Your teacher will be asked to fill out similar questionnaires. Your parent will also be asked to fill out a questionnaire regarding your homework related problems. If you meet criteria, you will be invited to continue participating in this study. Participants will then be randomly assigned to one of three groups: control group, self-monitoring group, and goal-setting group.  
  
In the control group, you and your parent will complete the initial questionnaires, but no treatment will be given at that time. In the self-monitoring group, you and your parent will attend a training session. You will receive training in establishing a homework routine and the use of a checklist to monitor the steps your homework routine. Your parent will be asked to prompt you to use the checklist and to give you rewards for completing the checklist. Your parents will also be asked to be available to answer any questions you may have about homework, but they will be instructed to allow you to complete your homework on your own. In the goal-setting group you and your parent will attend a training session. You will receive training in establishing a homework routine and the use of goal-setting to break down your homework assignments into small, specific goals with specified time limits. You will be trained to complete goal-setting sheets. Your parent will be asked to prompt you to use goal-setting and to give you rewards for meeting 80% of your goals. Your parent will also be asked to be available to answer any questions you may have about homework, but they will be instructed to allow you to complete homework on your own.
- 8. Benefits:** Possible benefits of participating in this study include a decrease in your homework related problems. Not only may you personally benefit from participation, the results of our study will add to the literature on treating adolescents with ADHD and will benefit others in the future.

- 9. Risks:** It is possible that you may not appreciate the interventions being used in this study. The researchers involved in this study are mandatory reporters of any child abuse or neglect. If child abuse or neglect is suspected, it will be reported to the Office of Community Services (OCS).
- 10. Right to Refuse:** Participation in this study is voluntary, and you will become apart of this study only if both you and your parents agree to participate. Participants may choose not to participate or to withdraw from the study at any time without penalty or loss of any benefit to which you may otherwise be entitled.
- 11. Right to Privacy:** The information gathered on you will be kept confidential. You will be identified by a code rather than by name. Results of the study may be published, but no names or identifying information will be included in the publication. Participant identity will remain confidential unless disclosure is required by law.
- 12. Financial Information:** There is no cost for participation in the study, nor is there any compensation to the subjects for participation.
- 13. Alternatives:** If you and your parent decide not to participate in this study or decide to withdraw at any time, it is possible that you may benefit from other treatment for ADHD. Your parent should consult a school guidance counselor, child psychologist, or pediatrician in order to learn about more treatment options.

**14. Signatures:**

“This study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have questions about participants’ rights or other concerns, I can contact Robert C. Matthews, Chairman, LSU Institutional Review Board, (225) 578-8692. I agree to participate in the study described above and acknowledge the researchers’ obligation to provide me with a copy of this consent form if signed by me.”

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

The study participant has indicated to me that he/she is unable to read. I certify that I have read this consent form to the participant and explained that by completing the signature line above, the participant has agreed to participate.

\_\_\_\_\_  
Signature of Reader

\_\_\_\_\_  
Date

**Consent to Release/ Obtain: Teacher**

I grant permission for this study's researcher to contact my child's teacher regarding my child's current homework completion, homework grades, and test grades. I grant permission for my child's teacher to release this information to the researcher. I also grant my permission for my child's teacher to complete questionnaires regarding my child's behavior and functioning.

\_\_\_\_\_  
Signature of Parent Participant

\_\_\_\_\_  
Date

## VITA

Valerie Paasch is a doctoral candidate in psychology at Louisiana State University. She is specializing in clinical child psychology and pediatric psychology. She graduated *Magna Cum Laude* from Millsaps College in May 2003 with a Bachelor of Science in psychology. She will receive her Master of Arts in May 2007.