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THE ATTRIBUTIONS OF YOUNG ADHD
CHILDREN, WHO ARE ON MEDICATION

BRINKMAN

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The Attributions of Young ADHD Children,

Who are on Medication

(TITLE)

BY

Tonya M. Brinkman

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

Specialist in School Psychology

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

1995

YEAR

I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING
THIS PART OF THE GRADUATE DEGREE CITED ABOVE

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Abstract

This study examined the attributions of children (ages six to eight) with Attention Deficit Hyperactivity Disorder (ADHD) after a challenging task. The ten children (grades first through third) who participated were taking Ritalin. Parents completed a fourteen item rating scale to determine the parent's perception of the child's attention difficulty, and the teachers completed the Attention Deficit Disorder - Hyperactivity Teacher's Rating Scale (ACTeRS) to determine the teacher's perception of the child's attention difficulty. Five children were in the control group and five were in the treatment group. The control group was asked to answer the items on the Intellectual Achievement Responsibility Scale (IAR) that comprise the external versus effort attribution scale. The treatment group was asked to first complete seven puzzle tasks and then answer the selected items from the IAR. Results indicated no group difference on the IAR. Across both groups only 20% of the children gave predominantly external attributions on the IAR.

The results of this study were discussed in the context of a series of studies conducted by Milich which investigated persistence behavior and performance attributions of ADHD children. Normal (non-ADHD) children

who make high rates of internal/effort attributions for failure are mastery oriented and children who make high rates of external attributions for failure are helpless oriented. In Milich's studies with ADHD nine and ten year old boys, he found that external attributions were associated with mastery oriented behaviors (task persistence) and effort attributions were associated with a helpless oriented behaviors. These findings were most apparent for boys on Ritalin. Thus, external attributions appear adaptive for nine and ten year old boys with ADHD.

The results of this study indicate a different trend in attributions for the younger children who participated. The young children with ADHD had a response style more similar to that of normal children. Both the treatment group, after being exposed to challenging tasks, and the control group were more likely to attribute their performance and difficulties in school to internal/effort causes rather than external causes. The findings suggest the possibility that early use of Ritalin for ADHD children helps to prevent the need to adapt an attributional style contrary to that of normal, non-ADHD, children.

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Chapter I: Introduction

Many children in school today have some type of emotional or behavior disorder. Attention deficit hyperactivity disorder (ADHD) is one of the most common childhood disorders. The American Psychiatric Association (APA) defined ADHD as having the following components: inattention, impulsivity, hyperactivity, and distractibility (Aman and Turbott, 1991). According to Rapport, Stoner, DuPaul, Birmingham, and Tucker (1985) hyperactivity affects an estimated three to five percent of United States children; these children are primarily males. Even though at least one authority asserts, as ADHD children grow older they become less resistant to directions, more compliant, and better able to sustain the compliance in comparison to younger ADHD children, older children (around the age of twelve) are still viewed as being different from their normal peers regarding compliance and resistance to direction (Barkley, Karlsson, Pollard, and Murphy, 1985).

Because ADHD is a common childhood disorder, research has emphasized finding an effective treatment. According to DuPaul, Barkley, and McMurray (1991) there has been a consistent demonstration of short-term enhancement of behavioral, academic, and social functioning of a majority of children treated with psychostimulants. However, because

of some of the adverse aspects of psychostimulant therapy, such as possible side-effects and lack of evidence of long-term efficacy, many people have incorporated psychostimulant therapy with other modes of treatment approaches, such as behavior modification. By using a multi-modal treatment approach there appears to be greater behavior-changing effects than if the psychostimulant therapy was used alone.

Pharmacological therapy is the most frequent individual treatment for ADHD rather than behavioral or psychosocial treatment. DuPaul et al. (1991) reported that approximately greater than two percent of the school-age population receive psychostimulant medication annually. Approximately sixty to ninety percent of children with ADHD receive stimulant therapy for prolonged periods during school years (Whalen and Henker, 1991). Currently, methylphenidate (MPH/Ritalin) is the most widely prescribed stimulant (90%) for children on psychostimulant therapy. Stimulant medication has proven to have positive effects on children's ability to sustain attention, inhibit impulsive responding, reduce task irrelevant movements, and improve problems with aggression, classroom disruptive behavior, and noncompliance with authority figure commands. While taking medication, ADHD children have been reported to be able to work or play independently, and be less controlling and domineering with

peers (Whalen and Henker, 1991).

While the positive results, especially short-term results, of psychostimulant therapy on task performance and interpersonal interactions have been well documented, "the emanative effects - the cognitive and psychosocial sequelae that attend the giving and taking medication" (p. 602) have not been thoroughly researched (Whalen, Henker, Hinshaw, Heller, and Huber-Dressler, 1991). Emanative effects would include aspects of internal descriptions or attributions regarding behavior.

Attribution Theory and ADHD

Children are active responders to events rather than passive responders. They devise hypotheses and theories regarding their behavior and observations. The attributions (self explanations of why they behave or react in a certain way) have a great impact on self-expectancies and future behaviors (Henker and Whalen, 1980). Weiner (1979) reported that frequent failures experienced by hyperactive children, that occur over long periods of time and across a variety of school tasks and teachers, can lead to the development of beliefs or attributions about eventual helplessness and inevitably to a lower sense of self efficacy. Weiner (1979) suggested that helpless children in comparison to mastery children will perceive past successes and failures as caused

by events outside their control. The helpless children are less likely to use effort in new situations than the mastery children who see events as under their control. And, in fact, recent empirical investigations support the hypothesis that ADHD children are prone to giving up on effortful tasks (Milich, Carlson, Pelham, and Licht, 1991).

By teaching helpless children to attribute their failures to insufficient effort, when combined with success experiences, they will experience increased motivation and improved performance (Licht, Kistner, Ozkaragoz, Shapiro, and Clausen, 1985). When ADHD children are unsuccessful over long periods of time and across settings and across people, this can lead to the development of beliefs about their inevitable helplessness and to a lower sense of self-efficacy. Based on attributional theory, increased levels of motivation and improved performance should be evident if ADHD children are taught to attribute their failures to insufficient effort and combine this with successful experiences (Reid and Borkowski, 1987).

The issues surrounding attribution theory with ADHD children on medication are complex (Pelham, Murphy, Vannatta, Milich, Licht, Gnagy, Greenslade, Greiner, and Vodde-Hamilton, 1992, Henker and Whalen, 1980, and O'Leary, 1980). For example, Whalen et al. (1991) found that ADHD

children who were on medication included medication in their attributions for behavior. Other researchers have investigated psychostimulant treatment in relation to positive cognitive-motivational consequences (Pelham et al. 1992, Milich, Licht, Murphy, and Pelham 1989, and Milich et al. 1991).

ADHD/Ritalin and Attributions

Henker and Whalen (1980) examined attributions and perceptions of ADHD children on medication. They conducted a semistructured interview that included open-ended and forced-choice items. Several types of questions were asked including imagination/pretend questions and questions to obtain factual information. There was a section which focused on causal attributions for problem sources and solutions; a section which focused on family and peer reactions; and a section which asked the child to predict treatment course and outcome.

The researchers assessed the amount of accurate information the child had regarding the medication and the amount of misinformation or mythology that the child had regarding the medication. This information became the Accurate Information Scale. Attitudes regarding drugs were assessed by focusing on the child's acceptance of the medication and by asking the child about his/her concerns

and dislikes regarding the medication. This information made up the Acceptance Scale. The interview also examined problem source attributions by determining if the causation was attributed to personal, social, physiology, or fate/luck/chance. The final scale concerned problem solution attributions and included personal effort/ability, social events, physiological maturation, medication, and fate/luck/chance.

Henker and Whalen (1980) found that most children with ADHD on medication attribute their problems and solutions to physiological causes rather than to personal or social factors. Children who reported positive attitudes had a tendency to attribute their problems to physiological causes and chose medication as the primary solution.

In this study conducted by Henker and Whalen (1980) some of the children reported a very adaptive combination of causal attributions. They reported that their body or brain is physiologically different from those of other children, therefore, they must take medication (1980). ADHD children learn that by attributing problems to external factors that are beyond their control others will not have high expectations or blame them for failures or transgressions (1980).

In a study done by Pelham et al. (1992) ADHD children were asked to attribute a cause for their success. It was reported that fifty-six percent of the children gave effort explanations and twenty-two percent of the children gave medication as an explanation. The meaningful finding is that medication influenced attributions. The findings of this study demonstrate that there is a need to consider both overt behavior changes and covert changes in self-evaluations and causal attributions.

Psychostimulant therapy has detectable effects on the ADHD child's self cognitions. Whalen, et al. (1991) found that estimates of future performance in behavior were influenced by the type of medication information they received. The subjects predicted a better performance if they were told they were on medication than if they thought it was a placebo. Following a failure experience, the subjects on medication evaluated their own performance and concentration more positively. If the subjects had been on medication before and were told that they were given a placebo instead they evaluated their performance and effort less favorably (Whalen et al. 1991).

Milich et al. (1989) examined the effects stimulant medication has on self-evaluations and attributions for task performance of ADHD boys. They found that when compared to

the placebo condition, the medication increased the correspondence between the boys' self-evaluations and their performance. The boys would attribute their successful performance to the ease of the task when they were on placebo and they reported that the task was harder when they were on medication (1989). In a two part study conducted by Pelham et al. (1992) they found that psychostimulant therapy can have a positive effect on an ADHD child's cognitive-motivation. When the boys had a successful day they would attribute their performance to effort and ability. When they had a bad day they would attribute their performance to the need for medication.

It has been demonstrated in previous research that children's attributions change as the child becomes older. Therefore, in the study conducted by Milich et al. (1989), it was plausible that older children might perceive the importance of medication differently than younger children. The researchers found that there was a significant tendency for the older children to attribute their successes to ability and fewer attributions to the pill than younger children. There was no evidence found to support the idea that medication produces medication-related attributions for performance (1989). On the contrary, for boys age nine and ten, medication was chosen less often than the other

attributions and the better the child did on the task the more likely they were to attribute the good performance to their ability (1989).

Attribution/ADHD/Failure Experiences

Given that the nature of the difficulties faced by ADHD children may place them at risk for the development of a helpless response style, it is important to explore how treatment effects their performance and attributions following failure. Exploring Methylphenidate (MPH) effects on ADHD children's performance and attributions following failure is also important because of the theoretical and anecdotal reports of the potential negative impact of MPH on the causal attributions of ADHD children. Children may internally attribute their repeated failures to their own lack of ability which will lead to decreased persistence when faced with failure experiences (Carlson, Pelham, Milich, and Hoza, 1993).

Jacobsen, Lowery, and DuCette (1986) reported that children with ADHD and other learning-impaired students often accept too much responsibility for their failures. Milich et al. (1989) have found that medication may have positive cognitive-motivational consequences, that, "one of the effects of medication, compared to placebo, is to increase the correspondence between performance and self-

evaluations" (p. 283).

In a series of four studies in which Richard Milich participated, attributions of children with ADHD between the ages of nine and ten were examined with solvable and insolvable word-find problems, medication and placebo conditions, and in comparison with nonreferred children. The researchers found that children with ADHD, in comparison to their control counterparts, may not respond to failure in the same way (Milich, 1994). They also found that boys with ADHD lacked persistence and quit significantly more often than nonreferred boys, especially when the success condition preceded the failure condition. The boys with ADHD reported more frustration than the control boys after the solvable and insolvable puzzles. These factors all make up the characteristics of a helpless child (1994).

In Milich and Greenwell (1991) and Milich and Okazaki (1991) the Intellectual Achievement Responsibility Scale (IAR) was used to differentiate between effort and externally oriented boys. The nonreferred boys were asked how hard they tried on the task. The effort oriented/mastery control subjects reported significantly more effort than the externally oriented/helpless control subjects. However, the boys with ADHD displayed the exact opposite pattern. The boys with ADHD identified by the IAR

as being effort oriented appeared more helpless in their performance, they felt they had little or no control over success or failures, and those identified as externally oriented appeared more mastery oriented; they felt they had control over their success or failures (Milich, 1994).

Milich (1994) offered several possible reasons for this discrepancy with attribution theory. Since, many children with ADHD have an extensive history of failure, it is plausible that they have learned that effort is not linked to success. These children may also see effort as a stable and uncontrollable characteristic; trying harder would not seem relevant or possible. Another possibility is that the ADHD children who give external attributions for failure are "engaging in a more adaptive response style given their high rate of failure" (p.19).

When Milich and the other researchers examined the effects medication has on performance, in relation to the IAR, they found that there was only a significant effect on performance after the boys experienced failure. They concluded that medication allowed the boys with ADHD to persist when they were challenged and perform as if they were mastery oriented. During the placebo condition the boys with ADHD performed with a helpless orientation when confronted with an insolvable word-find puzzle (Carlson et

al. 1993).

Milich et al. (1991) also found positive cognitive-motivational factors. When the boys were on medication rather than placebo and they experienced failure they made significantly more external attributions and significantly fewer internal attributions. These findings are consistent with research conducted by Whalen et al. (1991). It was concluded by Milich et al. (1989) that during an insolvable puzzle condition boys who were on medication reduced their perceived sense of responsibility for the failure, which is consistent with a healthy response style.

Milich et al. (1989) also found that medication improved the ability of boys with ADHD to make accurate self-assessments regarding their performance on a task. The series of studies provided a vast amount of information regarding some of the beneficial effects of medication. The medication produced common salutary effects on performance; the boys quit less often. The medication also provided beneficial cognitive-motivational effects; the boys were more persistent when facing a challenging task. Medication enhanced the boys' ability to make accurate self-assessments of their performance. Following a failure experience, the boys were more likely to make an external attribution and less likely to make an internal attribution; this is an

attributional style that has been associated with a mastery orientation for boys with ADHD (Milich, 1994).

Summary

According to attribution theory, when children are unsuccessful over long periods of time and across settings and across people, this can lead to the development of beliefs about their inevitable helplessness and to a lower sense of self-efficacy. This helpless orientation is reflected in external attributions regarding causes of behavior and contrasts with a mastery orientation and internal causal attributions. ADHD children are widely assumed to be at risk for a helpless orientation because of repeated failure experiences.

Research with ADHD children on medication has shown that not only does medication influence performance and attributions, but that at times ADHD children's attributions contradict that expected by attribution theory. According to Milich's studies with nine and ten year old boys on medication, the boys made more external attributions while performing with persistence (mastery orientation). Milich further demonstrated that medication allowed the boys with ADHD to persist after a failure experience and perform as if they were mastery oriented. External attributions were interpreted as an adaptive response style for these boys.

This study will investigate attributions of younger children with ADHD (and on medication) after a challenging task. It is hypothesized that younger children will provide causal attributions similar to those given by older ADHD children. It is hypothesized that the young child with ADHD and on medication will make primarily external attributions following a challenging task.

CHAPTER II (METHODS)

Subjects

All children, grades first through third in a mid-size school district who were diagnosed by a physician as having an Attention Deficit Hyperactivity Disorder (ADHD) and were taking Ritalin were asked to participate. Thirty consent letters were sent out to the parents of the children; ten signed letters were returned. The children participating in this study (5 male, 5 female) ranged in age from six years to eight years and ranged in grades from first through third.

A fourteen item ADHD rating scale developed by George DuPaul using the DSM-III-R criteria of ADHD was completed by parents to determine the child's parent's perception of the child's attention difficulty (Appendix C) (DuPaul, 1990). The Attention Deficit Disorder - Hyperactivity Comprehensive Teacher's Rating Scale (ACTeRS) (Appendix E) was completed by the child's teacher to determine the child's teacher's perception of the child's problems (Ullmann, Sleator, and Sprague, 1991). The time interval between the ADHD parental rating scale and the ACTeRS was one to two weeks. For the ten children who participated in the study, sixty-six percent of the ACTeRS were completed by regular education teachers and thirty-three percent of the ACTeRS were

completed by special education teachers.

The ten children were asked to complete selected items of the Intellectual Achievement Responsibility Scale (IAR) (Appendix F) (Crandall, Katkovsky, and Crandall, 1965). The selected items consisted of ten questions that comprise the external versus effort attribution scale.

Materials

The ADHD Rating Scale (DuPaul, 1990) uses the DSM-III-R criteria for ADHD to evaluate the occurrence of ADHD symptoms in children on a three point likert rating scale. There are four scores that were obtained using this rating scale: 1) number of symptoms present - the total number of items rated two or higher, a score of eight or more exceeds the DSM-III-R cut-off for a diagnosis of ADHD; 2) total score - the sum of the total number of points for all fourteen items, if the score exceeds 1.5 standard deviations above the mean for age and sex according to the tables attached to the rating scale, it is a clinically significant score, which is indicative of Attention Deficit Hyperactivity Disorder; 3) Factor I: Inattentive - Hyperactive - the sum of the items for this factor are compared with the score to the table of norms for the child's age and sex, a score higher than 1.5 standard deviations from the mean indicates a clinically significant problem in the area of inattention;

4) Factor II: Impulsive - Hyperactive - refers to summing the items for this factor and comparing the score to the table of norms for the child's age and sex, a score higher than 1.5 standard deviations from the mean indicates a clinically significant problem in the area of impulsivity. In order to meet the criteria of ADHD, the parent's responses must meet three out of the four possible scores.

The Attention Deficit Disorder - Hyperactivity Comprehensive Teacher's Rating Scale (ACTeRS) (Appendix E) (Ullmann et al., 1991) is comprised of twenty-four items relevant to classroom behavior. The ACTeRS uses a five point likert style rating scale ranging from "almost never" to "almost always". The twenty-four items are based on four categories: Attention, Hyperactivity, Social Skills, and Oppositional Behavior. In order to meet the criteria of ADHD, the teacher's responses must indicate a score in the problem direction on the Attention and Hyperactivity categories.

The Intellectual Achievement Responsibility Scale (IAR) (Appendix F) (Crandall et al. 1965) was used to differentiate between effort and externally oriented children. A child is determined to be internally oriented if he or she assumes personal responsibility for the negative events described in the IAR. The IAR is aimed at

assessing children's perceptions of their own reinforcement in intellectual-academic achievement situations. The IAR assesses an equal number of positive and negative behaviors. The IAR defines the source of external control as parents, teachers, and peers (1965).

Recruiting Participants

Before data was collected it was necessary for the school district to allow me to use the students in my study. During a meeting with the principal, I obtained consent to obtain a list of children who had a written school plan as a result of taking medication while at school. The written school plan is called a 504 plan. I contacted the 504 Coordinator for the school district, to obtain the list of children who currently had a 504 plan. The principal requested that I submit copies to the District Superintendent of all correspondence that would be sent out to the parents and/or teachers. I sent a letter (Appendix A) to the parents introducing myself, explaining the study, explaining the commitments required of their family, and offering to answer any of their questions. I attached a copy of a consent form (Appendix B) for the parents to sign and indicate if they wanted a summary of the results of the study. I enclosed a fourteen item questionnaire (Appendix C) for the parent to complete. The parents were asked to

return the consent letter and the completed questionnaire in the self-addressed stamped envelope.

Upon receipt of the signed parental consent letter, the child's teacher was contacted (Appendix D) and asked to complete the ADD-H Comprehensive Teacher Rating Scale (ACTeRS) (Appendix E) (Ullmann et al. 1991) and return it.

Procedure

The study was conducted in three locations corresponding to the elementary school the child attended. The rooms used were similar in size and equipped with a table and chairs.

The ten children were randomly assigned to two groups. Group A answered ten questions from the IAR which assessed self-descriptions (Appendix F). Group B was given a challenging word puzzle task (Appendix G) to complete and then asked to complete the ten questions from the IAR which assess self-descriptions.

When the children initially arrived at the testing room, a few minutes were spent establishing rapport with each individual child (Appendix H). After rapport was established, Group A was asked to complete the ten question survey used to assess external versus effort attributions. This took approximately twenty minutes to establish rapport and have the child complete the survey. After rapport was

established with Group B, they were asked to complete a series of seven word find puzzles, one sample puzzle in which they were given assistance as needed and six test puzzles, and then they completed the IAR questionnaire. This took approximately thirty minutes to establish rapport, complete the puzzle task, and complete the ten item survey. The word-find puzzles, were developed by the writer and similar to Milich's puzzles, became progressively more difficult and challenging, but were solvable (See Appendix H). Solvable puzzles were developed because the insolvable puzzles of Milich seemed unfair to young children and school tasks should be challenging but not unsolvable. To insure that all children understood the questionnaire every item was read to the child.

CHAPTER III (RESULTS)

All five participants in the treatment group successfully completed the six test puzzles. Individual averages for the amount of time spent on the test puzzles ranged from 8.2 to 21.67 seconds per puzzle. The child who received an average of 21.67 seconds had a significant amount of difficulty understanding the directions, and took 8 seconds longer than the nearest average time. After the sample puzzle was completed with the assistance of the experimenter, the directions were read again and the subject successfully completed the series of test puzzles.

A one-tailed t-test was used to compare the responses of the two groups (puzzle and no puzzle) on the Intellectual Achievement Responsibility Scale (IAR). The difference between the two groups on the IAR was not significant ($t=0.91$, $p>0.05$). Responses on the IAR for both groups indicate that 30% of the participants attributed their performance and difficulties in situations to internal/effort causes; 20% of the participants attributed their performance and difficulties in situations to external causes; and 50% did not attribute more to external or internal causes. Of the 30% who attributed their performance to internal/effort causes, 67% were males and 33% were females. Of the 20% that attributed their

performance to external causes, 100% were females. Of the 50% who did not attribute more to external or internal causes, 60% were male and 40% were female.

Following DuPaul's (1990) scoring procedure for the ADHD Rating Scale, 90% of the participant's parents reported that their child demonstrated ADHD characteristics. Scores on the ACTeRS, (Ullmann et al., 1991) indicated that 70% of the teachers reported that the child demonstrates ADHD characteristics in the classroom.

CHAPTER IV (DISCUSSION)

The results of this study indicate that the attributions of the younger children in this study did not match those of the older children who participated in the Milich studies. When exposed to challenging, yet solvable, tasks and then asked to answer questions regarding their attributional style, young children with ADHD had a response style on the IAR similar to that of normal children, as did the children not exposed to the challenging task. Children (in grades first through third) with ADHD were not likely to attribute their performance and difficulties in situations to external causes. Only twenty percent of the children demonstrated an external attributional style. Fifty percent of the children did not demonstrate one attributional style over the other and thirty percent of the children reported an internal/effort attributional style.

Diener and Dweck (1978) state that normal children who make high rates of effort attributions for failure are mastery oriented and feel they have control over their failures. They also state that children who make high rates of external attributions for failure are helpless and feel they have little or no control over success and failure.

However, in the Milich and Okazaki (1991) and Milich and Greenwell (1991) studies, the boys with ADHD, were ten

years old, who were identified as effort oriented on the IAR appeared more helpless in their performance. In the same studies, the boys with ADHD who were identified as the externally oriented performed as if they were mastery oriented. This pattern of attributional style is directly opposite of the attributional pattern demonstrated by the children in the study conducted by Diener and Dweck (1978). According to the Milich studies (1991), this attributional style demonstrated by the boys with ADHD is a more adaptive and healthy attributional style. Milich provided several explanations for the discrepancies in attributional styles between normal children and boys with ADHD. First, because of the history of failure that the boys with ADHD experience, they have learned that effort is not linked to success during problem solving tasks. Another explanation that Milich provides is that boys with ADHD experience rates of failure and make external attributions for failure because it is a more adaptive response style. By externalizing attributions they are able to persist on later tasks.

In the present study, out of the children who demonstrated either an external or internal/effort orientation, 60% were defined as demonstrating an internal/effort attribution style; 40% were defined as

demonstrating an external attribution style. These findings are more similar to the findings by Diener and Dweck (1978) of the attributions of normal children.

It is possible that the younger age of the children in the present study, in comparison with the older children in Milich's studies, has had an impact on the results. Younger children may have not been exposed to as many failure experiences as older children and thus were not as likely to have developed a helpless orientation which requires adaptation of an external attributional style.

An important consideration in discussing this study with Milich's work regards the tasks developed for use with the younger children. First of all, the word-find puzzles for the younger children were developed to be challenging, not insolvable, and thus more like school tasks. While Milich's word-find puzzles were insolvable (the target word could not be found) in the failure experience portion of his studies; it was supposed that the solvable word-find puzzles developed for this study would be challenging enough for the children to experience failure. However, this was not the case. All children successfully solved the word-find puzzles. Thus, a closer approximation to Milich's work would require a set of puzzles which include more difficult levels.

Another consideration is related to the medication. Milich did determine that the effects of Ritalin allow boys with ADHD to persist when they are confronted with a possible failure experience and thus perform as if they are mastery oriented. Because all of the subjects in the present study were on medication, this may well have been a contributing factor in allowing the participants to demonstrate a mastery oriented approach with attributions similar to non-ADHD children toward the task.

The students who participated in this study persisted when facing challenging tasks; they demonstrated a mastery orientation approach, and only 20% of the students demonstrated an external attributional style. It appears the earlier that medication is used may increase the likelihood of attributions similar to normal children.

The conclusions of this study are tentative because of the small number of participants and the ceiling effects on the tasks. However, it does provide some useful information and some possible future research projects. This study provides information on young ADHD, medicated children's attributions in response to a challenging task. The attributions of the children with ADHD who are on medication are different from the attributions of older children as demonstrated by Milich. If similar results continue with a

larger sample size, this information would add to the evidence supportive of early use of medication as an aid in helping younger children with ADHD to develop an attributional style similar to that of non-ADHD children.

CHAPTER V (REFERENCES)

- Aman and Turbott (1991). Prediction of clinical response in children taking methylphenidate. Journal of Autism and Developmental Disorder, 21(2), 211-227.
- Barkley, R.A., Karlsson, J., Pollard, S., & Murphy, J.V. (1985). Developmental changes in the mother-child interactions of hyperactive boys: Effects of two dose levels of ritalin. Journal of Child Psychology and Psychiatry, 26(5), 705-715.
- Carlson, C.L., Pelham, W.E., Milich, R., & Hoza, B. (1993). ADHD boys' performance and attributions following success and failure: Drug effects and individual differences. Cognitive Therapy and Research, 17, 269-287.
- Crandall, Y.C., Katkovsky, W., & Crandall, Y.J. (1965). Children's beliefs in their own control of reinforcements in intellectual-academic achievement situations. Child Development, 36, 451-462.
- DuPaul, G.J. (1990). The ADHD rating scale: Normative data, reliability, and validity. Unpublished manuscript, University of Massachusetts Medical Center, Worcester.
- DuPaul, G.J., Barkley, R.A., and McMurray, M.B. (1991). Therapeutic effects of medication on ADHD: Implications for school psychologists. School Psychology Review, 20(2), 203-219.
- Henker, B., and Whalen, C.K. (1980). The many messages of medication: Hyperactive children's perceptions and attributions. In S. Salzinger, J. Antrobus, and J. Glick (Eds.) The Ecosystem of the "Sick" Child. (pp. 141-166). New York: Academic Press.
- Jacobsen, Lowery, and DuCette (1986). Attribution of learning disabled children. Journal of Educational Psychology, 78, 59-64.
- Licht, B.G., Kistner, J.A., Ozkarogoz, T., Shapiro, S., & Clausen, L. (1985). Causal attributions of learning disabled children: Individual differences and their implications for persistence. Journal of Educational Psychology, 77, 208-216.

- Milich, R. (1994). The response of children with ADHD to failure: If at first you don't succeed, do you try, try, again? School Psychology Review, 23(1), 11-28.
- Milich, R., Carlson, C.L., Pelham, Jr., W.E., & Licht, B.G. (1991). Effects of methylphenidate on the persistence of ADHD boys following failure experiences. Journal of Abnormal Child Psychology, 19(5), 519-536.
- Milich, R., and Greenwell, L. (1991, December). An examination of learned helplessness among attention-deficit hyperactivity disorder boys. In B. Hoza and W.E. Pelham (Chairs), Cognitive biases as mediators of childhood disorders: What do we know? Symposium presented at the annual meeting of the Association for the Advancement of Behavior Therapy; New York.
- Milich, R., Licht, B.G., Murphy, D.A., & Pelham, Jr., W.E. (1989). ADHD boys' evaluations of and attributions for task performance on medication versus placebo. Journal of Abnormal Psychology, 98, 280-284.
- Milich, R., and Okazaki, M. (1991). An examination of learned helplessness among attention deficit hyperactivity disorder boys. Journal of Abnormal Child Psychology, 19, 607-623.
- O'Leary (1980). Pills or skills for hyperactive children. Journal of Applied Behavior Analysis, 13, 191-204.
- Pelham, W.E., Murphy, D.A., Vannatta, K., Milich, R., Licht, B.G., Gnaggy, E.M., Greenslade, K.E., Greiner, A.R., and Vodde-Hamilton, M. (1992). Methylphenidate and attributions in boys with attention deficit hyperactivity disorder. Manuscript submitted for publication.
- Rapport, M.D., Stoner, G., DuPaul, G.J., Birmingham, B.K., & Tucker, S. (1985). Methylphenidate in hyperactive children: Differential effects of dose on academic, learning, and social behavior. Journal of Abnormal Child Psychology, 13(2), 227-244.
- Reid, M.K., and Borkowski, J.G. (1987). Causal attributions of hyperactive children: Implications of teaching strategies and self-control. Journal of Educational Psychology, 79(3), 296-307.

- Ullmann, R.K., Sleator, E.K., and Sprague, R.L. (1991). ADD-H comprehensive teacher's rating scale. MetriTech, Inc., Champaign, Illinois.
- Weiner, B. (1979). A theory of motivation for some classroom experiences. Journal of Educational Psychology, 71, 3-25.
- Whalen, C.K., and Henker, B. (1991). Social impact of stimulant treatment for hyperactive children. Journal of Learning Disabilities, 24(4), 231-241.
- Whalen, C.K., Henker, B., Hinshaw, S.P., Heller, T., and Huber-Dressler, A. (1991). Messages of medication: Effects of actual versus informed medication status on hyperactive boys' expectancies and self-evaluations. Journal of Consulting and Clinical Psychology, 59(4), 602-606.

Appendix A

Date

Dear Parent(s) or Guardian(s):

I am an intern from Eastern Illinois University in Charleston, Illinois where I am enrolled in the Specialist program for School Psychology. Currently, I am doing my internship at Belleville Area Special Education District. One of my requirements for graduation is that I complete a thesis. For this requirement, I am conducting research on the ADHD child's self description of performance on a puzzle task. I have received your child's name as a possible participant. The time commitment by your family will be minimal.

I would like to allay any concerns that you might have regarding your child participating in a psychological research project by providing you with some information. I will be asking your child 10 questions regarding self descriptions of their performance and they will be given 6 word search puzzle tasks to complete. The puzzles will take only 10 minutes to complete and the questions will take approximately 10 to 15 minutes to answer.

I would also like your input regarding your child and any concerns that you might have. I have a 14 item rating scale that I would like for you to fill out. If you agree to participate please sign below. I will also be asking your child's teacher to answer a questionnaire for me. Please include a phone number where I may reach you to set up a convenient meeting time.

Please feel free to call me at the BASED office if you have any questions. The phone number is 618-234-1553. If you would like a summary of the results of the study please check the line on the consent form. Thank-you for your attention and anticipated cooperation. I look forward to working with your family.

Sincerely,

Tonya M. Brinkman
School Psychology Intern
Belleville Area Special Education District

cc: Cindy Phelps
School Psychologist, Supervisor

Appendix B

I, _____, parent(s) of
_____ give consent for my child to
participate in the research project being conducted by Tonya
Brinkman. I can be reached at _____. The
best possible time to reach me would be
_____.

_____ Please send me a summary of the research
results.

Appendix C

Child's Name: _____
 Age _____ Grade _____
 Completed By _____

	Not at all	Just a little	Pretty much	Very much
1. Often fidgets or squirms in seat.	0	1	2	3
2. Has difficulty remaining seated.	0	1	2	3
3. Is easily distracted.	0	1	2	3
4. Has difficulty awaiting turn in groups.	0	1	2	3
5. Often blurts out answers to questions.	0	1	2	3
6. Has difficulty following instructions.	0	1	2	3
7. Has difficulty sustaining attention to tasks.	0	1	2	3
8. Often shift from one uncompleted activity to another.	0	1	2	3
9. Has difficulty playing quietly.	0	1	2	3
10. Often talks excessively.	0	1	2	3
11. Often interrupts or intrudes on others.	0	1	2	3
12. Often does not seem to listen.	0	1	2	3
13. Often loses things necessary for tasks.	0	1	2	3
14. Often engages in physically dangerous activities without considering consequences.	0	1	2	3

Appendix D

Date

Dear Mr.(s). Teacher:

I have obtained the name of one of your students to participate in my thesis. I have received written consent from _____ parent and will be meeting with them soon. I would appreciate it if you could fill out the enclosed Acters protocol. I will be contacting you in the next week to see when the protocol will be completed so I can pick it up. Please let me know if you would like a copy of the summary of my results. I appreciate your cooperation with completing the protocol which will assist me in completing my thesis. Thank you for your time and attention.

Sincerely,

Tonya M. Brinkman
School Psychology Intern

cc: Cindy Phelps, M.S.
School Psychologist, BASED



Rina K. Ullmann, M.Ed.
 Esther K. Sletator, M.D.
 Robert L. Sprague, Ph.D.

2nd Edition

Below are descriptions of behavior. Please read each item and compare the child's behavior with that of his or her classmates. Circle the number that most closely corresponds with your evaluation. Transfer the total raw score for each of the four sections to the profile sheet to determine normative percentile scores.

Almost
Never

1. Works well independently	1	2	3	4	5
2. Persists with task for reasonable amount of time	1	2	3	4	5
3. Completes assigned task satisfactorily with little additional assistance	1	2	3	4	5
4. Follows simple directions accurately	1	2	3	4	5
5. Follows a sequence of instructions	1	2	3	4	5
6. Functions well in the classroom	1	2	3	4	5

ADD ITEMS 1-6 AND PLACE TOTAL HERE _____

Appendix E

HYPERACTIVITY

Almost
Never

7. Extremely overactive (out of seat, "on the go")	1	2	3	4	5
8. Overreacts	1	2	3	4	5
9. Fidgety (hands always busy)	1	2	3	4	5
10. Impulsive (acts or talks without thinking)	1	2	3	4	5
11. Restless (squirms in seat)	1	2	3	4	5

ADD ITEMS 7-11 AND PLACE TOTAL HERE _____

SOCIAL SKILLS

Almost
Never

12. Behaves positively with peers/classmates	1	2	3	4	5
13. Verbal communication clear and "connected"	1	2	3	4	5
14. Nonverbal communication accurate	1	2	3	4	5
15. Follows group norms and social rules	1	2	3	4	5
16. Cites general rule when criticizing ("We aren't supposed to do that")	1	2	3	4	5
17. Skillful at making new friends	1	2	3	4	5
18. Approaches situations confidently	1	2	3	4	5

ADD ITEMS 12-18 AND PLACE TOTAL HERE _____

OPPOSITIONAL

Almost
Never

19. Tries to get others into trouble	1	2	3	4	5
20. Starts fights over nothing	1	2	3	4	5
21. Makes malicious fun of people	1	2	3	4	5
22. Defies authority	1	2	3	4	5
23. Picks on others	1	2	3	4	5
24. Mean and cruel to other children	1	2	3	4	5

ADD ITEMS 19-24 AND PLACE TOTAL HERE _____



Appendix F

1. When you have trouble understanding something in school, is it usually:
 a. because the teacher didn't explain it clearly,
or
 b. because you didn't listen carefully?
2. When you read a story and can't remember much of it, is it usually
 a. because the story wasn't well written, or
 b. because you weren't interested in the story?
3. Suppose a person doesn't think you are very bright or clever.
 a. Can you make him change his mind if you try to,
or
 b. are there some people who will think you're not very bright no matter what you do?
4. Suppose you study to become a teacher, scientist, or doctor and you fail. Do you think this would happen
 a. because you didn't work hard enough
 b. because you needed some help, and other people didn't give it to you?
5. When you find it hard to work arithmetic or math problems at school, is it
 a. because you didn't study well enough before you tried, or
 b. because the teacher gave problems that were too hard?
6. When you forget something you heard in class, is it
 a. because the teacher didn't explain it very well,
or
 b. because you didn't try very hard to remember?
7. When you don't do well on a test at school, is it
 a. because the test was especially hard, or
 b. because you didn't study for it?

8. Suppose you don't do as well as usual in a subject at school. Would this probably happen:

- a. because you weren't as careful as usual, or
- b. because somebody bothered you and kept you from working?

9. Suppose you're not sure about the answer to a question your teacher asks you and the answer you give turns out to be wrong. Is it likely to happen

- a. because she was more particular than usual, or
- b. because you answered too quickly?

10. If a teacher says to you, "Try to do better," would it be

- a. because this is something she might say to get pupils to try harder, or
- b. because your work wasn't as good as usual?

Appendix G

C	B	Y	Z	D	F	L	Z	D	W	K	P	L	S
B	J	S	P	C	D	D	J	D	M	S	D	P	M
F	S	L	W	X	V	K	S	M	Q	V	X	T	K
D	V	D	F	K	P	D	K	S	V	T	S	C	H
K	L	S	T	M	X	R	S	C	T	J	H	G	V
	J	S	P					D	J	D	M	S	
N	S	J	G	S	D	Z	D	M	S	K	C	M	X
J	S	C	R	R	W	W	K	M	L	D	P	D	S
S	N	H	L	J	Y	Y	R	L	K	V	W	P	B
T	J	Y	S	K	M	D	S	K	B	T	Q	X	D
B	C	S	J	G	F	Q	W	C	P	K	J	G	C
	J	Y	S					K	B	T	Q	X	
P	K	C	F	S	R	P	G	D	C	K	S	Z	M
M	S	K	C	Z	X	T	H	S	C	G	H	D	S
D	L	S	M	N	P	Q	G	F	Q	C	B	F	P
C	S	D	K	S	R	X	H	X	H	G	M	Y	N
M	C	N	S	T	P	W	R	X	B	N	P	J	K
	M	N	P	Q				G	F	Q	C		