

IMPROVING HOMEWORK IN ADOLESCENTS WITH ADHD:  
COMPARING TRAINING IN SELF- VS. PARENT-MONITORING  
OF HOMEWORK AND STUDY SKILLS COMPLETION

A Thesis

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## ABSTRACT

Self-monitoring has been proven to be effective in increasing performance, on task behavior, and homework completion in students with learning disabilities and other academic difficulties. Parent supervision and involvement in homework also has been shown to improve performance. However, the effectiveness of parent vs. self-monitoring of homework completion and test preparation has never been examined in adolescents with Attention-Deficit/Hyperactivity Disorder (ADHD). The current study compared the effectiveness of self- and parent-monitoring of homework and study skills completion in middle school students with ADHD. Students were trained in the SQ4R study strategy and homework completion skills. In one group students monitored their own behavior and in the other group parents completed the monitoring. Homework and classroom problems were evaluated using the Homework Problem Checklist (HPC) and the Classroom Performance Survey (CPS). Results indicated that both interventions improved HPC and CPS scores, as well as percent of completed homework.

## INTRODUCTION

Attention-deficit/hyperactivity disorder (ADHD) is the most commonly diagnosed childhood psychological disorder. Prevalence rates are estimated to be 3-7%, depending upon the population sampled and assessment method (American Psychiatric Association, 2000). The hallmarks of ADHD are inattention, hyperactivity, and impulsivity exhibited at levels that are inconsistent with the child's developmental level. School-aged children with ADHD tend to have difficulties with work completion, forgetfulness and distractibility, organization, timeliness, and self-control (Barkley, 2003). Associated problems include academic difficulties, underachievement, aggression, poor social skills, and non-compliance with parents and teachers (DuPaul & Stoner, 2003). Despite the once held belief that children with ADHD outgrow the disorder by adolescence, it is likely that 50-80% will continue to meet diagnostic criteria throughout adolescence and experience significant academic problems (Barkley, 2003).

### ADHD in Adolescents

Adolescents with ADHD are confronted with unique challenges (Robin, 1998). They frequently experience difficulty directing their attention to relevant stimuli, begin tasks in a timely manner, making thoughtful but prompt decisions, ignoring distractions, maintaining effort, organization, and remembering responsibilities or appointments. Teenagers with ADHD often are impulsive and impatient, often rush through schoolwork making careless mistakes or overlooking important details, often easily frustrated, moody, and irritable. Furthermore, rather than being excessively active, teens with ADHD often are restless or fidget. Finally, adolescents with ADHD also become noncompliant, argumentative, or aggressive. Approximately 50% meet diagnostic criteria for Oppositional Defiant Disorder. Associated mood disturbance including symptoms of depression and anxiety are often present in ADHD teens (Robin, 1998).

Robin (1998) points out that academic difficulties are often very problematic given ADHD teen's lack of organizational skills and forgetfulness. Adolescents are faced with more demands for independent completion of assignments, projects, and test preparation. ADHD teens often come to class unprepared, lack appropriate materials, and fail to write down assignments or fail to turn homework in on time. Their rooms and lockers are often disorganized, and they have difficulty with time management and prioritizing tasks. In fact "the greatest academic difficulty for the average ADHD student is completing all of his or her homework and turning it in on time" (Robin, 1998, p. 19). Along with difficulties completing homework, students with ADHD struggle to effectively use and review the material they have learned. ADHD students find it difficult to understand material covered, and often do not allow sufficient time to study for tests. Overall, the aforementioned difficulties can cause the ADHD student to fall behind, receive unsatisfactory grades, and often must repeat grades due to poor work habits. Therefore, it is imperative to provide ADHD students with study and organizational skills for adequate homework completion and test preparation.

### Homework

Homework can be defined as "tasks assigned to students by schoolteachers that are meant to be carried out during non-school hours" (Cooper, 1989, p.7). This clearly excludes extracurricular activities, home study courses, in-school tutoring, and includes only those assignments given by teachers (Cooper, 1989; Cooper & Valentine, 2001). Homework also can be defined as "academic work assigned in school that is designed to extend the practice of academic skills into other environments during non-school hours" (Olympia, Sheridan, & Jenson, 1994, p. 62). Homework is meant to serve a number of purposes including establishing communication between the parent and child, fulfilling directives from school administrators,

and punishing children for misbehavior (Cooper, 1989). Rationales for homework include providing students with opportunities to practice newly learned skills, review, prepare for tests, and extension of previously learned material to new situations (Cooper, 1989). Research has found a number of benefits that result from homework. Homework can increase speed, mastery, and understanding of newly learned skills, improve student involvement in learning tasks, teach responsibility, perseverance, time management, and self-confidence, as well as improve parent-child communication (Cooper, 1989; Olympia, Sheridan, & Jenson, 1994; Cooper & Valentine, 2001). Furthermore, homework completion may help improve student attitudes toward school and learning (Cooper, 1989; Cooper & Valentine, 2001).

Research also has found a relationship between homework and academic achievement. Homework completion has been shown to enhance achievement in students of all ages and varying levels of ability (Cooper, 1989; Olympia et al., 1994; Cooper & Valentine, 2001). Time spent on homework correlates positively with academic achievement (Olympia et al., 1994). In fact, schools where teachers assign larger amounts of homework report a better academic environment and student outcomes than schools that assign less homework (Olympia et al., 1994).

Homework takes a more significant role once a student reaches middle school. Research shows that the relationship between time spent on homework and achievement is greater for those students in middle and high school compared to elementary school (Cooper, 1989; Cooper & Valentine, 2001). A number of reasons for this finding exist including the fact that younger children are more likely to be distracted by irrelevant stimuli while completing homework, as well as the fact that younger children have less effective study habits, while older children are more likely to use “self-testing strategies” in order to monitor what they have learned (Cooper &

Valentine, 2001). Furthermore, teachers may intend homework to serve different purposes for middle school than elementary school aged children (Cooper & Valentine, 2001). Because of this, students at different grade levels should be assigned different amounts of homework, specifically for junior high students. For these students, the optimal amount of homework assigned is about one to two hours per night, peaking between five to ten hours per week (Cooper, 1989).

### Study Skills

Study skills “are those competencies associated with acquiring, recording, organizing, synthesizing, remembering, and using information and ideas found in school” (Devine, 1987, p. 5). According to Gettinger & Seibert (2002), study skills not only include knowledge and the application of knowledge to learning, but also include purposeful effort of the student. Therefore, studying involves self-regulation of skills as well as self-education.

Cheek & Cheek (1983) state that “study skills are probably the most important skills that students apply in content learning” (p.89). Gettinger & Seibert (2002) note that study skills boost student learning. Students who use study skills effectively have greater academic success. Those with low academic achievement often are not aware of study methods important to content mastery. In fact, low achieving students traditionally are expected to be more passive and to rely on others to help them study. The lack of effective study skills for test preparation and homework completion become apparent in middle school when students are expected to engage in independent study (Smith, 1989; Gettinger & Seibert, 2002). “Study skills seem to be the last bridge that students must cross before becoming independent learners” (Cheek & Cheek, 1983, p. 91). While study skills are expected to be a part of a student’s homework routine or test preparation, they are not focused on by teachers in the regular curriculum (Gettinger & Seibert,

2002). Moreover, when students are not under the direct guidance of teacher, such as when they are completing their homework, study skills are needed most (Wallace & Kauffman, 1986).

Hoover (2001) presents a review of common study skills interventions. They include, SQ3R, PQ4R, and the REAP Method. These three methods are likely the most commonly cited in the literature (Cheek & Cheek, 1983; Wallace & Kauffman, 1986). SQ3R is made up of five steps: Survey, Question, Read, Recite, and Review. Students are to survey various aspects of the material to be read, including graphic aids. Then, they develop questions that isolate the purpose of the reading. Next, they read the material. Once reading is complete, they should attempt to answer the previously formulated questions without making reference to the reading. Finally, they review the material to confirm their answers. SQ3R should be individualized to each student. SQ4R follows the same procedures as SQ3R and adds the component of writing the answers to the questions they have asked about the reading material (Markel & Greenbaum, 1996). PQ4R is a variation of SQ3R. The steps involved here are Preview, Question, Read, Reflect, Recite, Review. The process is generally the same as SQ3R with reflect as an added component. The reflect stage requires the student to check through aspects of the chapter that are unclear. The REAP Method refers to Read, Encode, Annotate, and Ponder. Students begin with reading the material, while writing the main ideas in their own words (Encode). Then, they annotate by explaining the ideas in their own words and create a written summary of the material. In the final stage, ponder; students are to think about and discuss the main ideas. The main goal of each of these methods is for students to become more effective readers and to think critically about material read (Hoover, 2000).

Relatively little research exists demonstrating the effectiveness of these methods once they are taught to students. However, a number of researchers cite the SQ3R method as the most

widely used (Cheek & Cheek, 1983; Wallace & Kauffman, 1986; Devine, 1987; Hoover, 2000). Alexander (1985) examined the effectiveness of a modified SQ3R method on oral retelling of printed material in three learning disabled students (each one was 11-years-old). The modified method included all steps in the SQ3R strategy described above. However, the students were required to repeat each step for each paragraph rather than the selection as a whole. They were also taught to rehearse by reading each paragraph heading and recalling the important material. A multiple baseline across students with reversal design was used. Results showed that each of the students was able to retell more information when using the study strategy than when using their own random strategies. Initially, students reported that the strategy was tedious, but the students became more comfortable with it throughout the course of the study. A weakness of this study was the time demand placed on the teacher. However, overall results point to the effectiveness of a specific study skill procedure.

Hayden & McLaughlin (1987) examined the effects of the SQ4R method on the skills and academic achievement of high school students with specific learning disabilities. Students received training in SQ4R (survey, question, read, write, recite, review) and self management. Skills were modeled first, and then students practiced them independently. Students also monitored and recorded their time on task. Results indicated that the use of a specific study skills program can aid in improving the grade-point average and achievement test scores in learning disabled students.

Robin (1998) recommends that clinicians teach a modified version of SQ4R to adolescents with ADHD. He believes that this method is effective in helping adolescents with ADHD prepare for tests and develop better study habits. Likewise, Markel & Greenbaum (1996) also recommend teaching SQ4R to students with ADHD or those with learning disabilities. They

specifically note that SQ4R is a flexible strategy that can be adapted for a variety of students in a variety of situations. They also note that it “can be used at almost any grade level” (Markel & Greenbaum, 1996, p. 173). Considering the research presented above of and the recommendations of Robin (1998) and Markel and Greenbaum (1996), a version of SQ3R may be the most effective study strategy.

Considering the aforementioned difficulties that adolescents with ADHD experience while completing their homework and effectively studying the material they have learned in class, and the fact that homework and effective study skills are such an integral part of high academic achievement, it is necessary to develop an intervention that can help ADHD students. One such intervention is self-monitoring.

### Self-Monitoring

Self-monitoring occurs when a student is taught to observe and record his own behavior (Reid, 1996; Shapiro, 1996). Self-monitoring originated as a clinical-assessment technique, yet clinicians soon realized that self-monitoring changes behavior (Reid, 1996). Behavior change as a result of self-observation and recording was referred to as behavior reactivity (Reid, 1996). Because of the reactive effects of self monitoring, uses of the technique as an intervention have been examined in a variety of settings and subjects.

In general, there are two types of self-monitoring. They are, self-monitoring of attention (SMA) and self-monitoring of performance (SMP) (Reid, 1996). SMA requires the student to observe whether or not he has been paying attention or if he is on task and then record those results at the presence of a cue, while SPM requires the student to observe some feature of his academic performance (productivity, accuracy, or strategy use) and then record the results.

Self-Monitoring of Attention (SMA). In SMA students are trained to distinguish on- and off-task behavior (Shapiro 1996; Reid, 1996). SMA has been effective in a number of populations. Research primarily has been conducted with learning disabled students (Harris, 1986; Blick & Test, 1987; Prater, Joy, Chilman, Temple, & Miller, 1987; DiGangi, Maag, & Rutherford, 1991; Reid & Harris, 1993; Harris, Graham, Reid, McElroy, & Hamby, 1994). However, it has been effective with children who are mildly mentally disabled (Blick & Test, 1987), as well as those students who are at-risk for school maladjustment and academic failure and students with behavior problems (Hughes & Hendrickson, 1987).

When training learning disabled and mild mentally disabled students to monitor on-task behavior, Blick and Test (1987) found that self-monitoring increased and maintained on-task behavior throughout treatment. Furthermore, most students continued to self-monitor on-task behavior when the audible cue was removed. Likewise students who were more accurate recorders typically showed the most improvement in on-task rates. School records also indicated gains in academic performance in special education and regular education. Finally, anecdotal data indicated that students liked the procedure and reported it improved their academic performance.

Hughes and Hendrickson (1987) also found that self-monitoring of attention increased on-task behavior during individual seatwork in at-risk students in their regular classroom. The authors concluded that self-monitoring may be most effective when used in structured, predictable classroom environments. Further, teachers found self-monitoring to be a practical technique and intended to use the intervention in the future.

In yet another study, Prater, Joy, Chilman, Temple, and Miller (1991) found that on-task behavior increased when learning disabled students had both auditory and visual cues to remind

them. Furthermore, unlike the aforementioned studies, some of the students participating in this study also required positive consequences to increase on-task behavior, but maintained at high levels after fading the reinforcers. Still, it is crucial to note that reinforcers were an important component of this investigation. In a similar study, DiGangi, Maag, and Rutherford (1991), found that SMA increased on-task behavior of learning disabled students. In addition, they found even greater gains when they added self-graphing and self-reinforcement. The authors noted that self-graphing increased the reactivity of self-monitoring. The authors noted that SMA procedures were effective when used without external consequences.

Self-Monitoring of Performance (SMP). In SMP students are trained to monitor some aspect of their academic performance, either productivity or accuracy (Shapiro, 1996). Like SMA, SMP has been shown to be effective when used with learning disabled and ADHD students (Harris, 1986; Dunlap & Dunlap, 1989; Reid & Harris, 1993; Harris, Graham, Reid, McElroy, & Hamby, 1994; Shimabukuro, Prater, Jenkins, and Edelen-Smith, 2000), as well as those at risk for school failure and drop-out (Wood, Murdock, Cronin, 2000).

Dunlap and Dunlap (1989) evaluated a self-monitoring intervention for completing subtraction problems with three learning disabled students. The authors identified specific subtraction errors made by each student and developed an individualized checklist. Students self-monitored when completing subtraction problems and earned points for correct responses and for self-monitoring correctly. Students were provided with praise and corrective feedback. The results revealed that self-monitoring was effective in improving the students' subtraction skills

In a similar study, Shimabukuro, Prater, Jenkins, and Edelen-Smith (2000) found SMP to be effective amongst a group of students diagnosed with learning disabilities and ADHD. The students monitored their productivity and accuracy, and graphed their observations. Findings

from this study indicated that self-monitoring increased academic productivity and accuracy. Additionally, improvements were seen in on-task behavior. Overall, gains were more apparent for reading comprehension and mathematics than in written expression. Anecdotal data from the teachers revealed that the program was easy to implement as no curriculum modifications were needed. These results are in line with those found by Dunlap and Dunlap (1989), but also show the effectiveness of self-monitoring in ADHD students.

In another study, Wood, Murdock, and Cronin (2002) examined whether self-monitoring would improve the academic performance (having and using the appropriate materials, following teacher instructions, class participation, etc.), including grades, of middle school students at high risk for school failure and drop out. The students monitored academic performance using monitoring forms in three classes taught by different teachers. Results revealed immediate improvements in the students' academic performance with self-monitoring. Furthermore, each student generalized self-monitoring skills to non-training settings, but only after self-monitoring was officially introduced into the other settings. In addition, at follow-up, improved academic performance persisted for three of the four participants.

Self-Monitoring of Homework. Research consistently demonstrates improved academic performance and on-task behavior in children with academic difficulties. The studies reviewed thus far were conducted in the classroom with teachers or researchers administering the intervention. Nevertheless, there substantial of research regarding self-monitoring of homework. Olympia, Sheridan, Jenson, and Andrews (1994) examined the effectiveness of self-monitoring on the completion of math homework in sixth-graders. A single-subject ABAB design yoked across two conditions was used. Students were divided into two teams, where there were group goals and contingencies. One team self-selected performance criteria, the other team employed

teacher-selected performance criteria. Students were trained by group in self-monitoring, self-instruction, and self-evaluation of homework completion and accuracy, as well as self-reinforcement. The students were rewarded for both individual and team performance if performance criterion were met. This study found the majority of students showed in both groups increased homework completion. However, with those who selected their performance goals showing slightly greater improvements. Although there were some inconsistencies, there were also gains in homework accuracy. These students also improved on measures of homework accuracy and academic achievement. Students reliably implemented the self-management procedure, and their parents reported fewer problems with homework. Overall, students, parents, and teacher reported self-monitoring to be an acceptable intervention.

Trammel, Schloss, and Alper (1994) examined the usefulness of self-monitoring, self-evaluation, and self-graphing along with goal setting in increasing the rate of homework completion and accuracy amongst a group of learning disabled high school students. Students in this study consistently failed to complete homework assignments. A multiple baseline design across subjects was used in this study. Students were told to record assignments for each class, and trained to monitor and graph homework completion. Graphs were posted in resource classroom to illustrate student progress. The students set goals for homework completion for 3-day periods. Results showed the intervention was successful in improving homework completion. No rewards or prompts were given for the students' self-monitoring performance. Teachers also reported that the students appeared to have more positive attitudes concerning homework. Not only was the intervention successful in increasing homework completion, but the students' academic performance also improved. Parents reported being pleased with the

intervention. These results highlight the effectiveness of self-monitoring, and goal setting in increasing homework completion, as well as improving academic performance.

In another study, Carrington, Lehrer, and Wittenstrom (1997) investigated the efficacy of a self-management program for reducing homework problems in a group of secondary and elementary students. Homework problems included failing to bring assignments/materials home, refusing to complete homework, procrastinating, becoming easily frustrated during homework, and failing to turn in assignments. Students were randomly assigned to either a waitlist control group or a treatment group. Students in the treatment group were listened to audiocassettes daily during homework. The tape instructed them to record assignments on a dry-erase board and alternate between homework and play times. Parental involvement was also an important component. Parents listened to audiocassettes instructing them to become more involved with the homework process. They were to remind their children when to work and when to play, and to amend the schedule. Results showed that the parents rated their children's homework problems as considerably improved. These improvements were maintained after 11 months.

In a more recent study, Toney, Kelley, and Lanclos (2003) compared self- and parent-monitoring of homework completion in order to reduce homework related problems with middle school students. These students showed significant difficulties in completing their homework cooperatively. Thirty-seven participants were randomly assigned to the parent-monitoring group, self-monitoring group, or a wait-list control group. Those in the parent-monitoring group were trained on establishing a structured homework routine and to monitoring their teen's homework completion (students had teacher-signed assignment sheets each day). Parents also were instructed to complete a daily monitoring checklist, and were encouraged to help their children with homework when needed. Furthermore, parents gave their children daily rewards for

completing the homework routine correctly. Students and parents in the self-monitoring group also received instruction on establishing a structured homework routine. They were given information regarding the importance of homework completion. Students were instructed on completing the Homework Monitoring Checklist, which listed all steps necessary for successful homework completion. Parents were allowed to prompt the child to use the checklist and to give rewards for completed checklists, but were otherwise discouraged from helping their child through their daily homework routine. The wait-list control group did not receive treatment. Results showed that when compared to the control group, both treatment groups reported decreased homework problems and improvements were maintained at a two-week follow-up. Although there was slightly greater treatment adherence in the parent-monitoring group, this indicates that if children are given the proper tools, they can effectively monitor and improve their own homework completion. Furthermore, both the parents and the students rated the intervention positively. One limitation of this study was that no improvements in student grades were observed.

Kelley and Kahle (1995) report that self-management procedures promote independent homework completion. These procedures may be helpful because they teach children to behave appropriately when not under adult supervision. As previously demonstrated, while there are a limited number of studies investigating the effectiveness of self-management as a homework intervention, it has been shown to be effective in improving homework performance.

#### Parent Involvement in Homework Completion

Kelley and Kahle (1995) offer a review of homework interventions designed to improve performance and reduce homework related problems. Overall, the authors note that there is relatively little research regarding interventions addressing homework problems. There are three

types of interventions among those investigated: teacher implemented, parent implemented, and self-managed interventions. Teacher mediated interventions tend to center on the delivery of consequences for homework performance. Researchers have found that teachers' use of contingent rewards can improve homework performance. Research regarding teacher mediated homework interventions points to the fact that students may need additional help in recording their assignments and bringing home materials necessary to complete homework. Furthermore, study skills instruction may also be needed.

Since by definition, homework consists of assignments completed at home, parents can play an integral role in implementing homework interventions. First, parents should be responsible for helping their children develop homework routines. This includes selecting an appropriate area, ensuring all materials needed are available, and monitoring completion. Homework should be scheduled at a regular time in the child's daily routine. Studies have shown that parent delivery of contingent rewards can increase the quality and amount of homework completed. Parents can also work with their children to set goals for homework productivity. Goal setting has been shown to increase productivity. Combining goal setting with contingency contracting is also an effective method in improving homework performance. While parent involvement in homework interventions is proven to be effective, as students get older they are expected to complete their homework more independently, with less parental assistance.

Research presented by Kelley and Kahle (1995) and Toney, Kelley, and Lanclos (2003) point to the importance of parent involvement for improving homework related problems. Patton (1994) states that "Parents are a critical element of the homework, and as a result it is valuable to involve them in appropriate ways" (p. 576). The following are recommendations for parent involvement in the homework process. Parents can serve a supportive role by reinforcing what is

taught in school. Parents can also go through training to boost the effectiveness of the help provided during homework. Parents can also create an environment that is conducive to completing homework. This can include setting a specific time for doing homework, designating an area free of distractions, and helping their children gather the materials necessary to complete assignments. Finally, parents should also encourage and reinforce their child's efforts when completing assignments. When these recommendations are used, they can help to improve a child's homework performance (Patton, 1994).

Hoover-Dempsey and colleagues (2001) provide a critical review of parent involvement in homework. First, these researchers offer reasons why parents get involved in the homework process. These reasons are parents' beliefs that they should be involved in the homework process and that they will be helpful in making a positive difference. Parents can help by establishing an appropriate environment in which to complete homework. They can also work with teachers in establishing shared homework goals. Furthermore, parents can merely provide general supervision over the homework process by checking their child's work. Likewise, they can reinforce through praise and rewards a child's efforts, completion, and accuracy. In addition, parents can encourage their children, help set goals, as well as model and demonstrate effective strategies for completing homework. Overall, parental involvement in the homework process can establish positive attitudes about completing assignments and learning, support a child's sense of competence and ability, support knowledge of task demands and performance strategies, and promote amount of quality time spent on homework.

Robin (1998) also notes that parents can be involved by developing a homework plan, providing students with the necessary materials, determining an appropriate location, helping them evaluate their homework problems, dispense consequences for performance, and hold them

to their homework plan. In summary, these investigations bring to light the importance of parent involvement in a child's homework process. Together, they highlight the fact that parents, when given the appropriate skills, can be instrumental in improving homework performance.

## STUDY RATIONALE

Homework, along with appropriate study skills are important to students' academic success. This becomes more apparent as a student enters middle school where the demands for independent homework completion and study increase. There are a number of students who have difficulties completing their homework, or who do not know the appropriate skills needed for studying for each class. Adolescents with ADHD tend to have even more difficulties with completing homework and adequately studying for tests. Interventions to improve students' study and homework skills are needed. Self-monitoring is one such intervention. Self-monitoring has been found to improve classroom behavior, productivity, and rates of on-task behavior. Moreover, it has been found to effective in reducing problems associated with homework, along with increasing homework completion. However, no known studies have examined the effectiveness of an intervention that focuses on training in monitoring of homework completion and study skills. Furthermore, parent involvement has shown to be helpful in improving homework performance and attitudes about homework, school, and learning in general. Therefore, the purpose of the current study is to compare the effectiveness of self- and parent-monitoring with adolescents with ADHD for improving homework and test preparation. One of the interventions will consist of parental monitoring of the student's homework completion and study skills through the use of a parent-monitoring checklist. The second intervention will consist of self-monitoring of homework completion and study skills through the use of a self-monitoring checklist.

## HYPOTHESES

1. Both parent- and self-monitoring of homework completion and study skills 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 self-monitoring group will be more effective than the parent-monitoring group in reducing the number of problems associated with homework completion.
3. Both parent- and self-monitoring of homework completion and study skills will be effective in improving classroom performance. This is thought to be due to the study skills component, which is thought to enhance the effectiveness of studying and homework completion.
4. The self-monitoring group will be more effective than the parent monitoring group in improving classroom performance. This is likely due to the fact that the treatment package will help students to become more independent in completing their homework and studying habits.

## METHOD

### Participants

Participants were forty-two students (36 boys, 6 girls) in 6<sup>th</sup>-8<sup>th</sup> grades and their parents. The mean age of participants was 12.99 (SD = .86; range 11-14 years). Socioeconomic status of the participants was established with the Hollingshead Index (1975), which utilized parents' education level and occupation. Participants were mainly white (93%), middle class (100%) and from intact families (90%). Analysis of demographic data revealed no significant differences between groups. All students had received a previous diagnosis of ADHD. Ninety-three percent reported taking some form of medication for attention problems. Diagnoses were confirmed through a semi-structured interview, parent and teacher rated Conners' Rating Scales and ADHD Rating Scales. Mean T scores for the Conners' Parent & Teacher Rating Scales for the sample was 73.62 and 73.52 respectively. Analyses revealed that there were no significant differences between groups. Mean percentiles for the parent and teacher rated ADHD Rating Scales were 91.36 and 87.24 respectively. Analyses revealed that there were no significant differences between groups (see Table 1). All participants continued to meet diagnostic criteria for ADHD as specified in the *Diagnostic and Statistical Manual of Mental Disorders (4<sup>th</sup> ed., text revision)* (American Psychiatric Association, 2000).

To qualify for participation, participants met the following criteria: 1) significant levels of homework problems as measured by parent-report on the Homework Problem Checklist (Anesko et al., 1983), a total score of 19 or greater 2) a diagnosis of ADHD, 3) the student received homework in most classes at least three nights per week, and 4) teacher reported lack of classroom preparedness. Participants were recruited from local public and private schools as well

Table 1. Characteristics of the Sample

	Group		
	Self-monitoring	Parent-monitoring	Control
Child's Age			
Mean (SD)	12.93 (.99)	13.03 (.72)	13.01 (.92)
Child's Sex			
Male: n/%	12/85	12/85	12/85
Female: n/%	2/15	2/15	2/15
Child's Grade			
6 <sup>th</sup> : n/%	3/21	6/43	5/36
7 <sup>th</sup> : n/%	2/14	6/43	6/43
8 <sup>th</sup> : n/%	3/21	5/36	6/43
Conners' Parent			
Total T Score Mean (SD)	73.86 (4.94)	73.71 (3.91)	73.29 (3.47)
Conners' Teacher			
Total T Score Mean (SD)	74.43 (2.93)	73.29 (2.92)	72.86 (3.0)
Parent ADHD RS			
Mean Percentile (SD)	89.86 (5.13)	93.5 (5.29)	90.71 (5.01)
Teacher ADHD RS			
Mean Percentile (SD)	86.93 (6.44)	88.0 (4.98)	86.79 (4.35)
Parent Marital Status			
Married: n/%	13/92	11/78	14/100
Other: n/%	1/8	3/22	0/0
Child's Race			
White: n/%	13/93	12/85	12/85
Other: n/%	1/7	2/15	2/15
Socioeconomic Status			
Upper 1/3 of social status: %	100	100	100

as through local newspaper advertisements. Forty-six families responded, with forty-three meeting criteria. One family from the self-monitoring group withdrew from the study.

### Dependent Measures

Homework Problem Checklist (HPC; Anesko, Schoiock, Ramirez, & Levine, 1987). The HPC is a 20-item checklist designed to measure parents' perceptions of the frequency and intensity of their child's homework problems. The HPC was created using data compiled from literature reviews as well as interviews with parents and professionals working with elementary aged children. Items are rated from 0-3 (never to very often). The HPC has been found to be internally consistent (.91) and to be sensitive to change produced by interventions. Parents completed the HPC and pretreatment, posttreatment, and four-week follow-up. The mean total HPC score was calculated at each of these times for each group.

Classroom Performance Survey (CPS; C.H.A.D.D., 1996). The Classroom Performance Survey was developed by the Adolescent Subcommittee of C.H.A.D.D.'s Public and Performance Education Committee. It is a survey made up of 20 items that is completed by the teacher. Items are rated from 1-5 (always to never). Teachers completed the CPS at pretreatment, posttreatment, and four-week follow-up. The mean total CPS score was calculated at each of these times for each group.

Teacher Reported Homework Grades. Teachers were given a Teacher Feedback Form to complete once per week to return to the experimenter. The Teacher Feedback form asked teachers to record the number of homework assignments given and the number of assignments completed.

Treatment Satisfaction. To measure treatment acceptability, interviews were conducted at the end of the study with parents and students. They were given the *Consumer Satisfaction*

*Questionnaire (CSQ)* (Forehand & McMahon, 1981). The CSQ is a nonstandardized measure of consumer satisfaction assessing parents' and students' attitudes regarding overall satisfaction with a treatment program and procedures. Parents and students rated whether the treatment helped, whether they would use it again in the future, and whether the treatment improved their child's grades.

### Diagnostic Materials

Conners Parent Rating Scales (Conners, 1997). The Conners' Parent Rating Scale- Short Form (CPRS-R:S) and the Conners' Teacher Rating Scale Short Form (CTRS-R:S) were used. The Conners' rating scales are measures of behavior and conduct problems for the home and the school. The CPRS-R:S is a 27 item measure of child's behavior problems in the home across several areas. The measure consists of the following subscales: Oppositional, Cognitive Problems/ Inattention, Hyperactivity, and Conners' ADHD Index. The CTRS-R:S is a measure of child's behavior problems in the classroom across several areas. It is a 28-item measure with the following subscales: Oppositional, Cognitive Problems/Inattention, Hyperactivity, and Conners' ADHD Index. These questionnaires are standardized measures of child behaviors problems that have been found to be useful in the evaluation of ADHD. The Conners' technical manuals provide information regarding cut-off scores that indicate when a child's problems are clinically significant.

ADHD Rating Scale-IV (DuPaul, Power, Anastopulous, and Reid, 1998). The ADHD Rating Scale-IV is a behavior questionnaire that includes items directly adapted from the DSM-IV criteria for ADHD. It allows clinicians to obtain parent and teacher ratings regarding the frequency of each of the symptoms of ADHD based on DSM-IV criteria. Raw scores are converted to percentiles using the appropriate scoring profile based on the child's The ADHD

Rating Scale-IV technical manual provide information regarding cut-off scores that indicate when a child's problems are clinically significant.

Anxiety Disorders Interview Schedule for DSM-IV, Parent and Child Versions (ADIS:P/C; Silverman & Albano, 1996). The ADIS is a structured interview schedule used to diagnose anxiety disorders, affective disorders, and externalizing disorders in children and adolescents according to DSM-IV diagnostic criteria. It is available in parent and child versions. Only the Externalizing Disorders portion of the interview in parent and child versions was used to diagnosis ADHD in participants. The ADIS has shown high agreement in both parent and child versions as well as good reliability, test-retest reliability, and good concurrent validity.

### Diagnoses

An ADHD evaluation consisted of parent and child interview, the Anxiety Disorders Interview Schedule for DSM-IV parent and child versions Externalizing Disorders Portion (Silverman & Albano, 1996), Conners' Parent and Teacher Rating Scales Short-Form (CPRS: R-S & CTRS: R-S; Conners, 1997), and Parent and Teacher ADHD Rating Scale-IV (DuPaul, Power, Anastopulous, and Reid, 1998). Together, this information was evaluated to determine whether or not the adolescent met DSM criteria for ADHD. All participants met diagnostic criteria for ADHD. One-way ANOVAs were run on ADHD rating scale percentile scores and total scores from Conners' rating scales to ensure group were equal across ADHD symptomatology. Analyses indicated that groups did not differ significantly in terms of Conners' Parent Rating Scale,  $F(2, 41) = .08, ns$ ; Conners' Teacher Rating Scale scores,  $F(2, 41) = 1.06, ns$ ; Parent ADHD Rating Scale  $F(2, 41) = 1.92$ ; and Teacher ADHD Rating Scale,  $F(2, 41) = .22, ns$ . None of the participants met diagnostic criteria for another disorder.

### Design and Procedures

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

Intake Session. Prior to data collection, the purpose of the study was explained to the parents and adolescents. They were told the study compared the effectiveness of two homework interventions, versus no treatment. Informed consent and assent were obtained (see Appendix). After agreeing to participate in the study, demographic data were obtained. Parents were asked to complete the Conners' Parent Rating Scale- Short Form and the Homework Problem Checklist. Teachers were contacted and given the Conners' Teacher Rating Scale- Short Form and the Classroom Performance Survey to complete. After meeting inclusion criteria, students and their parents were randomly assigned to one of the three groups. Once participants were assigned to one of the three groups, treatment continued throughout the following four weeks. Participants signed Participation Contracts, stating that they agreed to comply with the intervention procedures. However, participants were informed they were free to withdraw from the study at any time.

Wait-list Control Group. Participants in the wait-list control group completed the pretreatment questionnaires, but did not receive treatment. These participants completed posttreatment and follow-up HPC's and CPS's. Participants were provided treatment at the end of the study.

Self-Monitoring Group. Both parents and students assigned to the self-monitoring group received training. This training was conducted by the experimenter in a clinic setting in one session. Additional training sessions were offered. Training was directed to the student with parents listening to the descriptions. The importance of homework and study skills for academic

achievement was explained to the students. It was also explained that, it is important for them to complete their homework independently. They were told that self-monitoring is a technique that can not only help them to be more independent in completing their homework and studying habits, but that it can help to improve their homework performance.

The checklist was individualized for each student using information obtained from the intake interview. Sample checklist items include the following: “I turned in my homework today,” “I wrote down my homework assignments and obtained teacher initials,” “I brought home all materials needed to complete my assignments,” “I began my homework at my scheduled time,” and “I completed my homework in a quiet, designated study place.” The checklist also included the steps required in the SQ4R method.

Specifically, students were trained to use the SQ4R method as a study strategy to improve social studies reading comprehension and test preparation. SQ4R consisted of teaching students to 1) survey the titles and heading of each section to be read, 2) question the material, 3) read to find the answers to their questions, 4) recite answers to their questions in their own words, 5) write the answers to questions down, and 6) review the text/ question answers. These steps were outlined in the checklist. The students were also trained to use the self-monitoring checklist of their homework behaviors. They were told the checklist should be used to remind them to complete all necessary steps in homework and studying routine. The examiner instructed the students to use the procedures. Then use of the checklist was modeled for the student. Next the student practiced completion of the checklist and SQ4R. Mastery was defined as students completing each step in the checklists without reminding.

Participants were given information outlining the steps to establishing a proper homework routine, as well as the self-monitoring forms. It was suggested that homework be

completed in a quiet place, free of distractions. Student and parent agreed upon the most appropriate time. Students were instructed to record all assignments in an assignment book that was signed by the teacher. Once homework was complete, the student was to gather his or her materials and organize them for the following school day.

Parents were instructed to prompt their child to begin homework, to complete their checklists, and to organize their materials. However, they were discouraged from completing the checklists themselves or reviewing the checklist for accuracy. Parents were encouraged to give their child rewards for completing their checklists. Rewards included those things that the adolescent already received on a regular basis, such as T.V. time, computer time, phone time, and a late bedtime. Parents and students were asked to come up with at least three rewards the student could choose from each night. Rewards were to be given when the adolescent completed 80% of the checklist items (Toney, et al, 2003).

Parent Monitoring Group. Both parents and students assigned to the parent-monitoring group received training. Training was conducted by the experimenter in a clinic setting. In this condition, training was intended for the parent. The importance of homework and study skills for academic achievement and parent involvement was explained to the parents. It was also explained that it is important for students to complete their homework independently, but that parents could help by monitoring their progress.

Checklists in the parent-monitoring group were constructed in the same manner as those in the self-monitoring group. They also contained the steps necessary in the SQ4R method. However, the steps were directed toward the parents to monitor.

Participants in the parent-monitoring group received the same training as those in the self-monitoring group. Students were instructed in the use of the SQ4R method. However,

parents were trained in establishing a proper homework routine as well as the steps in the using the monitoring checklists. Parents and students were instructed to complete a monitoring checklist together each night. Parents were told to look for proof for items endorsed on the checklist. For example, they were encouraged to check the student's book sack was organized daily to ensure it was ready for the following day. Parents were instructed to review each item of the checklist daily with their adolescent and remind them to complete steps missed. Parents were reminded that while it is important for their child to complete his or her homework independently, they should check up on them, and be available to answer any questions.

Each parent-adolescent dyad was given information outlining the steps to establishing a proper homework routine. Homework time and place were set up in the same fashion as the self-monitoring group. Students were to record all of their assignments in an assignment book that was signed by the teacher. Once homework was completed, the student was to gather his or her materials and organize them for the following school day.

Parents were instructed to give rewards to their adolescent contingent upon compliance with the checklist procedures. Rewards were chosen in the same fashion as in the self-monitoring group. Parents were instructed to give rewards only if the adolescent completed 80% of the steps on the checklist (Toney, et al, 2003).

Treatment Group Differences. Treatment groups differed in the following ways. Students were trained in study skills strategies in both groups. However, training the monitoring of the steps changed depending upon treatment group. In the self-monitoring group, the adolescent was responsible for establishing the homework routine and completing the monitoring checklist. In the parent-monitoring group, the parent was responsible for establishing the homework routine and completing the monitoring checklists.

Treatment Integrity. Treatment integrity was assessed through the completion of both the Parent and Student Homework Monitoring Checklists. Participants were told to complete a checklist each night homework was assigned. Checklists were called, faxed, or e-mailed in to the experimenter on a daily basis. This allowed the experimenter to ensure that monitoring forms were not falsified, and also allowed the experimenter to address problems as they arise.

Posttreatment. At the conclusion of the study, parents and students attended an exit session with the examiner. They were interviewed regarding concerns with the study and acceptability of the study. Parents and students completed the CSQ. Also, parents completed the HPC and teachers were contacted to complete the CPS

Follow-up. Follow-up HPC and CPS scores were gathered by the experimenter four weeks following the conclusion of the study. This allowed the experimenter to assess the maintenance of any treatment gains.

## RESULTS

### Treatment Integrity

Twenty-seven of the twenty-eight treatment group participants returned at least three monitoring forms per week. This participant was from the self-monitoring group and reported following the intervention, but forgot to turn in all of their monitoring forms during that given week. All other participants completed at least three checklists per week with the majority completing one each night of the week.

### Treatment Effectiveness Measures

Treatment effectiveness measures consisted of Homework Problem Checklist (HPC) and Classroom Performance Survey (CPS) scores, as well as percent of homework turned in (PercentHW) as reported by the teacher. Separate one-way ANOVAs on HPC and CPS scores and PercentHW were conducted to assess for pretreatment equivalence across groups. Analyses indicated that groups did not differ significantly in terms of pretreatment HPC scores,  $F(2, 40) = .028, ns$ ; CPS scores,  $F(2, 40) = .046, ns$ ; and PercentHW,  $F(2, 40) = .58, ns$ .

A split-plot ANOVA was conducted with treatment group as the between subjects variable and HPC scores at pretreatment, posttreatment, and follow-up as the within subjects variable. Analyses indicated that sphericity was violated. As a result Greenhouse-Geisser correctional formulae were used. Analyses revealed a significant main effect of treatment group on HPC scores,  $F(1, 42) = 241.16, p < .0001$ . A follow-up Tukey HSD test showed that the wait-list control group ( $M = 37.14$ ) was significantly different from both the self-monitoring group ( $M = 22.26$ ) and the parent-monitoring group ( $M = 21.21$ ). However, the self-monitoring group was not significantly different from the parent-monitoring group. Time of measurement also had a significant main effect on HPC scores,  $F(2, 39) = 2276.26, p < .0001$ . Pairwise comparisons

using the Bonferroni procedure showed the pretreatment HPC scores ( $M = 36.81$ ) were significantly worse than both posttreatment ( $M = 21.48$ ) and follow-up scores ( $M = 22.33$ ). There was also a significant interaction between treatment group and time of measurement,  $F(1, 42) = 66.70, p < .0001$ . In order to analyze the interaction of treatment group and time of measurement, separate one-way ANOVAs were run on each group. For the self-monitoring group one-way ANOVA, sphericity was violated, as a result, Greenhouse-Geisser correctional formulae were used. Results were statistically significant  $F(1, 14) = 126.80, p < .0001$ . Pairwise comparisons showed that pretreatment HPC scores ( $M = 36.79$ ) were significantly worse than posttreatment ( $M = 14.43$ ) and follow-up ( $M = 15.57$ ). Posttreatment and follow-up scores did not differ significantly from each other. For the parent-monitoring group, sphericity was also violated; Greenhouse Geisser correctional formulae were used. Results were statistically significant  $F(1, 13) = 125.58, p < .0001$ . Pairwise comparisons showed that pretreatment HPC scores ( $M = 37.00$ ) were significantly worse than posttreatment ( $M = 12.86$ ) and follow-up ( $M = 13.79$ ). Posttreatment and follow-up scores did not differ significantly from each other. For the wait-list control group, results were statistically significant  $F(2, 26) = 8.27, p < .01$ . Pairwise comparisons showed that pretreatment HPC scores ( $M = 36.64$ ) were better than follow-up scores ( $M = 37.64$ ). No other pairs were significantly different (see Figure 1).

Table 2: Homework Problem Checklist Scores: Group Means & Standard Deviations

Group	Pretreatment Mean (SD)	Posttreatment Mean (SD)	Follow-up Mean (SD)
Self-Monitoring	36.79 (5.95)	14.43 (3.18)	15.57 (2.62)
Parent Monitoring	37 (5.46)	12.86 (4.22)	13.79 (4.58)
Control	36.81 (5.38)	37.14 (4.83)	37.64 (5.2)

A split-plot ANOVA was conducted with treatment group as the between subjects variable and CPS scores at pretreatment, posttreatment, and follow-up as the within subjects variable. Analyses indicated that sphericity was violated. As a result Greenhouse-Geisser correctional formulae were used. Analyses revealed a significant main effect of treatment group on CPS scores,  $F(2, 42) = 4.84, p < .05$ . A follow-up Tukey HSD test showed that the wait-list control group ( $M = 51.67$ ) was significantly different from both the self-monitoring group ( $M = 44.36$ ) and the parent-monitoring group ( $M = 45.17$ ). However, the self-monitoring group was not significantly different from the parent-monitoring group. Time of measurement also had a significant main effect on CPS scores,  $F(1, 40) = 141.23, p < .0001$ . Pairwise comparisons using the Bonferroni procedure showed the pretreatment CPS scores ( $M = 50.91$ ) were significantly worse than both posttreatment ( $M = 45.10$ ) and follow-up scores ( $M = 45.19$ ). Posttreatment and follow-up scores did not differ significantly from each other. There was not a significant interaction,  $F(1, 39) = .19, ns$  (see Figure 2).

Table 3: Classroom Performance Survey Scores: Group Means & Standard Deviations

Group	Pretreatment Mean (SD)	Posttreatment Mean (SD)	Follow-up Mean (SD)
Self-Monitoring	50.64 (7.4)	41.21 (7.06)	41.21 (7.06)
Parent Monitoring	50.64 (7.14)	42.43 (6.45)	42.43 (6.45)
Control	50.90 (7.05)	51.64 (7.05)	51.93 (7.0)

A split-plot ANOVA was conducted with treatment group as the between subjects variable and PercentHW based on teacher report at pretreatment, posttreatment, and follow-up as the within subjects variable. Analyses indicated that sphericity was violated. As a result Greenhouse-Geisser correctional formulae were used. Analyses revealed a significant main

effect of treatment group on PercentHW,  $F(1, 40) = 16.42, p < .0001$ . A follow-up Tukey HSD test showed that the wait-list control group ( $M = 59.91$ ) was significantly different from both the self-monitoring group ( $M = 82.24$ ) and the parent-monitoring group ( $M = 83.74$ ). However, the self-monitoring group was not significantly different from the parent-monitoring group. Time of measurement also had a significant main effect on PercentHW,  $F(1, 40) = 47.93, p < .0001$ . Pairwise comparisons using the Bonferroni procedure showed the pretreatment PercentHW ( $M = 64.14$ ) was significantly less than both posttreatment ( $M = 81.24$ ) and follow-up scores ( $M = 80.50$ ). Posttreatment and follow-up PercentHW were not significantly different from each other. There was also a significant interaction between treatment group and time of measurement,  $F(2, 40) = 12.2, p < .0001$ . In order to analyze the interaction of treatment group and time of measurement, separate one-way ANOVAs were run on each group. For the self-monitoring group one-way ANOVA, sphericity was violated, as a result, Greenhouse-Geisser correctional formulae were used. Results were statistically significant  $F(1, 13) = 22.61, p < .0001$ . Post hoc analyses showed that pretreatment PercentHW ( $M = 65.43$ ) were significantly lower than posttreatment ( $M = 90.93$ ) and follow-up ( $M = 90.36$ ). Posttreatment and follow-up scores did not differ significantly from each other. For the parent-monitoring group, sphericity was also violated; Greenhouse Geisser correctional formulae were used. Results were statistically significant  $F(1, 13) = 42.63, p < .0001$ . Post hoc analyses showed that pretreatment PercentHW ( $M = 67.00$ ) was significantly lower than posttreatment ( $M = 92.93$ ) and follow-up ( $M = 91.29$ ). Posttreatment and follow-up scores did not differ significantly from each other. For the wait-list control group, results indicated there was not a significant difference,  $F(1, 14) = .07, ns$  (Figure 3).

Table 4. Percent Homework Turned In: Group Means & Standard Deviations

Group	Pretreatment Mean (SD)	Posttreatment Mean (SD)	Follow-up Mean (SD)
Self-Monitoring	65.43 (21.22)	90.93 (5.73)	90.36 (6.33)
Parent Monitoring	67.00 (12.30)	92.93 (6.39)	91.29 (46.45)
Control	60.00 (19.32)	59.86 (18.88)	59.86 (19.28)

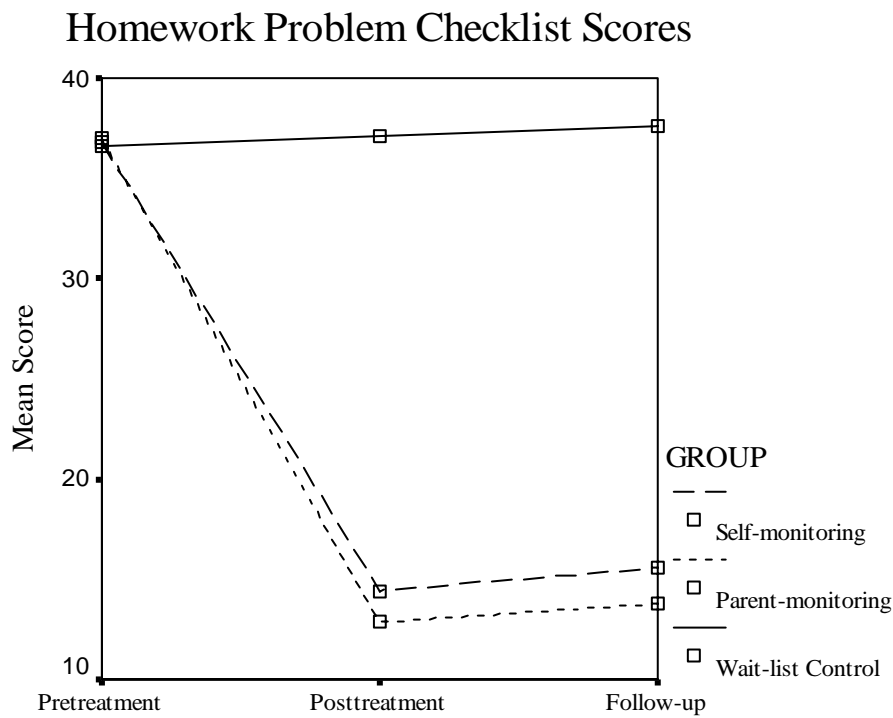


Figure 1. Homework Problem Checklist Scores

## Classroom Performance Survey Scores

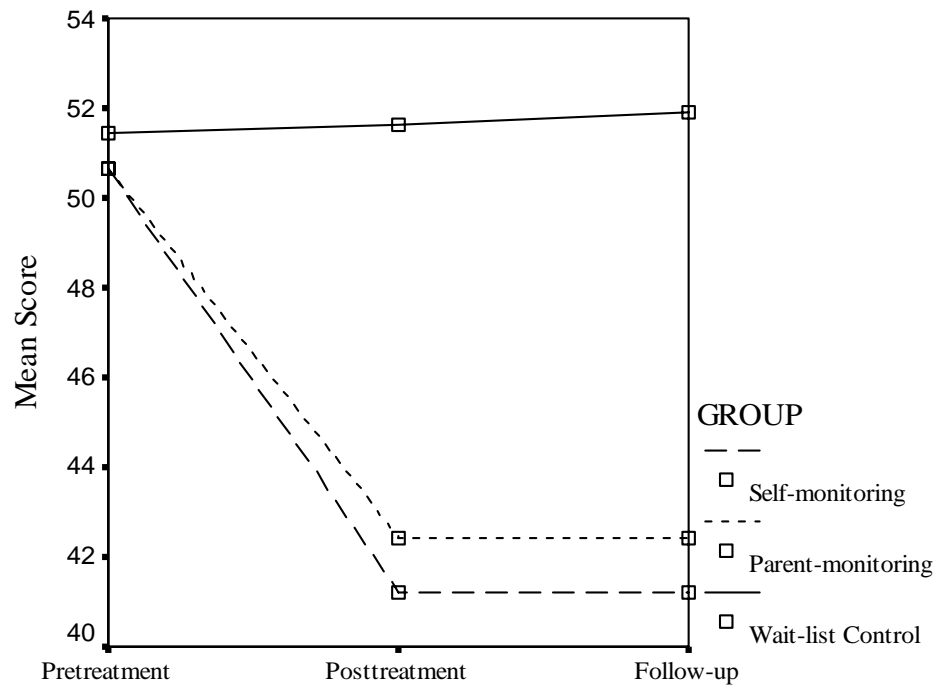


Figure 2. Classroom Performance Survey Scores

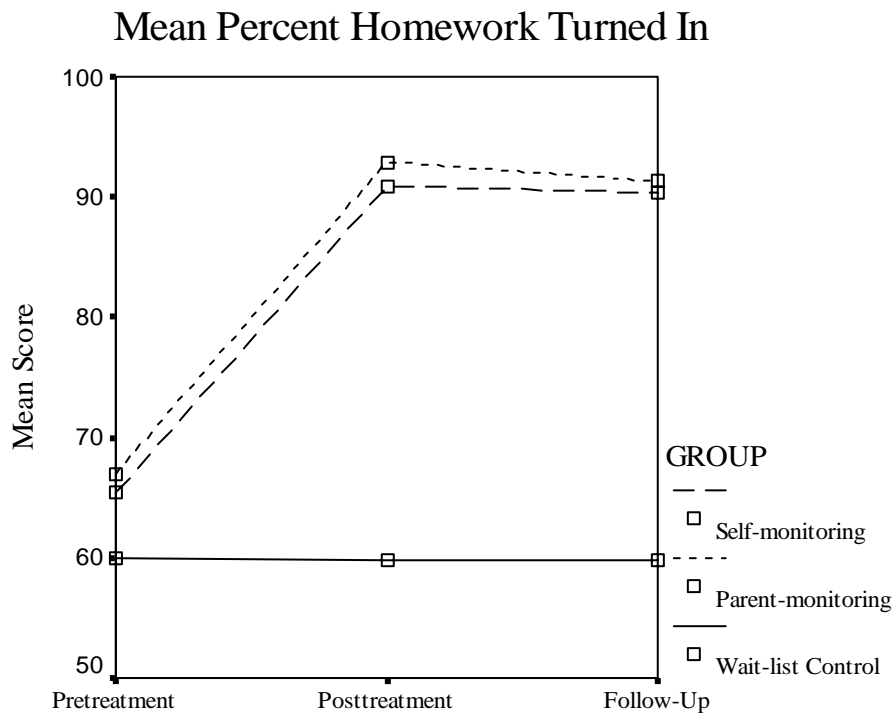


Figure 3. Mean Percent Homework Turned In

### Treatment Satisfaction

The treatment satisfaction data consisted of Consumer Satisfaction Questionnaire ratings by parents and students of both treatment groups. A one-way ANOVA was performed on parent CSQ scores to determine if there were significant group differences. No statistical differences were found between treatment groups. A one-way ANOVA was also run on student CSQ scores to determine if there were significant group differences. No statistical differences were found between treatment groups.

One-hundred percent of parents in the self-monitoring group reported that the treatment was helpful. Eighty-five percent (n=12) reported that they would recommend it to a friend, use it in the future, and that they felt it improved their child's grades. Eighty-five percent (n=12) of the students in the self-monitoring group reported that they thought the treatment was helpful, recommend it to a friend, use it in the future, and their grades were improved.

In the parent-monitoring group, 100% of the parents reported that the treatment helped, that they would recommend it to a friend, and that they would use it in the future. Ninety-three percent (n=13) reported that they felt it improved their child’s grades. Ninety-three percent (n=13) of the students reported that the treatment helped, that they would recommend it to a friend, that they would use it in the future, and that their grades were improved.

Table 5. Percentages of Parents in Each Treatment Group Who Answered Positively

<u>Question</u>	Treatment Group	
	Self-Monitoring	Parent-Monitoring
Did the treatment help?	100%	100%
Would you recommend it to a friend?	85%	100%
Would you use it in the future?	85%	100%
Were grades improved as a result of participation?	85%	93%

Table 6. Percentages of Students in Each Treatment Group Who Answered Positively

<u>Question</u>	Treatment Group	
	Self-Monitoring	Parent-Monitoring
Did the treatment help?	85%	93%
Would you recommend it to a friend?	85%	93%
Would you use it in the future?	85%	93%
Were grades improved as a result of participation?	85%	93%

Many parents provided comments in the additional space provided. The majority who responded stated that they thought it was a helpful program and that they would continue to follow the treatment in the future. Also, some parents in the self-monitoring group reported that they did not believe their child was always honest when filling out the checklists. Furthermore, one parent in the self-monitoring group stated that she did not feel the treatment allowed for her

to be involved enough in her child's homework and studying routine. Nevertheless, she reported that her child's homework problems were much improved. None of the students wrote additional comments in the space provided. Overall, both parents and students from both treatment groups were satisfied with the outcome of participating in this study.

## DISCUSSION

The current study compared the effectiveness of parent and self-monitoring of homework and study skills in reducing homework problems in middle school students with ADHD. This was the first study to evaluate self- and parent-monitoring for homework behavior with adolescents with ADHD. This study supported the efficacy of both self- and parental-monitoring of homework and study skills behaviors. As hypothesized, both treatments were effective in reducing homework related problems as measured by the HPC. However, the self-monitoring group was not significantly more effective than the parent-monitoring group in reducing HPC scores, as hypothesized. Parents in both the self- and parental-monitoring groups reported a significant reduction in homework problems from pretreatment to posttreatment. Importantly, homework problems remained low at follow-up for both treatment groups. This finding that parent-monitoring of homework behaviors is effective in reducing homework problems is consistent with past research (Anesko, 1982; Miller & Kelley, 1994; Kahle & Kelley, 1994; Toney et al., 2004). Likewise, the finding that self-monitoring of homework completion is effective in improving homework performance is also consistent with past findings in the literature (Olympia et al., 1994; Trammel et al., 1994; Carrington et al, 1997; Toney et al., 2004).

This study supported the efficacy of both self- and parental-monitoring of homework and study skills behaviors in improving classroom preparedness as measured by the teacher completed CPS. As hypothesized, both treatments resulted in improved classroom behavior although this was not specifically targeted for the most part. Importantly, teachers, naïve to the content of the study, reported improved homework completion and classroom behavior that maintained at follow-up. Both the self- and parental-monitoring groups had significantly decreased levels of classroom related difficulties from pretreatment to posttreatment and follow-

up levels. The wait-list control group remained unchanged. The current study is the first to examine the effects of a home-base treatment for homework related problems in adolescents with ADHD on teacher reports of classroom preparedness.

In addition, both treatments were effective in increasing percent of homework turned in. Teachers reported the percent of homework completed and turned in improved from an average of 65% pretreatment to 90% posttreatment and follow-up in the self-monitoring group and from 67% to 92% posttreatment and 91% follow-up in the parent-monitoring group. Furthermore, teacher reporting of homework completion for wait-list control students consistently remained low at an average of 60%. This finding is consistent with past research that self-monitoring of homework completion is effective in increasing amount of homework completed (Olympia et al., 1994; Trammel et al., 1994).

This study demonstrated the efficacy of both parental- and self-monitoring for reducing homework problems and improving homework completion and test preparation in middle school students with ADHD. The fact that self-monitoring was as effective as parental-monitoring in reducing HPC scores in adolescents with ADHD is a particularly promising finding. Adolescents with ADHD often lack organizational skills, procrastinate, come to class unprepared, lack appropriate materials, and fail to write down assignments. They tend to have particular difficulty completing their homework and turning it in on time (Robin, 1998). The results of this study indicate that when given direction in how to complete their homework in a more efficient manner, adolescents with ADHD are capable of completing their homework and getting prepared for class on their own. The results of the current study are also encouraging when considering the fact that middle school is a time when parents and teachers expect students to become more

independent when completing their homework and preparing for class (Cooper, 1989; Cooper & Valentine, 2001; Robin, 1998).

A key component of both treatments was the use of rewards. In both treatment groups, students earned nightly rewards for completing at least 80% of the checklist items. Therefore, the results of current study are consistent with past research which suggests that when self-monitoring is paired with rewards, the result is behavior change (Prater et al., 1991; Dunlap & Dunlap, 1989; Toney et al., 2004).

Parents and students from both treatment groups reported being pleased with the intervention. They reported feeling that the intervention was helpful and that they would continue to use it in the future. In fact, 100% of families from both treatment groups reported that they were still following the intervention at follow-up. Furthermore, it is important to note that the one participant that withdrew from the study was assigned to the self-monitoring group. This parent reported that she did not feel the intervention allowed for enough parent involvement in her child's homework routine.

There are several limitations to the current study. The first is the small sample size used. Given such a small sample, results should be interpreted with caution. Likewise, the sample was homogenous; participants came from mainly white, intact, middle class families. Therefore, generalizability of results is limited to a population comparable to the one used in this study. Another limitation involves the lack of psychometric data available on the Classroom Performance Survey (Robin, 1998). However, results from this study suggest that this measure is sensitive to the effects of an intervention.

Directions for future research should include investigating the efficacy of these treatments in a more diverse sample of participants. Likewise, it may be useful to examine the

effectiveness of self-monitoring of homework and study skills completion in high school students. Furthermore, psychometric research on the Classroom Performance Survey is warranted.

## REFERENCES

- Alexander, D.F. (1985). The effect of study skill training on learning disabled students' retelling of expository material. *Journal of Applied Behavior Analysis, 18*, 263-267.
- American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders* (4<sup>th</sup> ed., text revision). Washington, DC: Author.
- Anesko, K.M., Schoiock, G., Ramirez, R., & Levine, F.M. (1987). The homework problem checklist: Assessing children's homework difficulties. *Behavioral Assessment, 9*, 179-185.
- Barkley, R.A. (2003). Attention-deficit/hyperactivity disorder. In R.A. Barkley & E.J. Mash (Eds.), *Child Psychopathology* (2<sup>nd</sup> ed., pp. 75-143). New York: Guilford Press.
- Blick, D.W. & Test, D.W. (1987). Effects of self-recording on high school students on task behavior. *Learning Disability Quarterly, 10*, 203-213.
- Carrington, P., Lehrer, P.M., & Wittenstrom, K. (1997). A children's self-management system for reducing homework related problems: Parent efficacy ratings. *Child & Family Behavior Therapy, 19*, 1-22.
- Cheek, E.H. & Cheek, M.C. (1983). *Reading instruction through content learning*. Columbus: Merrill Publishing.
- Cooper, H. (1989). *Homework*. New York: Longman.
- Cooper, H. & Valentine, J.C. (2001). Using research to answer practical questions about homework. *Educational Psychologist, 36*, 143-53.
- Devine, T.G. (1987). *Teaching study skills: A guide for teachers*. Boston: Allyn & Bacon.
- DiGangi, S.A., Maag, J.W., & Rutherford, R.B. (1991). Self-graphing of on-task behavior: Enhancing the reactive effects of self-monitoring on on-task behavior and academic performance. *Learning Disability Quarterly, 14*, 221-230.
- Dunlap, L.K. & Dunlap, G. (1989). A self-monitoring package for teaching subtraction with regrouping to students with learning disabilities. *Journal of Applied Behavior Analysis, 22*, 309-314.
- DuPaul, G.J. & Stoner, G. (2003). *ADHD in the schools: Assessment and intervention strategies* (2<sup>nd</sup> ed.). New York: Guilford Press.
- Gettinger, M. & Seibert, J.K. (2002). Contributions of study skills to academic competence. *School Psychology Review, 31*, 350-365.

- Harris, K.R., Graham, S., Reid, R., McElroy, K., & Hamby, R.S. (1994). Self-monitoring of attention versus self-monitoring of performance: Replication and cross comparison studies. *Learning Disability Quarterly*, 17, 121-139.
- Hayden, L.K. & McLaughlin, T.F. (1987). Effects of study skills curriculum with rural high school learning disabled students. *Techniques: A Journal for Remedial Education and Counseling*, 3, 162-171.
- Hoover, J.J. (2000). Study skills and the education of students with learning disabilities. *Journal of Learning Disabilities*, 22, 452-461.
- Hughes, C.A. & Hendrickson, J.M. (1987). Self-monitoring with at-risk students in the regular classroom setting. *Education and Treatment of Children*, 10, 225-236.
- Kelley, M.L., & Kahle, A.L. (1995). Homework interventions: A review of procedures for improving performance. *Special Services in the Schools*, 10, 1-24.
- Markel, G. & Greenbaum, J. (1996). *Performance breakthroughs for adolescents with learning disabilities or ADD*. Champaign, Research Press.
- Olympia, D.E., Sheridan, S.M., Jenson, W.R., & Andrews, D. (1994). Using student managed interventions to increase homework completion and accuracy. *Journal of Applied Behavior Analysis*, 27, 85-99.
- Olympia, D.E., Sheridan, S.M., & Jenson, W. (1994). Homework: A natural means of home school collaboration. *School Psychology Quarterly*, 9, 60-80.
- Prater, M.A., Joy, R., Chilman, B., Temple, J., & Miller, S.R. (1991). Self-monitoring on on-task behavior by adolescents with learning disabilities. *Learning Disability Quarterly*, 14, 164-177.
- Reid, R.(1996). Research in self-monitoring with students with learning disabilities: The present, the prospects, the pitfalls. *Journal of Learning Disabilities*, 29, 317-331.
- Reid, R. & Harris, K.R. (1993). Self-monitoring of attention versus self-monitoring of performance: Effects on attention and academic performance. *Exceptional Children*, 60, 29-40.
- Robin, A.L. (1998). *ADHD in adolescents: Diagnosis and treatment*. New York: Guilford Press.
- Shapiro, E.S. & Cole, C.L. (1996). Intervention: Contingency-based approaches. In: *Academic skills problems: Direct assessment and intervention* (pp.47-73). New York: Guilford Press.

- Shimabukuro, S.M., Prater, M.A., & Edelen-Smith, P. (2000). The effects of self monitoring of academic performance on students with learning disabilities and ADD/ADHD. *Education and Treatment of Children, 22*, 397-414.
- Silverman, W.K. & Albano, A.M. (1996). *The Anxiety Disorders Interview Schedule of DSM-IV Parent and Child Versions*. San Antonio, TX: Psychological Corporation.
- Smith, D.D. (1989). *Teaching students with learning and behavior problems*. Englewood Cliffs: Prentice Hall.
- Toney, L.P., Kelley, M.L., & Lanclos, N.F. (2003). Self- and parental monitoring of homework in adolescents: Comparative effects on parents' perceptions of homework behavior problems. *Child & Family Behavior Therapy, 25*, 35-51.
- Trammel, D.L., Schloss, P.J., & Alper, S. (1994). Using self-recording, evaluation, and graphing to increase completion of homework assignments. *Journal of Learning Disabilities, 27*, 75-81.
- Wallace, G. & Kauffman, J.M. (1986). *Teaching students with learning and behavior problems* (3<sup>rd</sup> ed.). Columbus: Merrill Publishing.
- Wood, S.J., Murdock, J.Y., & Cronin, M.E. (2002). Self-monitoring and at-risk middle school students: Academic performance improves, maintains, and generalizes. *Behavior Modification, 26*, 605-626.

## APPENDIX: CONSENT FORMS

### PARENT CONSENT FORM

1. **Study Title:** Improving Homework in Middle School Students with Attention-Deficit Hyperactivity Disorder: Comparing Training in Self and Parent Monitoring:.
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 Kara Meyer at (225)987-9034.
4. **Purpose of the Study:** The purpose of this study is to compare the effectiveness self-monitoring, parent monitoring, 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 both parent and teacher 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. The teacher will be asked to fill out a questionnaire regarding your child's classroom performance. 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 parent-monitoring 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. Your child will receive training in establishing a homework routine, study skills strategies, and the use of a checklist to monitor the steps in his or her homework/study skills routine. You will be asked to prompt your child to use the checklist and to give him or her rewards for completing the checklist. The checklist will be developed according to your child's individual needs. 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 parent-monitoring group you and your child will attend a training session. You will be trained in establishing a proper homework routine while your child will be trained in the use of a study skills strategy. You will also be trained in the use of a checklist to monitor the steps in you child's homework/study skills routine. The checklist will be developed according your child's individual needs. You will also be asked to check for evidence to the answers of the checklist items (e.g., check to see if notebook is organized for the next day) and give rewards to you child for complying with at least 80% of the checklist items.

8. **Benefits:** Possible benefits of participating in this study include a decrease in your child’s homework related problems. Your child will also learn skills to help them study effectively. These skills may also help to improve your child’s overall academic performance. 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 apart 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:** Improving Homework in Middle School Students with Attention-Deficit Hyperactivity Disorder: Comparing Training in Self and Parent Monitoring.
- 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 Kara Meyer at (225)987-9034.
- 4. Purpose of the Study:** The purpose of this study is to compare the effectiveness self-monitoring, parent monitoring, 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 both parent and teacher 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. The teacher will be asked to fill out a questionnaire regarding your classroom performance. 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 parent-monitoring 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, study skills strategies, and the use of a checklist to monitor the steps your homework/study skills routine. Your parent will be asked to prompt you to use the checklist and to give you rewards for completing the checklist. The checklist will be developed according to your individual needs. 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 parent-monitoring group you and your parent will attend a training session. Your parent will be trained in establishing a proper homework routine while you will be trained in the use of a study skills strategy. Your parent will also be trained in the use of a checklist to monitor the steps in your homework/study skills routine. The checklist will be developed according to your individual needs. Your parent will also be asked to check for evidence to the answers of the checklist items (e.g., check to see if notebook is organized for the next day) and give rewards to you for complying with at least 80% of the checklist items.
- 8. Benefits:** Possible benefits of participating in this study include a decrease in your homework related problems. You will also learn skills to you them study effectively. These skills may also help to improve your overall academic performance. 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 child 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 child decide not to participate in this study or decide to withdraw at any time.
- 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

## VITA

Kara J. Meyer is a doctoral candidate in psychology at Louisiana State University, and is specializing in pediatric psychology and minoring in school psychology. She graduated *Magna Cum Laude* from the University of Northern Colorado with a Bachelor of Arts in psychology in May 2003. She will receive her Master of Arts in psychology in December 2005.