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ATTRIBUTION RETRAINING FOR STUDENTS WITH LEARNING DIFFICULTIES: EFFECTIVENESS IN REDUCING LEARNED HELPLESSNESS

BY

BEVERLY ANN BAKER-HOFMANN

A THESIS

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B W Baker-Hofmann

9 Granada Place
St. Albert, Alberta
T8N 3C3

Date: October 5, 1989

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled:

Attribution Retraining for Students with Learning Difficulties: Effectiveness in Reducing Learned Helplessness

submitted by Beverly Ann Baker-Hofmann in partial fulfilment of the requirements for the degree of Master of Education in Special Education.

Ian Smart

(Supervisor)

Date: Sept 26, 1989

DEDICATION

To my family who has always been a source of support and encouragement and to my husband, Greg Hofmann, whose love, understanding and belief in me helped make the tough times easier and the good times even better.

Abstract

Attributions given by students with learning difficulties who are also characterized by learned helplessness often reflect internal and stable factors (ability) for failure and external factors (task ease or luck) for success. The purpose of this study was to determine whether direct attribution retraining would be effective in altering the attributions that are given by such students following success and failure outcomes. Direct attribution retraining involved covert rehearsal of self-instructional statements. The sample consisted of twenty-seven adolescents (20 males, 7 females) with learning difficulties who were also learned helpless. Fifteen participants in five classrooms were randomly assigned to attribution retraining treatment while the remaining twelve participants were designated as an attention control group. Pre- and post-tests of the Intellectual Achievement Responsibility (IAR) Scale (Crandall, Katkovsky & Crandall, 1965) , a 12-item Effort Versus Ability Subscale (EVAS) and a Teacher Rating Scale for Identifying Learned Helplessness were used to determine whether direct attribution retraining was significantly more effective than no attribution retraining in increasing students' internal attributions for success and decreasing their internal blame for failure. Results showed no significant interaction effect of group (attribution retraining vs. control) x time (pretest vs. posttest)

although the scores on the Teacher Rating Scale reflected a reduction in teachers' perceptions of their students' helplessness for the attribution retraining group. Following intervention both groups showed an increased tendency to attribute failure to a lack of effort rather than a lack of ability. The implications of the findings for further research are presented with the suggestion that intervention involving both attribution retraining and strategy training may provide a more promising direction than attribution retraining alone.

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CHAPTER ONE

The phenomena of learned helplessness was first described in the mid 1960's by Martin Seligman and his associates who were studying animals in classical conditioning situations. The term was used to describe the response by dogs exposed to uncontrollable shock. Seligman (1975) referred to an uncontrollable outcome as one where "an organism can make no operant response that controls an outcome" (p. 12). In other words, the outcome is independent of the organism's response.

The initial experiments conducted by Seligman consisted of restraining dogs in a harness and administering moderately painful shocks to the animals. The shocks were uncontrollable, that is, no response that the animals made would terminate the shock. Following this experiment, the dogs were placed in a two-sided chamber where they could avoid shock by jumping over a barrier. The response of the dogs was surprising. Rather than learning that they could escape the shock by crossing over the barrier, the dogs who had previously been exposed to uncontrollable shock became passive and laid down. They just seemed to give up and accept the shock and did not learn to escape on succeeding trials. They had learned to be helpless.

Seligman (1973, 1975) theorized that there were three major results of uncontrollability as evidenced in helplessness. The first was a motivational loss, that is,

the dogs learned that what they did was independent of what happened to them so consequently they quit trying. The second observable result was a cognitive retardation. This was evidenced in the dogs' difficulty in learning what response would result in terminating the shock even after the response had been successful. The dogs were dragged across the barrier to show them the required response yet it took anywhere from 15 to 200 times for them to learn to jump the barrier to escape the shock. The third effect was emotional disruption such as anxiety and neuroses. The effect of emotional disturbance has been illustrated best by studies with rats; helpless rats showed more anxiety as manifested in stomach ulcers than rats that could control the shock. More extreme effects were noted in other research with rats where a lack of controllability resulted in the rats displaying maladaptive behaviors such as hair pulling and even attempts to catch imaginary flying insects.

Seligman began to see similarities between the phenomena of learned helplessness in dogs and the state of depression in humans. In 1975 Seligman wrote:

> Learned helplessness need not characterize the whole spectrum of depressions, but only those primarily in which the individual is slow to initiate responses, believes himself to be powerless and hopeless, and sees his future as bleak--which began as a reaction to having lost his control over gratification and relief from suffering. (p. 81)

It was also postulated (Seligman, 1975) that the concept of learned helplessness could be related to other human responses in childhood and adolescent development as well as being implicated in some deaths. He indicated that helplessness may reduce one's will to live and also reported a series of "hex deaths" and "voodoo deaths" that may be explained in part by the perceived helplessness of the victims. Other researchers suggested links between helplessness and psychological factors associated with the risk of developing coronary disease (Glass & Carver, 1980), aging (Schulz, 1980) and intellectual achievement (Dweck & Licht, 1980). It is this last connection between learned helplessness and intellectual and school achievement that will later be examined in greater detail.

First, however, it is necessary to clarify the theoretical underpinnings of the learned helplessness construct. The original model of helplessness was based on work with animals and, as noted earlier, was developed around the assumption that exposure to uncontrollable outcomes results in three deficits: motivational, cognitive and emotional. The hypothesis further suggested that it was not merely exposure to the uncontrollable events that resulted in these deficits, but an expectation that the outcomes are uncontrollable. In this sense, the learned helplessness hypothesis was cognitive in nature (Abramson, Garber & Seligman, 1980).

As the studies with learned helplessness shifted their emphasis from animals to humans, a number of inadequacies of the original formulations of the construct were discovered. Reformulations that addressed the inadequacies of the original hypothesis focused on an attributional framework, that is, the reasons that people give for their helplessness when they find that they are helpless (Abramson et al., 1980; Abramson, Seligman & Teasdale, 1978; Miller & Norman, 1979). The reasons or attributes that helpless individuals cite affect the extent of their helplessness.

The attributional framework analyzed possible attributions according to three main dimensions: internal-external, stable-unstable and global-specific (Abramson et al.,1980). These authors suggested that all three dimensions are on a continuum rather than being dichotomies, but for ease of comparative analyses are treated as dichotomies.

Internal factors involve those within ourselves while external attributions are based on factors outside our control. This distinction is important in defining the difference between universal helplessness and personal helplessness. Abramson et al. (1980) distinguished between the two in this way: "universal helplessness is characterized by the belief that an outcome is independent of all of one's own responses as well as the responses of other people" whereas "personal helplessness...is the case where the individual believes that there exist responses

that would contingently produce the desired outcome, although he or she does not possess them" (p. 11). Thus, "personally helpless individuals make internal attributions for failures, whereas universally helpless individuals make external attributions" (p. 12). For example, if individuals are placed in a task-solving situation but cannot solve it they may believe that relevant others can solve it but they do not have the skill or ability to do so (personal helplessness). Conversely, if they feel that the outcome of solving the problem is independent of their own response as well as the responses of others this will result in external attributions and characterizes universal helplessness. The personal-universal helplessness distinction has implications for a fourth deficit resulting from learned helplessness, that of low self-esteem (Abramson et al., 1980). It seems apparent that if one believes that he cannot solve a task that relevant others can he will have lower self-esteem than if he also believes that others were unable to solve the same task. The authors provided an example that most students can relate to; failing a test that everyone else passed has quite a different effect on your self-esteem than failing a test that everyone else also failed.

The stable-unstable continuum helps to explain the consistency of attributions over time (Abramson et al., 1980). Stable factors are permanent and recurrent; conversely, unstable attributions are those that are changeable and intermittent. The following paradigm

illustrates Pysh's (1987) summary of the attributions of the first two dimensions.

	Stable	Unstable
Internal	ABILITY (e.g. "I'm stupid")	EFFORT (e.g. "I didn't try hard enough")
External	TASK DIFFICULTY (e.g. "Reading is hard")	LUCK (e.g. "It wasn't my lucky day")

The third attributional dimension of global-specific assists in explaining the generality of helplessness. Global factors are those that encompass all areas of ability, whereas specific factors are limited to specific tasks or abilities. If individuals make global attributions for their helplessness they will, when placed in a new situation, again expect their outcome to be uncontrollable. More transfer of helplessness will occur if individuals make attributions that are global and stable than if they attribute helplessness to specific and unstable factors (Abramson et al., 1980).

Abramson et al. (1980) also attempted to address the question of the severity of the deficits resulting from learned helplessness. They suggested that "the intensity of the motivational and cognitive deficits increases with the strength or certainty of the expectation of noncontingency...." and "the intensity of self-esteem loss

and affective changes are assumed to increase with both the certainty and importance of the event the person is helpless about...." (p. 17). They further indicated that attributions to global and stable factors can also affect the severity of self-esteem and emotional deficits because helpless individuals expect to be helpless across many areas of their lives and across time. Believing attributions such as these can make the future look quite bleak.

The logic of the learned helplessness model implies that if people believe that their responses do not affect an outcome, they will be unlikely to continue making those responses. The similarity between the description of learned helplessness and the behavior of special education students began to receive attention (Thomas, 1979). Teachers described their special education students, in particular students with learning disabilities, as no longer believing that they could learn thus they cease their efforts. Such students did not perceive a relationship between their response (effort) and the outcome (achievement). These behaviors and cognitions were creating obstacles to learning and researchers began to explore the links between learned helplessness and the attribution patterns of students with learning difficulties. The present study is an attempt to further the knowledge base in this area. The objective of the present research is to determine whether the attributions given by students with learning difficulties who are also characterized by learned

helplessness can be altered by a process of direct attribution retraining.

In the present study the term learned helplessness will refer to the state of personal helplessness as opposed to universal helplessness. In this state as defined by Abramson et al. (1980) people hold beliefs that there are responses one can make to produce desired outcomes but they do not possess these responses. Consequently, on the internal-external continuum persons exhibiting personal helplessness will make attributions for failure that reflect internal blame. Regarding the stable-unstable continuum the focus of the present study is on individuals that attribute failure to stable factors, that is, those that are permanent and recurrent, i.e., ability or lack thereof. Finally, examining the dimension of global-specific, the present research addresses global attributes, those that encompass all areas of ability. Briefly stated the concept of learned helplessness as defined in the present study refers to the state in which individuals make attributions for failure that reflect internal, stable and global factors.

The term learning difficulties has been chosen to describe the group of students involved in the present study. They receive special programming through classes which have as their descriptors Resource Centre, Adaptation Class, Transition Class or Severely Learning Disabled Programme. Many of these students would be referred to as learning disabled; however, it is the practice in at least

one school district involved in the study not to use the label "learning disabled" to describe the majority of their students in these programs. Consequently, the broader term "learning difficulties" was adopted to describe students with average intelligence with a significant discrepancy between intellectual potential and educational achievement. This definition includes the students who have been labelled "learning disabled" as well as those who have not been categorized by label and follows the example of Butkowsky and Willows (1980) who operationalized the term learning difficulties as "some apparent disparity between potential and performance" (p. 411).

Direct attribution retraining is a method described by Fowler and Peterson (1981) that is utilized to alter the attributions that students give for outcomes. This approach involves having the teacher or researcher model more appropriate attributions to students but further requires that the students be encouraged to covertly rehearse the modelled attributions. This procedure will be described in greater detail in Chapter Two.

Having defined the constructs of the present study, the organization of the remainder of the thesis follows. Research examining learned helpless behaviors in students with learning difficulties will be presented in Chapter Two with a particular focus on the attributional patterns of these students. Chapter Three will present the methodology employed in the present study and Chapter Four will

subsequently report the results obtained. Finally, Chapter Five will present a discussion of the findings as well as limitations of the study and directions for future research.

CHAPTER TWO

Failure Versus Helplessness

The concept of learned helplessness as outlined in Chapter One refers to the experience of uncontrollability and generally is regarded as resulting from failure. The two terms, however, are not synonymous. Abramson et al. (1980) addressed the distinction between failure and helplessness:

> Failure is a subset of helplessness, primarily overlapping with personal helplessness. Failure typically means more than simply not obtaining a desired outcome. In general, failure implies that there was a possibility of success (i.e., some responses can produce the desired outcome) and that the unsuccessful attainment of the goal is attributed to internal factors. In this sense, failure would...typify the case of personal helplessness. (p. 12)

The issue of personal helplessness is important to the study of learned helplessness in students with learning difficulties. By virtue of definition alone students with learning difficulties have encountered persistent academic failure (Canino, 1981; Palmer, Drummond, Tollison & Zinkgraff, 1982; Swartz, Purdy & Fullingim, 1983; Wong, 1986). Sabatino (1982) suggested that these students compare themselves with others and see that they do not

achieve what relevant others are able to. This is the basis of personal helplessness. As students encounter academic failure they begin to ask themselves, "Why did I fail?" (Canino, 1981). It is these reasons or attributes that students give for their failure that will determine the extent of their helplessness. It cannot automatically be assumed that students who encounter academic failure will subsequently exhibit learned helpless behaviors yet as Licht (1983) suggested:

> the kinds of failures that LD [Learning Disabled] children are likely to experience (i.e. those that occur at a high rate, over long periods of time, across a variety of school tasks and teachers) are the ones that are most likely to lead to the development of "helpless" beliefs. (p. 483)

Helplessness from Positive Noncontingencies

Although it is generally experience with uncontrollable negative outcomes or failure that is thought to result in learned helplessness, Abramson et al. (1980) suggested that positive noncontingencies can also produce states of helplessness. They add, however, that exposure to positive uncontrollable outcomes, while resulting in similar motivational and cognitive deficits as experience with uncontrollable negative outcomes, usually does not produce sad affect. Just as the attributions students give for failure determine their future expectancies so do the

attributions given in success situations also reflect their expectancy to succeed again in the future.

Pysh (1987) summarized the negative expectation cycle in which learned helpless students become entrapped. Their initial expectation is that they will do poorly. If the expected outcome occurs (i.e., they do poorly) an internal, stable attribute will be given for their failure (e.g., I failed because of a lack of ability). Thus their future expectancy will be for failure since ability is a stable attribute. If the unexpected outcome occurs (i.e., they do well on the task) they will make an external, unstable attribution (e.g., I did well because I was lucky). Consequently, future expectancies will again be for failure as students do not believe they personally had any responsibility for their success. For such students failure is seen as inevitable and insurmountable. Pearl (1982) highlighted that learning disabled students may not construe outcomes the way other children do. She suggested that:

> LD [Learning Disabled] children do not necessarily interpret successes as reflecting something positive about themselves, and failures are not necessarily viewed as something that can be overcome with effort. (p. 176)

The same observation appears to be applicable to students exhibiting learned helplessness.

Learned helplessness resulting from positive noncontingencies has received less attention in research

than the same condition as a result of negative outcomes. In view of the common practice in special education classes of providing frequent positive reinforcement, however, Kleinhammer-Tramill, Tramill, Schrepel and Davis (1983) examined the effects of noncontingent positive reinforcement on the performance of learning disabled adolescents. In this study, students were assigned to one of three different reward schedules: (a) reward contingent on correct performance; (b) reward for each task regardless of performance (100% noncontingent); or (c) random reward for half the tasks regardless of performance (50% noncontingent). Results illustrated that no significant differences were found between the two noncontingent groups; however, students presented with either noncontingent reward schedule showed a decrement in performance on tasks, thus exemplifying learned helplessness.

Attributional Styles of LD Versus Non LD Students

In the last 10-15 years there has been increasing recognition that learned helplessness and its resulting behavioral and cognitive deficits interfere with, and likely exacerbate, learning problems (Palmer et al., 1982; Wiens, 1983). In order to more fully understand the learned helplessness construct as it relates to students with learning difficulties, there have been increasing numbers of studies focusing on attributional patterns of these students. One direction that this research has followed

involves a comparison of attributional styles of learning disabled and non-learning disabled students. The results of these studies are inconsistent and sometimes contradictory; nevertheless, each has contributed to the existing body of knowledge.

Pearl (1982) examined the reasons given for failure and success by third and fourth grade learning disabled and regular class students. Her findings suggested that LD students considered luck more as a factor in success and less as a factor in failure than non LD students. Furthermore, LD students attributed their success on puzzles and in reading less to their ability than non LD children. To put these findings in terms from Abramson et al. (1980), LD students tended to view success as a result of external, unstable factors whereas failure was more likely to be attributed to internal factors.

Similar findings were evident in the Butkowsky and Willows (1980) study in which comparisons between poor, average and good readers' attributes were made. The fifth grade students in this study all attended regular classes but were differentiated by their reading scores on the Gates-MacGinite Reading Test (Comprehension subtest). The authors referred to the poor readers in this study as students with learning problems in reading. Poor readers were found to be less likely to take personal responsibility for their success but more likely to blame their failure on a lack of ability. Only 11% of the poor readers attributed

their success to ability whereas 31% of average readers and 37% of good readers viewed their ability as contributing to success. Even more striking are the reasons given for failure: 68% of the poor readers suggested that their failure was due to a lack of ability whereas only 13% and 12% of the average and good readers, respectively, attributed failure to a lack of ability. Butkowsky and Willows (1980) summarized their major findings as follows:

> Generally, children of relatively poor reading ability were found to have lower initial expectancies of success, to give up more quickly in the face of difficulty, to attribute failures to more internal and stable causes, to attribute successes to more external causes, and to have produced greater decrements in their subjective estimates of success following failure than children of relatively good or average reading ability. (p. 418)

Although Rogers and Saklofske (1985) similarly found that LD children had lower expectations for future academic success than normal achievers and took less responsibility for their academic success, they also found, contrary to previous research, that the LD students in their study took less internal responsibility for their failures. Friedman and Medway (1987) also did not find support for the view that LD children attribute success more to external factors and failure to internal factors than non LD students. Lewis and Lawrence-Patterson (1989) found that non LD students

were more internally oriented for success outcomes than LD students but found no differences between the two groups of students in their attributions for negative outcomes. Cooley and Ayres (1988) reported directional but not significant differences on attributes of LD and non LD students, finding that the LD children were more likely to attribute failure to stable, ability causes.

All the aforementioned studies involved research with elementary school students with the exception of Cooley and Ayres (1988) who included students ranging in age from 10-14 years. As the present research was concerned with adolescents an examination of literature pertinent to that age level is appropriate. As in the findings of Butkowsky and Willows (1980) and Rogers and Saklofske (1985) regarding elementary children, low expectancies for success were also found in LD adolescents studied by Hiebert, Wong and Hunter (1982). In this study which compared LD and normal achieving Grade 8 and Grade 10 students, it was found that LD students viewed their future academic success more bleakly than did their normal-achieving counterparts. Interestingly, but perhaps not surprisingly, the parents and teachers of the LD students held similar views.

Tollefson, Tracy, Johnsen, Buenning, Farmer and Barke (1982) also sought to compare LD and non LD students in Grades 7-9 on the dimension of attributions as well as self-esteem. They found no significant differences between the LD and non LD groups on the measure of self-esteem or on a

measure of general attributions. They did, however, note significant differences between the LD students' responses on general, hypothetical questions regarding attributions and those given in a task-specific situation involving attributions for success and failure on spelling lists of varying levels of difficulty. On the latter evaluation LD students did not accept credit for success and attributed failure to a lack of ability whereas on the general attribution questionnaire they reported that effort was a factor in success and failure. Tollefson et al. postulated that LD students have learned to give socially desirable responses to hypothetical situations (i.e., effort is important in success) yet when asked about their own successes and failures explain that outcomes are beyond their control. Aponik and Dembo (1983) concluded similarly that the 12-18 year old LD students they studied ascribed effort as a more important factor in their success than in their failure (which was viewed as resulting from a lack of ability) because effort had been reinforced in their special education classes.

There are some reasonable suggestions for the contradictory findings of the attributional patterns of LD versus non LD students. The first is that LD students are a very heterogeneous group; it does not necessarily follow that because one is learning disabled that one will also display learned helpless characteristics. As Rogers and Saklofske (1985) found in their comparison of LD and non LD

students, the LD students also differed among themselves on specific variables. This difference is highlighted in the research by Bendell, Tollefson and Fine (1980) who examined the attributions of learning disabled students only. Although these students were all LD they varied markedly in their internal-external orientation for attributions.

The other reason postulated by Cooley and Ayres (1988) for the different findings is related to the choice of instruments used to measure attributions. A number of the researchers utilized the Intellectual Achievement Responsibility (IAR) Questionnaire (Aponik & Dembo, 1983; Bendell et al., 1980; Cooley & Ayres, 1988; Lewis & Lawrence-Patterson, 1989; Rogers and Saklofske, 1985; Tollefson et al., 1982). This measure, which will be described in greater detail in Chapter Three, presents hypothetical situations and thus is considered a dispositional measure (Cooley and Ayres, 1988). Other researchers have adopted situational measures of attributions that involve an actual outcome situation (Butkowsky & Willows, 1980; Friedman & Medway; Palmer et al.; Pearl, 1982). In these studies, students were placed in an achievement situation in which they experienced success and/or failure and then were asked to give attributes for their outcomes. Cooley and Ayres (1988) suggested that "there may well be a difference between situational measures and dispositional measures of attributional tendencies" (p. 177).

In any case, whether LD students as a whole have more inappropriate attributional patterns than non LD students, it appears to be a logical conclusion from the research that within the heterogeneous LD population there exists a sub-group who exhibit learned helpless characteristics. It is important not only to identify these students through comparison with their non LD peers, but to institute intervention that will result in changes in their causal attributions. This may be difficult for as Wortman and Dintzer (1978) have suggested "simply telling a person that his or her attributions are incorrect might not be particularly effective in altering these attributions" (p. 88). Thus it has been proposed by a number of researchers (Brock & Kowitz, 1980; Canino, 1981; Chapin & Dyck, 1976; Dweck, 1975; Fowler & Peterson, 1981; Licht, 1983; Luchow, Crowl & Kahn, 1985; Pflaum & Pascarella, 1982; Sabatino, 1982; Shelton, Anastapoulos & Linden, 1985; Thomas, 1980; Tollefson, 1982; Wong, 1986) that the use of attribution retraining may be a viable means to alter maladaptive beliefs and consequently reduce learned helpless behaviors and cognitions.

Attribution Retraining

The landmark study by Dweck (1975) represented the first attempt to alter attributions that children give through the use of attribution retraining. Twelve children were identified as helpless on the basis of independent

ratings by school personnel including the school psychologist, principal and classroom teacher using a helplessness rating scale. The helpless subjects were compared to a control group of persistent subjects on measures of anxiety (using two subscales of the Test Anxiety Scale for Children), task persistence (using a repetition choice task) and attributions (using the IAR). In addition, an Effort versus Ability Failure Attribution Scale was developed by Dweck and administered to the helpless children only. The latter measure served as an extension of the IAR which, although it provides an indicator of internal versus external attributes, does not systematically differentiate between effort versus ability for the positive and negative events. This distinction is important in identifying learned helplessness. On the selection measures the helpless children showed a tendency to take less personal responsibility for outcomes and did not place as much emphasis on effort in both success and failure situations as did the more persistent students. The experimental procedure consisted of 25 daily sessions in which half the helpless children received attribution retraining (AR) while the other half were given success-only experiences. Sheets of math problems were given with the students in the AR group receiving some trials that were determined to be above the child's performance rate. On these trials, the examiner verbally attributed the child's failure to a lack of effort. Children in the success-only treatment group were given

trials at or below their performance rate. Success was attributed by the examiner to the child's responses but failure, if it occurred, was overlooked. Results showed that, following treatment, children in the AR treatment maintained or improved their performance following failure whereas students involved in success-only treatment continued to show a deterioration in their performance after encountering failure. In fact, some of the success-only subjects became more sensitive to failure in the test situation after having been exposed to success-only experiences during the training phase. When the pretest measures were readministered after treatment, the subjects involved in attribution retraining showed increases in attributions that reflect effort (i.e., on the Effort versus Ability Failure Attribution Scale) but did not evidence changes on the more global measures. Subjects in the success-only treatment did not show significant differences on any of the measures from pretest to posttest.

Although Dweck's study was important in developing a strategy to reduce helpless behaviors there are some limitations of the research that must be recognized. First, the results were obtained under laboratory conditions, one on one, and no follow-up measures other than teacher comments were included to see if there was any generalization of the training to the classroom setting. The second limitation has direct implication for replication of this research with children with specific learning

disabilities. For some learning disabled students, believing that they could succeed if only they tried harder is counterproductive (Luchow et al., 1985). To put forth maximum effort and still fail would result in even greater feelings of lack of ability and perception that failure is inevitable (Grimes, 1981; Licht, 1983; Tollefson, 1982).

Chapin and Dyck (1976) also suggested that Dweck's findings of increased persistence in the AR treatment may have been due, in part, to the partial reinforcement schedule employed rather than just the attribution retraining. They noted that one group of children received success-only experiences (continuous reinforcement) whereas the other group was given both success and failure (partial reinforcement). Consequently, Chapin and Dyck sought to determine the relative contributions of attribution retraining and schedules of reinforcement by varying the two variables independently. Their partial reinforcement variable was called N length which is successive nonrewards prior to reinforcement. That is, they manipulated the successive number of failures that students would experience prior to success to determine whether this would contribute to children's persistence. In this study N length referred to "the number of successive failure sentences preceding a success sentence" (p. 512).

The study involved 30 children in Grades 5 to 7 who were considered to be reading below grade level as measured by performance on the McCracken Standard Reading Inventory.

The study took place over a period of five days, with Days 1 and 5 for pre- and post-measures of persistence and Days 2, 3 and 4 for training. The testing consisted of children reading short sentences, each of which contained three words beyond their reading level. After reading a sentence the children were asked whether they wanted to go on to the next sentence or stop. The number of sentences attempted was the baseline measure of persistence.

Following pretest measures the students were randomly assigned to one of five conditions. Four of these varied N length as well as the presence or absence of attribution retraining thus creating two levels of partial reinforcement and two levels of attribution retraining. The fifth condition involved a schedule of continuous reinforcement. During the training days all students were given 15 trials on three successive days. The success trials consisted of the children reading sentences well within their reading ability whereas the failure trials involved reading difficult sentences. Each student received nine success trials and six failure trials but the presentation of failure and success varied. In the partial reinforcement schedule with N length of one the students were presented with both failure and success trials but there would be only one failure trial before a success trial. Success trials were referred to as R trials and failure trials were N trials; an example of a daily training session in the

single failure length condition would be as follows:

R R N R N R R N R N R N R N R .

In the partial reinforcement schedule that involved multiple failure length the children could be presented with one, two or three failures prior to a success trial, thus a daily training session would be as follows:

R R N R R N N R R R N N N R R .

For the groups that also received attribution retraining, on success trials they were told, "That was very good, that means you tried." On failure trials they were told, "No you didn't get that, that means you should have tried harder."

Results of the training revealed that persistence was enhanced by a combination of partial reinforcement and attribution retraining. They found that when the schedule consisted of single failure lengths, persistence increased when attribution retraining was present but not when attribution retraining was absent. When the schedule involved multiple failure lengths, however, persistence increased both in the presence and absence of attribution retraining. Chapin and Dyck (1976) concluded that:

> persistent responding in the face of successive failure may involve being rewarded for responding in similar contexts (partial reinforcement) plus learning to take responsibility for outcomes of behavior (attribution retraining). (p. 513)

They further suggested that success-only experiences do not allow students to develop coping mechanisms to deal with failure whereas attribution retraining "minimizes the disruptive consequences of failure while maximizing its informative consequences" (p. 514).

Although Chapin and Dyck utilized attribution retraining with children with reading difficulties, the students were not necessarily helpless. They had not been measured on attributional style nor had their teachers been asked to complete a helplessness rating scale as in Dweck's (1975) study. Consequently, Fowler and Peterson (1981) chose to replicate and extend the Chapin and Dyck (1976) study to students identified as learned helpless. Seventy-nine Grade 5 and 6 students who were assessed as reading below their grade level on the Iowa Test of Basic Skills were administered the IAR and a 5-item Effort Versus Ability Failure Attribution scale as per Dweck's (1975) procedure for identifying learned helpless subjects. On the basis of these two measures, the 28 most helpless children were selected. Each of the 28 students was then rated independently by two or three of their teachers using a helplessness rating scale similar to that used by Dweck (1975). The results from the teacher scale were used to verify the selection procedure in confirming that the 28 children did, in fact, exhibit learned helpless behaviors.

Fowler and Peterson used a similar experimental procedure to that employed by Chapin and Dyck (1976) in that

it consisted of pre- and post-measures on Days 1 and 5 with Days 2, 3 and 4 as the training period. Baseline persistence measures were also similar to those used by Chapin and Dyck although two baseline measures were taken rather than only one. On each training day the students were asked to read 16 sentences, ten of which included words all within the child's reading ability and six of which contained difficult sentences with three words beyond the child's reading level. There were four separate treatment conditions to which the subjects were randomly assigned. The same number of success and failure trials was used in each of the four treatments but the pattern of the trials varied as in Chapin and Dyck's (1976) study. The four conditions were as follows:

(a) Treatment N1: The students were given a pattern of success and failure in which they encountered only one failure before a success trial was given. Following each sentence the students were told either "That was very good." or "No, you didn't get that.", depending on whether it was a success or failure trial.

(b) Treatment N3: Students were given feedback identical to that in N1; however, the students were given one, two or three failure trials before a success trial was given.

(c) Treatment N3AR: Students were given the same schedule of failure and success as the N3 group, but the feedback given was altered to include an attribution retraining component. After success trials students were told, "That

was very good. That means you tried hard." and after failure trials they were told, "No, you didn't get that. That means you have to try harder."

(d) Treatment N3DAR: Students were given the same schedule as the N3 and N3AR groups but the feedback involved a direct attribution retraining component. Prior to the trials on Day 2 the children listened to a tape of a same-sexed child saying, "I got that right. That means I tried hard." and then, "No, I didn't get that. That means I have to try harder." The children were told that these were good things to say when they do well or poorly in school and each subject was instructed to practice saying these statements to themselves, first in a whisper and then silently. In Days 3 and 4 the children were asked to make the appropriate statement aloud and then silently following each trial. Post-testing included readministering the persistence measures on Day 5 and readministering the IAR one week after treatment ended.

Direct attribution retraining was employed by Fowler and Peterson to determine whether use of self-instruction using rehearsal and internal speech would be more effective than indirect attribution retraining whereby the students receive external cues directing their attributions. Results suggested that all treatments brought about a change toward more internal attributions on the IAR with no significant differences between treatments regarding effectiveness. It was noted, however, that direct attribution retraining was

significantly more effective than no attribution retraining in increasing the number of effort attributions. Furthermore, although the differences were not statistically significant, direct attribution retraining appeared to be more effective than indirect attribution retraining which in turn appeared to be more effective than no attribution retraining. Persistence was increased with exposure to successive failure (N3 group) but the addition of direct attribution retraining (N3DAR), while enhancing persistence, did not contribute significantly to the increase. Fowler and Peterson suggested, nonetheless, that their study "offers some support for the use of self-instructional internal speech as a technique for increasing persistence and modifying attributional patterns" (p. 259). Perhaps some of the benefits of such a strategy were not reflected in the data. Fowler and Peterson reported student comments indicating that direct attribution retraining involved them more actively than the other treatments. This may be a desirable component for students with learning difficulties who are often passive (Bender, 1987; Wiens, 1983).

Although the Fowler and Peterson (1981) study included the potentially useful strategy of direct attribution retraining, their research had similar limitations to those inherent in Dweck's (1975) and Chapin and Dyck's (1976) studies. Once more, the results were obtained under laboratory conditions which may not generalize to the classroom setting. As well, the attribution retraining

again focused on the need to exert more effort but, as noted above, this may be an inappropriate attribution for failure for those students who are trying their best but still do not succeed.

Questioning the ecological validity of the laboratory-like settings used in the aforementioned studies, Pflaum and Pascarella (1982) conducted a field experiment to investigate the generalizability of attribution retraining with students with learning disabilities. Their focus was on the use of reading error detection and self-correction procedures. The subjects were 69 learning disabled students and children who were poor readers; however, no information is provided regarding the age of the subjects nor are the criteria for selection as learning disabled or poor readers included. The students were assigned to one of three conditions that were presented by their classroom teachers over a period of 24 lessons. The first condition was TDE (teacher determination of error) in which teachers directly told students whether their reading responses were correct. The second condition was SDE (student determination of error) and involved the teachers encouraging the students to determine whether their answers were correct. The third condition was termed transition and combined TDE, SDE and attribution retraining. The first eight lessons employed the TDE format, the last eight lessons were like the SDE condition, while the eight lessons in the middle were a gradual transition from TDE to SDE. Over the 24 lesson

period there was also an increase in statements by teachers urging their students to try harder in order to improve their reading. Students were pre- and post-tested on the IAR and as Pflaum and Pascarella concluded: "in terms of our ability to alter effort attribution, the results were disappointing" (p. 425). They noted that attribution retraining involving a more direct approach, such as that used in Fowler and Peterson's (1981) study, may have had more significant effects. They advocated that field experiments utilizing direct attribution retraining be undertaken.

Thomas (1980) has been one of the few researchers to attempt an attribution retraining program under field conditions (see also Thomas & Pashley, 1982 for a summary of the same research). She had three main objectives: (a) to carry out attribution retraining with students with learning disabilities in an educational setting with teachers as the trainers; (b) to increase teacher awareness of the concept of learned helplessness; and (c) to evaluate children with learning disabilities along the dimensions of learned helplessness, attributional styles and task persistence. Two weeks prior to the training program 223 students aged eight to twelve were tested on task persistence, achievement explanations, school attitudes, locus of control and effort/ability attributions. The students all had specific learning disabilities as defined by an average level of intelligence with a lag of one or more years in achievement

in mathematics or language arts. One hundred and forty-two students comprised the final sample of children for whom both pre- and post-test data were collected. Teachers were asked to rate their students on helplessness and projections of future achievement. In addition, 40 parents of the students were interviewed and rated their children on school achievement and adjustment and the remainder of the parents received a questionnaire by mail. Finally, a group of normal achievers were given the pretesting measures only.

Thomas stated that the program "sought to use techniques of modelling, direct instruction, and reinforcement to teach more effective strategies when faced with "challenge" tasks or with failure" (p. 4). The program was scheduled for one half hour three days a week for five weeks. Prior to the program being initiated, teachers involved in the study were provided with two half-day workshops and subsequently were assigned to one of three treatment groups:

(a) Experimental training group: during the workshop training this group discussed learned helplessness with respect to both basic aspects of the program, those being rethinking techniques and inclusion of challenge items. The materials for the students involved lessons with at least half of the items at an increased level of difficulty.

(b) Training control group: This group participated in discussions about learned helplessness but only in regard to rethinking techniques. Challenge items were not focused on

and student materials included lessons all within the students' ability levels.

(c) No treatment control group: The teachers involved in this group received an introduction to the concepts of learned helplessness with a focus only on the socio-emotional needs of students. The teachers and students in this group were not involved in the program but participated in the pre- and post-testing.

A fourth group of normal achieving regular class children were given the pre-test measures only as a comparison to the learning disabled students.

The initial comparison between the normal achievers and learning disabled students yielded significant differences. On measures of persistence the LD students spent less time on more difficult puzzles and made less attempts at this task than did the normal achievers. LD students rated themselves lower in general ability and were also more apt to attribute responsibility for outcomes to external factors. There was not, however, the hypothesized trend that LD students would attribute failure to lack of ability and attribute success or failure less to lack of effort than their normal achieving peers. An interesting sex difference occurred, however. The female LD students were most likely to attribute failure to lack of ability (almost 23% compared to 11% of LD boys, 8% of average achieving females and 0% for average achieving males).

Results of the training illustrated that it appeared to have its greatest effect on persistence of students. The students who did not receive training (no treatment control group) evidenced decreases in their persistence whereas the students in the experimental training group and the training control group showed trends toward an increase in persistence. With respect to the attitudinal and attributional measures, no significant differences were found between the three LD groups. Thomas suggested that the minimal impact on attitudes may be explained, in part, by the short training period. Despite the lack of data showing statistically significant changes, however, the teachers involved in the two training groups reported improvement in their students' coping skills. They cited increased use of positive statements about academic activity, more acceptance of mistakes, increased willingness to take risks and less frustration. Teachers also reported that a focus on attribution retraining promoted communication in their classrooms with students more open about discussing their feelings about their school work. Other teachers reported positive changes in students who had previously been unmotivated.

Statement of the Research Problem

Although the studies by Thomas (1980) and Pflaum and Pascarella (1982) represent efforts to employ field experiments in attribution retraining with children with

learning disabilities, there appears to be a dearth of similar research involving an adolescent population. The present study was an attempt to combine the effective components of the aforementioned studies to effect a change in the attributional patterns of adolescent students with learning difficulties who are also characterized by learned helplessness. The purpose of this research was to determine whether the method of direct attribution retraining employed in a field experiment condition would result in positive changes in attributions given for success and failure outcomes. Attributions for failure should reflect external, unstable and specific factors while attributions for success should reflect internal, stable and global sources. This is based on the reasoning that helplessness attributed to internal-stable attributions (e.g. ability) is more debilitating and chronic than helplessness caused by failure attributions to either internal-unstable (e.g. effort) or external attributions (e.g. luck or task difficulty) (Canino, 1981). It was hypothesized that direct attribution retraining would result in increased internal responsibility for success and decreased blame on lack of ability for failure.

CHAPTER THREE

Method

Subjects

Four school districts in and around Edmonton, Alberta consented to participate in the study. Each district provides special education services to junior high school students who are of average intelligence but who display a discrepancy between their intellectual potential and their educational achievement. The descriptors for these classes include Resource Centre, Adaptation Class, Transition Class and Severely Learning Disabled Programme. Thirty junior high public schools in the four districts were identified as having the above described classes. Eighteen schools were approached regarding involvement in the study and ten special education teachers at eight schools agreed to participate.

Parent consent forms were sent home, either with the students or through the mail, for students in the special education classes taught by the ten teachers. From the original pool of approximately 85 students, 60 students were given parental permission to participate. Of these 60 students, 33 (55%) were in Grade 7, 26 (43.3%) were in Grade 8 and one student (1.7%) was in Grade 9. They ranged in age from 12 to 15 years with the mean being 13 years of age. The large majority (90%) of the students were of Caucasian

origin with the other 10% being of Oriental, East Indian, Native Indian or Portugese heritage.

The criteria for placement in the special education classes differed slightly from school district to school district. Nevertheless, all four jurisdictions utilized criteria that included an average level of intelligence (as operationalized by IQ ranges of 75+, 80+ or 90+ depending on the district) and a significant academic delay (as defined by two to four years below grade level or one-half of grade score expectancy). Students spent between 18% and 66% of their school day receiving instruction in the special class setting, with the average being just over 36%. The majority of the students received instruction in both Language Arts and Mathematics from the special education teachers although some students required assistance in just one or the other subject. Students who spent the greatest percentage of their day in a special class setting received instruction in Social Studies and Science from the special education teachers in addition to Language Arts and Mathematics. The special education class sizes ranged from four to eleven students with most classes having seven to nine students.

Teachers were asked to independently rate their students on a helplessness rating scale that described various student reactions to success and failure outcomes. Each of the 60 students also completed two questionnaires examining the reasons that students give for failure and success. The two questionnaires used were the Intellectual

Achievement Responsibility (IAR) Scale (Crandall, Katkovsky & Crandall, 1965) and a 12-item Effort Versus Ability Subscale (EVAS) designed by the researcher.

From the 60 students, three students from each class (N=30) were selected as being the most helpless students in their class. Twenty-two males and eight females between the ages of 12 and 15 comprised the sample. The distribution of males (73%) to females (27%) in the selected sample was similar to that in the original pool of 60 students (69% male and 31% female). All but four of the thirty students were viewed by their teachers as meeting the criteria for placement in their respective special education programs as outlined above. Two of the students had IQ levels slightly below average, one student was not considered by her teacher to be "significantly" below grade level in achievement and one student was considered to be delayed in achievement because of a poor attitude and motivation rather than as a result of a specific learning disability.

Instruments and Materials

The IAR Scale is a 34-item forced-choice measure of attributional style (see Appendix A). It presents academic achievement situations with both positive and negative outcomes with each item having either an internal or external explanation. The I+ score is based on the number of positive outcomes for which the subject takes credit and

the I- score represents the number of negative outcomes for which the child assumes blame. The total I score is the sum of these two subscores (maximum =34); however, the total score was not considered in this study for as the authors of the scale admit the total score masks important differences between attributions for failure and those for success (Crandall et al., 1965). The IAR was used due to its previous use in measuring students' attributions for failure and success (e.g., Bendel et al., 1980; Cooley & Ayres, 1988; Kistner, Osborne & LeVerrier, 1988; Lewis & Lawrence-Patterson, 1989; Rogers & Saklofske, 1985) and more specifically, in relating attributions to the concept of learned helplessness (e.g., Aponik & Dembo, 1983; Chapman, 1988; Diener & Dweck, 1978; Dweck, 1975; Dweck & Repucci, 1973; Fowler & Peterson, 1981; Luchow, Crowl & Kahn, 1985; Pflaum & Pascarella, 1982; Tollefson et al., 1982; Thomas, 1989). Despite its extensive use in previous research the instrument has not always been applied or interpreted in a standard manner, nor has it been demonstrated a sensitive measure of learned helplessness. The intent of using the IAR in the present study is similar to that expressed by Fincham, Hokoda and Sanders (1989) who stated: "In view of the conceptual and psychometric shortcomings of using an IAR subscale to identify helpless children, the IAR was administered primarily to relate the present findings to an existing body of research." (p. 140). The primary difficulty in using the IAR scale is that although it

provides an indicator of internal versus external attributions for failure and success outcomes, it does not systematically differentiate between effort versus ability attributions. It is this distinction that is important in identifying children who are helpless.

Given that this distinction is important, and in keeping with the procedures adopted by others (Cooley & Ayres, 1988; Dweck, 1975; Fincham et al., 1989; Fowler & Peterson, 1981; Shelton, Anastapoulos & Linden, 1985), a 12-item Effort Versus Ability Subscale (EVAS) was constructed for this study (see Appendix B). The EVAS compares ability and effort attributions for six failure and six success situations. Using Cooley and Ayres' (1988) method, 12 success and failure items from the IAR Scale were selected and a forced choice between an effort or ability attribution was provided. A similar format was adopted by Fincham et al. (1989) in their construction and use of the Children's Ability-Effort Scale (CAES) which consisted of ten items contrasting effort and ability attributions for failure. The EVAS scale yields four scores: E+ (positive events attributed to effort), A+ (positive events attributed to ability), E- (negative outcomes attributed to lack of effort) and A- (negative outcomes attributed to lack of ability).

The third measure that was used was a teacher rating scale (see Appendix C). This scale was developed in order to use teacher reports to verify the learned helpless

tendencies reflected in students' scores on the IAR and EVAS. The teacher rating scale consisted of 30 items requiring a Yes or No response and was comprised of 26 items reflective of learned helpless characteristics in students. Use of a teacher rating scale to identify helpless children has also been utilized by Dweck (1975), Fowler and Peterson (1981), Thomas (1980), Shelton et al. (1985) and more recently by Fincham et al. (1989). Results reported by Fincham et al. indicated that teacher reports of helplessness had the strongest and most consistent relationship to achievement. They concluded that teacher reports are potentially useful in research on helplessness.

Procedure

Teachers were asked to independently complete a rating scale on each of their students. The IAR and the EVAS were group administered by the researcher to the students in each class for whom parental permission had been received (N=60). The items were read by the examiner to clarify, as needed, the intent of the questions.

Pre-test data on the students was tabulated (see Appendix D) and means and standard deviations for each classroom were calculated for each of the five selection criteria. This procedure revealed that less than 25% of the scores of the students selected deviated from the mean by one or more standard deviations. This level of deviation from the mean was not considered sufficient to warrant using

variance/deviation from the mean as a method of selecting the sample population. Thus, identification of helpless students was based on the following:

1. IAR scores:
   (a) Low scores on I+ scale (positive outcomes for which the student assumes credit), and
   (b) High scores on I- scale (negative outcomes for which the student assumes blame).
2. EVAS scores:
   (a) High scores on the Effort Plus Scale (positive outcomes for which the student attributes effort rather than ability), and
   (b) High Scores on the Ability Minus Scale (negative outcomes for which the student attributes lack of ability rather than lack of effort).
3. High scores on the teacher rating scale.

The three highest scores on each of the five criteria as outlined above were noted. Students who were characterized by the greatest number of high scores were chosen. For example, a student may have received one of the top three scores on four out of five or on all five of the criteria. Three students in each class who scored consistently highest across the five criteria were selected as the most helpless (N=30). In cases where two students scored equally across the measures, the score on the teacher rating scale was used as the differentiating factor. The

exception to this selection procedure is in regard to the ninth classroom. The sample from this class consisted of nine students who receive language arts and math instruction from two different teachers. In choosing students from this classroom for participation, six students rather than three were selected as the most helpless. Three of these students were then assigned to one teacher while the remaining three were assigned to the second teacher. This selection procedure which involved inclusion of the majority of the class for participation was not optimal but was considered necessary to ensure an adequate sample size.

Research Design and Analysis

A pretest-posttest control group design was used for this study. The initial administration of the IAR Scale, the 12-item EVAS and the teacher rating scale served as the pretest scores. The ten classrooms were randomly assigned to a treatment (attribution retraining) or control condition (an attention control group that was instructed in an error monitoring strategy). Thus, the treatment and control groups each initially consisted of 15 subjects. Three participants in the attention control group were lost within the first week due to the teacher's decision to discontinue involvement in the study. Six other students, three in the attribution retraining group and three in the control condition, were away from school for five or more school

days during the intervention due to illness, accidents or suspension from school.

Random assignment of classrooms rather than individual subjects was used to control for diffusion effects that would likely occur if treatment and control subjects were present in the same classroom. In the two schools in which two teachers both participated in the research, once one teacher in the school had been randomly assigned to a treatment condition, the other teacher in that school was automatically assigned to the same treatment group. Thomas (1980) utilized this same procedure in order to preserve the independence of treatment groups.

Attribution Retraining Group. The method of direct attribution retraining treatment (see Fowler & Peterson, 1981) involved the teachers first modeling more appropriate attributions for success and failure to the students followed by the students repeating the modeled attributions to themselves. Teachers were instructed to model the appropriate attribution immediately (or as soon as possible) after a student's inappropriate attribution. Teachers were provided with guidelines for modeling attributions which included responding to a variety of situations ranging from success or failure on individual task items to outcomes on completed assignments or tests (refer to Appendix E for the manual provided to teachers). In failure situations, if a student attributed the failure to ability, the teacher would say, "No you didn't get it....That means that this is a

difficult question and you may need more information". This attribution was intended to reflect an external source of failure (task difficulty) but also offered the student an opportunity to actively search for an alternative (i.e., "you may need more information"). If failure was clearly due to lack of effort, the teacher would say, "No you didn't get it....That means you need to try harder or you may need more information". This attribution reflected the possibility that failure may be due to insufficient effort but does not assume that effort is the only determinant of failure. In both instances, the teacher-modeled attribution was then repeated by the student. This self-talk encouraged students to perceive failure due to factors other than strictly a lack of ability or inadequate effort. As Borkowski, Weyhing and Carr (1988) expressed, it fulfilled a "need to give themselves a break in the face of failure" (p. 52).

In success situations, when a student attributed success to luck or ease of task, the teacher would say, "Yes you got that one....You really know how to do this work" or "Yes you got that one....You really tried hard on that question". In both success instances, the teacher-modeled attribution was repeated by the student. These attributions were intended to reflect an internal source for success thereby allowing the students to take personal responsibility and credit for their positive outcomes.

To assist the teachers in carrying out the intervention as well as recording the frequency with which it occurred, a training manual was provided (see Appendix E). Intervention took place during one class period per day, either in language arts or math, depending on which subject the teacher instructed. To ensure procedural validity, observations by the researcher took place two to three times during the course of the intervention. These observation times were used as an opportunity to provide feedback to the teachers on their use of the intervention and to discuss with them their perceptions of their own effectiveness and the students' reactions.

Control Group. An attention control group was used to control for any "on-stage" effects experienced by the treatment group. Two error-monitoring strategies, one for written language and one for math, were used depending on which subject the teacher instructed. For written language the COPS strategy was used. This strategy was introduced and reinforced by the teacher during one language arts period per day when written work was required. The teacher modelled the strategy and had the students say the four steps of the strategy to themselves; Capitals, Overall Neatness, Punctuation and Spelling. A manual specifying use of the procedure was distributed to teachers involved in this strategy (see Appendix F).

A similar procedure was used by teachers in the control group who taught math. A math word problem-solving strategy

was introduced and reinforced during one math period per day. The seven steps of the math word problem solving strategy were outlined in the training manual that was provided for teachers (see Appendix G).

Treatment took place over a period of thirty-two school days (six and one-half consecutive weeks). Teachers were instructed to keep daily frequency counts on the number of times the intervention occurred as well as weekly anecdotal comments.

Posttests using the IAR Scale and the 12-item EVAS were administered by the researcher between five and eleven days after completion of treatment. Teachers were also asked to complete the helplessness rating scale a second time. Fifty-five of the 60 students who had been involved in pre-testing also participated in the post-testing (see Appendix H for tabulated post-test results). Two of the five students for whom post-test data was not obtained had transferred schools and three students, as noted earlier, were not involved due to their teacher's decision to terminate participation in the study.

A MANOVA was calculated on the means of the scores of the Teacher Rating Scale (TRS), I+ and I- scores on the Intellectual Achievement Responsibility Scale, and E+ and E- scores on the Effort Versus Ability Subscale to determine whether attribution retraining resulted in any significant difference in the perceptions of students and their teachers as reflected in the above measures.

Issues of Internal and External Validity

There has been an attempt in the design of this research to address issues of internal and external validity. First, random assignment to treatment and control groups was used to enhance equivalence of groups thereby minimizing the effects of extraneous variables. An attention control group was used to account for "on-stage" effects that the treatment group may have exhibited as a result of having increased attention from the teacher. Use of a control group also served to control for possible differential practice effects from pretest to posttest as any such effects would be found in both groups.

As noted earlier, the decision to randomly assign classrooms rather than individual subjects was used to control for diffusion effects. Due to the nature of the treatment (i.e., taking place in the classroom setting) it is very likely that students in the control group would have been affected by the treatment if they had been in the same room.

Adolescents rather than elementary students were chosen for this study as it is believed that this is a more appropriate age with which to use a direct retraining procedure. Research suggests (e.g., Alley & Deshler, 1979) that adolescents may be more facile in the use of self-instructional and metacognitive approaches than younger children. Fincham et al. (1989) also suggested that a

complete understanding and differentiation of ability and effort does not take place until early adolescence. It is recognized, however, that restricting the sample to adolescents reduces generalizability to other age levels, in effect reducing external population validity.

Issues of ecological external validity have also been addressed. Treatment was designed to take place in the natural setting of the classroom, administered by classroom teachers with whom the students were familiar. This comparability of research setting and natural setting increases generalizability thereby providing greater ecological external validity.

CHAPTER FOUR

Results

Reliability and Intercorrelations

Because the Teacher Rating Scale and the Effort Versus Ability Scale were both new measures, Cronbach's coefficient alphas were calculated to ascertain reliability of the instruments. The pretest scores of the initial sample (N=60) were used. Table 1 shows the coefficient alphas for, and the correlations between, each of the following seven measures and subscales: Teacher Rating Scale, I+ scores on th IAR, I- scores on the IAR, effort plus scores on the EVAS (E+), effort minus scores on the EVAS (E-), ability plus scores on the EVAS (A+), and ability minus scores on the EVAS (A-).

Insert Table 1 about here

Some observations about the correlational and reliability data should be noted. First, there is a perfect negative correlation (r= -1.00) between the E+ and A+ scores as well as the E- and A- scores on the EVAS. This expected finding is due to the fact that each variable within each pair is not orthogonal to the other. To illustrate this relationship one must look to the total EVAS Plus and Minus

TABLE 1

Intercorrelations Among Variables and Coefficient Alphas

Variables	1	2	3	4	5	6	7	Alpha
1. TRS		-.23	-.17	.00	-.31*	.04	.27	.70
2. I+			.14	.25	.49*	-.25	-.48*	.70
3. I-				.32*	.23	-.32*	-.23	.41
4. E+					.27	-1.00*	-.26	.60 (E+/A+)
5. E-						-.27	-1.00*	.59 (E-/A-)
6. A+							.25	
7. A-								

* p<.01

scores which both equal six; for example, if a student scored four on the effort plus (E+) scale, the score on the ability plus (A+) scale must be two. A correlation of .49 was noted between the I+ scores on the IAR and the E- scores on the EVAS indicating that students who are more internal for positive events (including attributions for both effort and ability) will be more likely to attribute negative events to a lack of effort rather than a lack of ability. The corresponding correlation of -.48 between the I+ and A- scores reflects the nonorthogonal relationship between the E- and A- scores as illustrated above. Scores on the I- scale were positively correlated with E+ scores (r= .32) and negatively correlated (r= -.32) with A+ scores. This suggests that students who score high on acceptance of internal blame for failure will be more likely to attribute positive outcomes to effort rather than to their ability. A correlation of -.31 was also noted between the TRS scores and the E- scale indicating that students whom teachers perceive as more helpless will be less likely to attribute negative events to a lack of effort which consequently implies a trend to attribute negative events to a lack of ability.

The internal consistency of the I+ scale of the IAR (.70) approached an acceptable level while the coefficient for the I- scale of the IAR was lower than expected at .41. The results for the I+ scale are similar to those found by Crandall et al. (1965) and Luchow et al. (1985) who reported

coefficients of .60 and .59 respectively. Previously reported coefficients for the I- scale were higher than the .41 level found in the present study with Crandall et al. (1965) and Luchow et al. (1985) reporting .60 and .65 respectively. The reliability of the TRS (Teacher Rating Scale) at .70 approached acceptable limits whereas the coefficients of the EVAS positive scale and the EVAS negative scale were somewhat lower at .60 and .59 respectively.

Analysis

A 2 x 2 (Group: Attribution Retraining vs. Control x Time: Pretest vs. Posttest) multivariate analysis of variance (MANOVA) with repeated measures was performed using Wilk's lamda as the test of significance of effects. The MANOVA was calculated on the means of the following five scores: Teacher Rating Scale (TRS), I+ scores on the Intellectual Achievement Responsibility Scale, I- scores on the IAR, effort plus scores on the Effort Versus Ability Scale (E+), and effort minus scores on the EVAS (E-). Total IAR scores were not included because as noted earlier significant differences in the I+ and I- scores would not necessarily be reflected in the total IAR score. The ability plus (A+) and ability minus (A-) scores were not included in the MANOVA because these scores were not orthogonal to the E+ and E- scores respectively as illustrated in the correlation findings. Table 2 shows the

group means and standard deviations for the pre- and post-test scores on each of the seven measures and Figures 1 to 7 present the group means in graphic form.

Insert Table 2 and Figures 1 to 7 about here

Results of the MANOVA did not reveal any significant main effects for group on any of the five measures and only a significant main effect for time on the E- measure ($F(1, 25) = 2.97$, $p < .05$). Thus it appears that there was a change in E- scores from pretest to posttest but that change occurred for both the attribution retraining group as well as the control group. This finding suggests that on the posttest both groups tended to make more attributions for a lack of effort being responsible for failure rather than a lack of ability. This trend, although not differential between groups, is an encouraging directional change. No significant interaction effect of group x time was seen. Thus, it appears that attribution retraining did not significantly alter the students' attributions nor their teachers' perceptions as was hypothesized. It was noted, however, that the changes in scores on the TRS from pre- to post-test approached significance ($F(1, 25) = 3.86$, $p = .06$).

TABLE 2

Group Means and Standard Deviations

	TRS	I+	I-	E+	E-	A+	A-
GROUP:							
Attribution Retraining:							
Pre							
$\bar{X}$	13.60	11.73	12.47	5.00	3.93	1.07	2.00
S.D.	6.78	2.25	2.20	1.31	1.22	1.39	1.20
Post							
$\bar{X}$	10.13	13.07	11.93	4.80	4.93	1.20	1.07
S.D.	6.35	2.46	2.52	1.65	1.16	1.65	1.16
Control:							
Pre							
$\bar{X}$	10.17	11.50	12.58	4.75	3.50	1.25	2.50
S.D.	5.06	4.72	2.88	1.36	1.83	1.36	1.83
Post							
$\bar{X}$	10.83	11.42	11.58	4.25	4.08	1.75	1.92
S.D.	6.35	3.58	2.75	1.60	1.62	1.60	1.62
Other*:							
Pre							
$\bar{X}$	6.32	12.46	11.50	4.54	5.00	1.50	0.96
S.D.	4.86	2.66	2.05	1.48	1.30	1.48	1.32
Post							
$\bar{X}$	5.89	12.54	11.04	4.75	4.64	1.25	1.36
S.D.	4.62	2.35	2.74	1.38	1.45	1.38	1.45

*Other group: represents students not included in the attribution retraining group or the control group but for whom pre- and post-test data was gathered.

Figure 1: Group Means for TRS

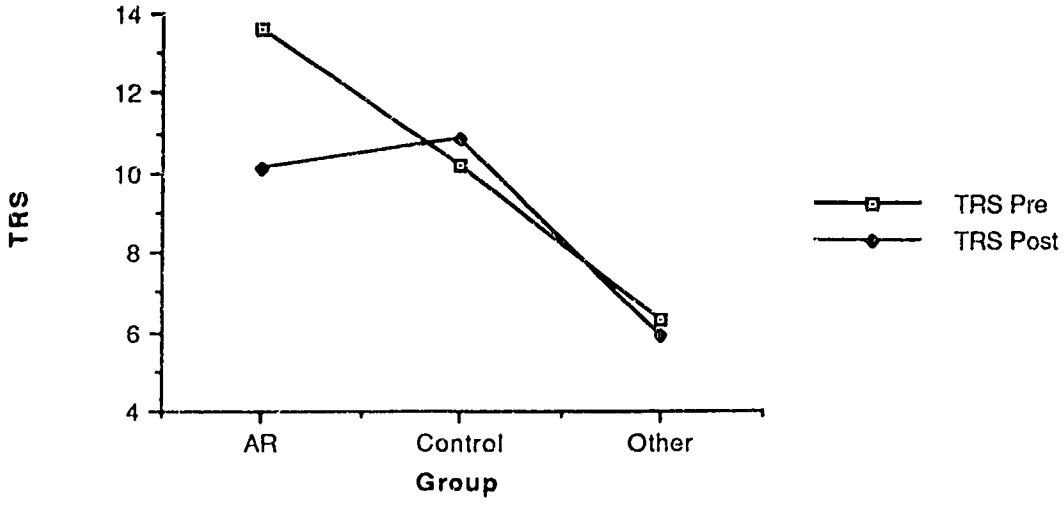


Figure 2: Group Means for I+

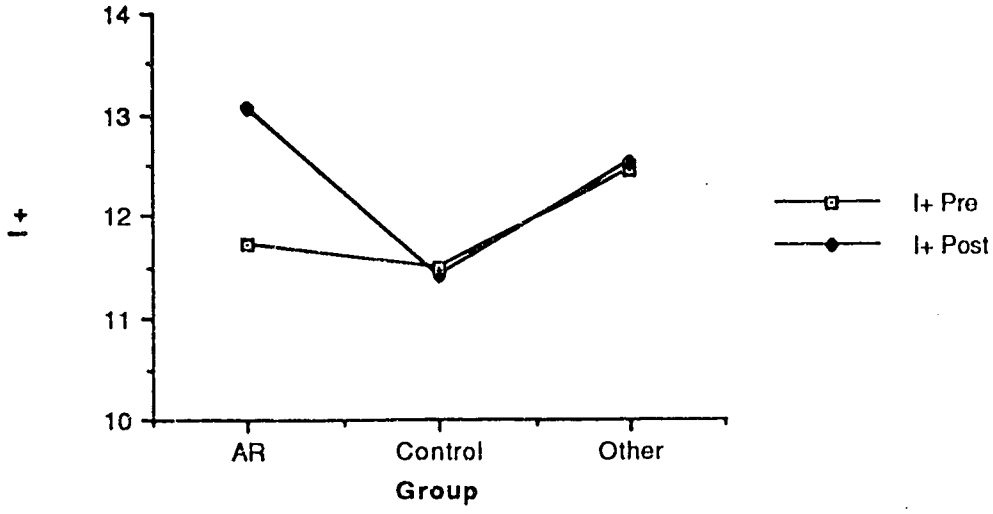


Figure 3: Group Means for I-

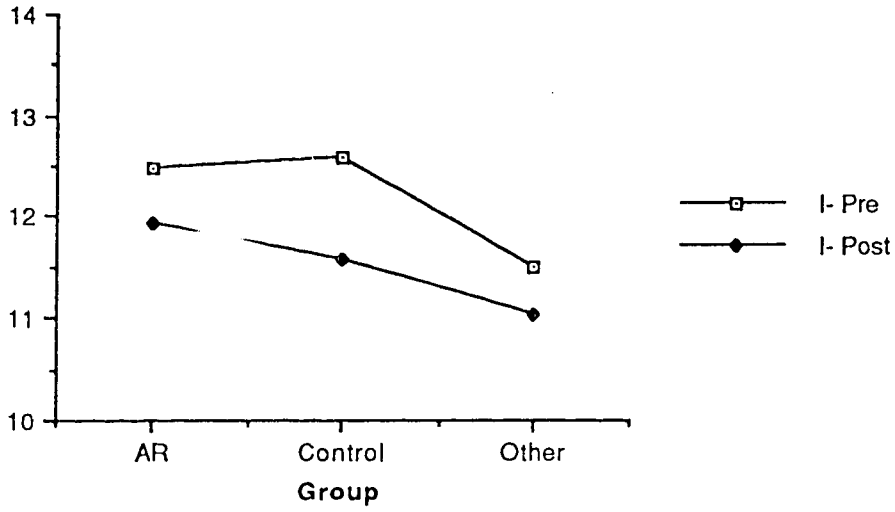


Figure 4: Group Means for E+

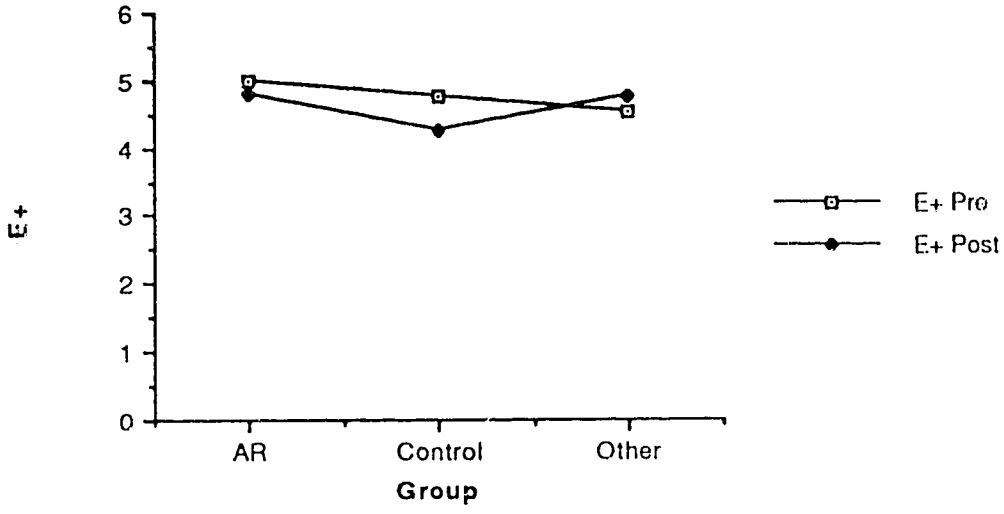


Figure 5: Group Means for E-

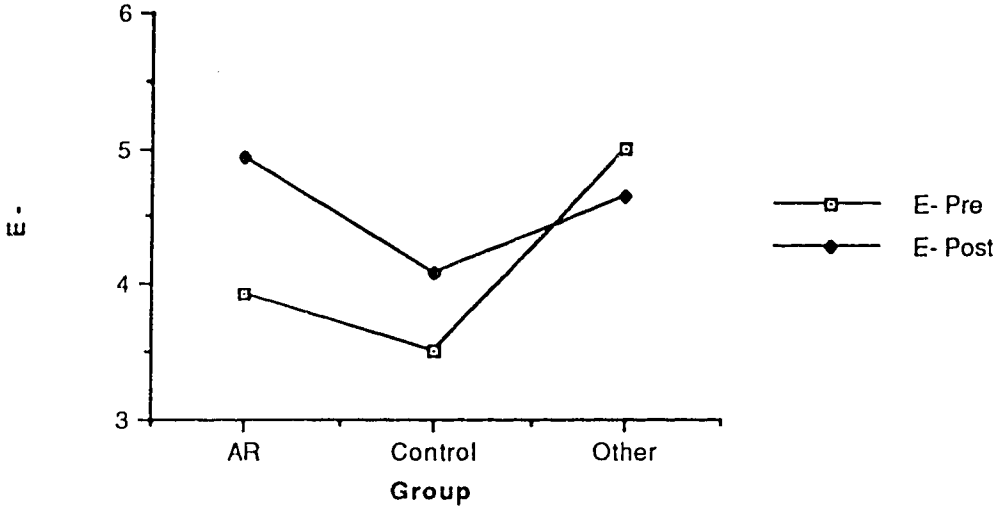


Figure 6: Group Means for A+

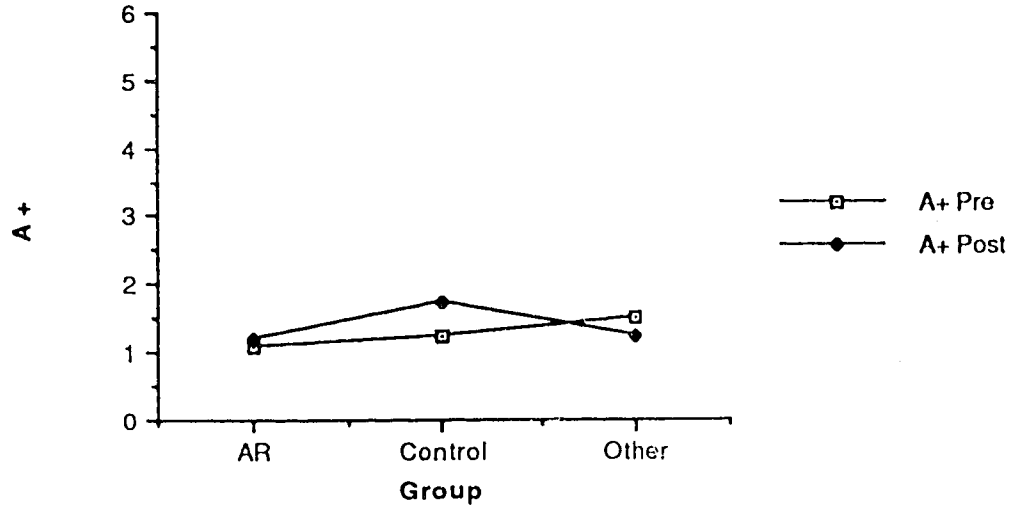
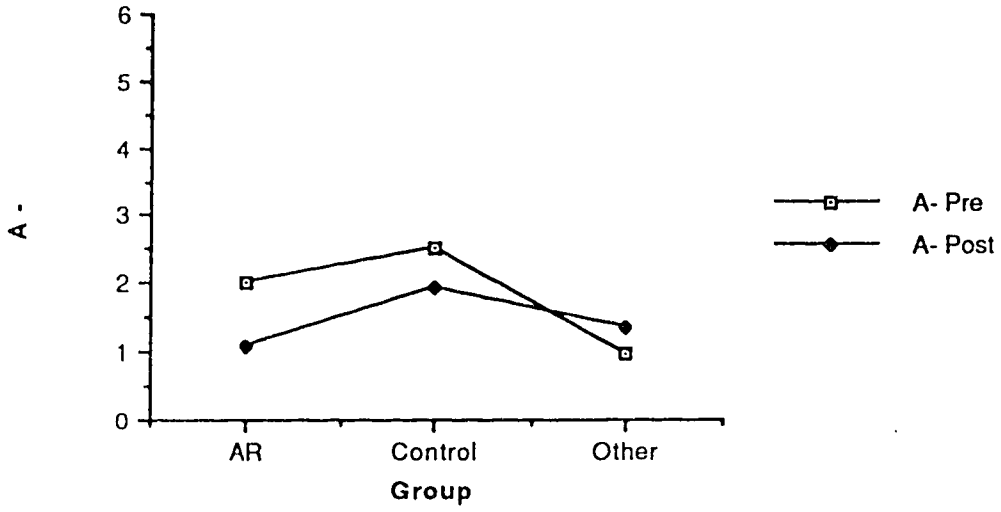


Figure 7: Group Means for A-



CHAPTER FIVE

Discussion

The results of the present study of attribution retraining accentuate the need to extend such research to include a wider scope of variables. Though the present research yielded limited results in changing attributional patterns of students concerning feelings of helplessness it may be that other factors contributed to the findings. It is important to recognize that while field experiments are desirable for testing the application of interventions to a classroom setting there are various factors that may interfere with consistent implementation. Although the intervention was to take place every day over a six and one half week period, all teachers in both the attribution retraining and control conditions reported difficulty in implementing the intervention consistently. On the basis of the daily frequency counts kept by the teachers, it appears that intervention was instituted on the average only 47% of the possible days, with the control condition averaging 53% and the attribution retraining group averaging 43%. Reasons regarding non-use included teacher absence, school events such as professional development days, field trips and track meets, and certain class times not lending themselves to intervention. It was also noted by the researcher during observations of the classrooms that some teachers seemed to feel more comfortable with the intervention strategies than

others. This may have reflected their own teaching style and ways of interacting with their students which points to the need to provide more extensive inservice training for the teachers to further enhance their understanding of the philosophy of the intervention.

It may also be that in addition to the lack of consistent implementation the relatively short period of intervention contributed to statistically insignificant findings. It must be remembered that the adolescent students in this study have developed their present belief systems regarding their reasons for success and failure over a number of years. Thus, while practical changes in students' attributions and teachers perceptions may be evidenced, an intervention implemented for less than two months may not yield statistically significant results. As Borkowski et al. (1988) stated:

> Because LD students possess complicated histories of educational failures that continually influence, and are influenced by, contemporary learning experiences, it is not surprising that more intensified, prolonged training will be required for meaningful changes to occur in pervasive beliefs about self-efficacy. (p. 52)

In addition, the relatively small pool of students in the sample may not have been sufficient to allow for the most extreme cases of learned helplessness to be included in this study. As noted previously in regard to the selection

procedure, students who were identified as the most helpless students in their classes did not, in most cases, deviate significantly from the mean on the measures used to identify students as learned helpless.

One of the greatest drawbacks in research regarding learned helplessness has been the instruments used to measure this construct. As noted previously, the IAR is not sensitive to the key distinction between effort and ability attributions yet it has been used extensively in previous research to identify learned helpless children. There has been a growing trend to develop more appropriate measures, most often encompassing an effort/ability scale as well as a teacher rating scale. This direction in instrumentation development is certainly promising but at present appears to be somewhat haphazard. The development of reliable and valid measures of learned helplessness is critical to further credible research regarding this construct. The Teacher Rating Scale and the Effort Versus Ability Subscale designed for use in the present study yielded reliability coefficients approaching acceptable limits; thus both scales appear to be promising contributions to instrument development. In addition to including an effort/ability scale for students and a teacher rating scale, consideration should also be given to parent perceptions of their children's levels of helplessness by incorporating a parent rating scale. Although inclusion of a parent rating scale was beyond the scope of the present study, such involvement

by the parents may serve to broaden their understanding of the phenomena of learned helplessness and their role in alleviating its effects.

It is hoped that the instruments used in the present study will continue to undergo revision to heighten their validity, reliability and sensitivity as measures of students' attributions and their teachers' perceptions. Specific observations about the present findings, however, are worthy of address. First, although attribution retraining did not result in statistically significant differences in teachers' perceptions about their students' levels of helplessness, the results are indicative of a trend toward perceiving their students as somewhat less helpless following the intervention (see Table 2 and Figure 1). This may be important for the subsequent interaction patterns between teachers and their students; if teachers view attribution retraining as having an effect on their students' learned helpless behaviors they may continue to use this intervention in their classrooms. If they see further reduction of helpless behaviors teachers may continue to encourage the students who in turn will hopefully begin to view themselves in a more positive light. One of the positive outcomes of the research not reflected in the data is that some teachers reported heightened awareness of learned helplessness and attributional styles. Two teachers shared recent articles on these topics they had read, commenting that they would not have paid as much

attention to the content had it not been for their involvement in the study. One teacher also reported that he could see the application of discussions about attributions and acceptance of personal responsibility for outcomes to a course he taught which focussed on prevention of drug and alcohol abuse. Thus, involvement in the intervention may have enhanced teachers' awareness of learned helplessness and their responses to students who exhibit such behaviors.

The second finding that is important to note is that both the attribution retraining group and the attention control group involved in strategy training showed increases on the E- score on the EVAS from pre- to post-test (see Table 2 and Figure 5). The change in attributing failure outcomes more to a lack of effort means that following intervention both groups attributed failure less to a lack of ability. This is a positive and encouraging change because attributions of failure to a lack of ability reflect an internal, stable factor, one which makes failure seem inevitable. Once the attributions reflect a more changeable factor such as effort the students can begin to take some personal control over their outcomes. The finding that the change was evident for both groups suggests that the use of strategies such as the written language strategy (COPS) and the math word problem solving strategy also serves to give students some control over their outcomes. Recent research has suggested that students involved in a strategy training program tend to evidence a change in their attributional

patterns. Mulcahy, Peat, Andrews, Darko-Yeboah and Marfo (in press) found that after two years of instruction in SPELT (Strategies Program for Effective Learning/Thinking) students demonstrated greater internal responsibility for success as measured by the I+ scale on the IAR. This may be due in part to the embedded attribution component inherent in strategy training; students are told, and begin to recognize for themselves, that their success on a task is due to them applying the appropriate strategy correctly. Thus, they are responsible for their success; their responses resulted in a favorable outcome. Teachers involved in the strategies control group in the present study reported that some students who experienced success in using the strategy subsequently saw more success in daily assignments which improved their attitude. As one teacher wrote, "[this student] is more ambitious toward his work now that he is experiencing more success."

The potentially effective combination of strategy training and attribution retraining has been investigated by Borkowski et al. (1988). They noted that:

> a unidimensional emphasis in training study strategies, in isolation from motivational histories, is an ineffective method of instruction for students with lengthy records of poor self-esteem and negative attributional beliefs about the importance of personal control. Motivational training in combination with skill training, designed to reshape attributional

> beliefs about the causes of reading successes and failures, may be the key to resolving some of the dilemmas encountered in strategy transfer research with LD students. (p. 51)

Similarly, the use of attributional training in isolation from attempts to give students more effective means to cope with their learning difficulties and improve their academic achievement may also be insufficient. Borkowski et al. (1988) referred to a "negative motivational cycle" (p. 52) that characterizes students with learning difficulties. They suggested that this cycle can be reversed by first manipulating attributions for outcomes related to specific subject matter which may allow students to be more open to the use of study skills and strategies. This retraining should take place across a number of subjects which would "eventually influence LD children's long-standing, general attributional beliefs about the inevitability of failure, freeing them to be more active, strategic learners" (Borkowski et al., 1988, p. 52).

The ultimate challenge is to effect a change in school achievement of children with learning difficulties. An amalgamation of both cognitive and motivational training such as the use of strategy training and attribution retraining appears to have considerable potential. Students would be internalizing more appropriate attributions as well as developing the tools for more successful learning. This

would lead not only to improved achievement but concommitant development of a belief in their responsibility and role in their outcomes. Once students begin to recognize the connection between their responses and their outcomes the debilitating effects of learned helplessness will be lessened.

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Appendix A

THE INTELLECTUAL ACHIEVEMENT RESPONSIBILITY SCALE

Name: _____ Age: _____ Sex: _____

School: _____ Teacher: _____

Date: _____

---

1. If a teacher passes you to the next grade, would it probably be

____ a. because she liked you, or
____ b. because of the work you did?

2. When you do well on a test at school, is it more likely to be

____ a. because you studied for it, or
____ b. because the test was especially easy?

3. 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?

4. 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?

5. Suppose your parents say you were doing well in school. Is this likely to happen

____ a. because your school work is good, or
____ b. because they are in a good mood?

6. Suppose you did better than usual in a subject at school. Would it probably happen

____ a. because you tried harder, or
____ b. because someone helped you?

7. When you lose at a game of cards or checkers, does it usually happen

____ a. because the other player is good at the game, or
____ b. because you don't play well?

8. 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?

9. If you solve a puzzle quickly, is it

____ a. because it wasn't a very hard puzzle, or
____ b. because you worked on it carefully?

10. If a boy or girl tells you that you are dumb, is it more likely that they say that

____ a. because they are mad at you, or
____ b. because what you did really wasn't very bright?

11. 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, or
____ b. because you need some help and other people didn't give it to you?

12. When you learn something quickly in school, is it usually

____ a. because you paid close attention, or
____ b. because the teacher explained it clearly?

13. If a teacher says to you, "Your work is fine", is it

____ a. something teachers usually say to encourage pupils, or
____ b. because you did a good job?

14. 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 them, or
____ b. because the teacher gave problems that were too hard?

15. 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?

16. Suppose you weren't sure about the answer to a question your teacher asked you, but your answer turned out to be right. Is it likely to happen

____ a. because she wasn't as particular as usual, or
____ b. because you gave the best answer you could think of?

17. When you read a story and remember most of it, is it usually

____ a. because you were interested in the story, or
____ b. because the story was well written?

18. If your parents tell you you're acting silly and not thinking clearly, is it more likely to be

____ a. because of something you did, or
____ b. because they happen to be feeling cranky?

19. 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?

20. When you win at a game of cards or checkers, does it happen

____ a. because you play really well, or
____ b. because the other person doesn't play well?

21. If people think you're bright or clever, is it

____ a. because they happen to like you, or
____ b. because you usually act that way?

22. If a teacher didn't pass you to the next grade, would it probably be

____ a. because she "had it in for you", or
____ b. because your school work wasn't good enough?

23. 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?

24. If a boy or girl tells you that you are bright is it usually

____ a. because you thought up a good idea, or
____ b. because they like you?

25. Suppose you become a famous teacher, scientist or doctor. Do you think this would happen

____ a. because other people helped you when you needed it, or
____ b. because you worked very hard?

26. Suppose your parents say you aren't doing well in your school work. Is this likely to happen more

____ a. because your work isn't very good, or
____ b. because they are feeling cranky?

27. Suppose you are showing a friend how to play a game and he has trouble with it. Would that happen

____ a. because he wasn't able to understand how to play, or
____ b. because you couldn't explain well?

28. When you find it easy to work arithmetic or math problems at school, is it usually

____ a. because the teacher gave you especially easy problems, or
____ b. because you studied your book well before you tried them?

29. When you remember something you heard in class, is it usually

____ a. because you tried hard to remember, or
____ b. because the teacher explained it well?

30. If you can't work a puzzle, is it more likely to happen

____ a. because you're not especially good at working puzzles, or
____ b. because the instructions weren't written clearly enough

31. If your parents tell you that you are bright or clever, is it more likely

____ a. because they are feeling good, or
____ b. because of something you did?

32. Suppose you are explaining how to play a game to a friend and he learns quickly. Would that happen more often

____ a. because you explained it well, or
____ b. because he was able to understand it?

33. 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?

34. 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?

IAR + = _____

IAR - = _____

Total IAR _____

Appendix B

EFFORT VERSUS ABILITY SUBSCALE (EVAS)

Name:_____ Age:_____ Sex:_____

School:_____ Teacher:_____

Date:_____

---

1. When you do well on a test at school, is it more likely to be
   _____ a. because you studied for it, or
   _____ b. because you are very good in that subject?

2. When you have trouble understanding something in school, is it usually
   _____ a. because you are not smart in school subjects
   _____ b. because you don't try hard?

3. When you read a story and can't remember much of it, is it usually
   _____ a. because you are not a good reader, or
   _____ b. because you weren't interested in the story?

4. Suppose your parents say you are doing well in school. Is this likely to happen
   _____ a. because you have been working very hard, or
   _____ b. because you are smart and school is easy for 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 them, or
   _____ b. because you are not good in math?

6. When you forget something you heard in class, is it
   _____ a. because you are not good at remembering things, or
   _____ b. because you didn't try very hard to remember?

7. When you read a story and understand most of it, is it
   _____ a. because you tried hard to understand and remember it, or
   _____ b. because reading is easy for you?

8. When you don't do well on a test at school is it
   _____ a. because school is hard for you, or
   _____ b. because you didn't study for it?

9. If people think you're bright or clever, is it mostly
   _____ a. because you are, or
   _____ b. because you work hard to do well?

10. Suppose your parents say you aren't doing well in your school work. Is this likely to happen more
   _____ a. because you haven't been trying very hard at school, or
   _____ b. because your work usually isn't very good?

11. When you find it easy to work arithmetic or math problems at school, is it usually
   _____ a. because you are smart in math, or
   _____ b. because you work hard to do well?

12. When you remember something you heard in class, is it usually
   _____ a. because you tried hard to remember, or
   _____ b. because remembering things is easy for you?

E+ _____ E- _____ Total E _____
A+ _____ A- _____ Total A _____

Appendix C

TEACHER RATING SCALE FOR IDENTIFYING LEARNED HELPLESSNESS

Student's Name:_____ Sex:___ Date:_____

School:_____ Teacher:_____

DIRECTIONS: Answer these questions about your student. Choose the response that is <u>usually</u> characteristic of the student.

1.	Is the student's attitude and outlook generally positive and optimistic?	YES	NO
2.	Is the student often unwilling to attempt tasks at his/her appropriate ability levels that he/she is capable of completing?	YES	NO
3.	Does the student often expect to fail a task before he/she even begins the task?	YES	NO
4.	When the student encounters failure or difficulty on a task does this spur him/her on to try even harder	YES	NO
5.	When the student succeeds on a task does he/she often say that it was because he/she tried hard?	YES	NO
6.	Does the student often say "I can't"?	YES	NO
7.	Do you often feel that the student has basically stopped trying?	YES	NO
8	When the student fails does he/she focus on the cause of the failure rather than engaging in ways to prevent or overcome future failure?	YES	NO
9.	Is the student often passive?	YES	NO
10.	Does the student have negative self-attitudes about intellectual performance and competence?	YES	NO
11.	Does the student give up when he/she encounters failure?	YES	NO
12.	Does the student act as though he/she believes that he/she CAN learn?	YES	NO

13.	When the student fails does he/she blame it on a lack of his/her ability?	YES	NO
14.	Does the student appear to view failure as inevitable?	YES	NO
15.	When the student experiences success does his/her expectation for future success increase?	YES	NO
16.	When encountering material that is difficult, is the student's reaction often characterized by frustration, anger, and/or despair?	YES	NO
17.	Does the student blame failure on a lack of luck?	YES	NO
18.	Does the student blame failure on someone else?	YES	NO
19.	Does the student perceive effort as futile and adopt a "what's the use" attitude?	YES	NO
20.	Does the student overreact to failure?	YES	NO
21.	Does the student suggest a lack of effort on his/her part to explain failure?	YES	NO
22.	Does the student believe that trying harder will help him/her to succeed?	YES	NO
23.	Does the student blame failure on the difficulty of the task?	YES	NO
24.	When the student encounters success does he/she suggest that it is due to his/her ability?	YES	NO
25.	Does the student suggest that his/her success is due to luck?	YES	NO
26.	Would you describe the student as well motivated?	YES	NO
27.	Does the student expect to fail on most things he/she does?	YES	NO
28.	When the student succeeds does he/she suggest that it is because the task is easy?	YES	NO

29. Does the student generally blame himself/herself for failure? YES NO

30. Does the student take credit for his/her success? YES NO

Responses that indicate learned helplessness:

YES: 2,3,6,7,8,9,10,11,13,14,16,19,20,25,27,28,29

NO: 1,4,5,12,15,22,24,26,30

[Items 17,18,21,23 are not scored as they do not indicate learned helplessness]

Appendix D

Pre-test Data

STUDENT CODE	SEX	AGE	TRS	I+	I-	IAR Total	E+	E-	A+	A-
1.A.	F	15	1	10	12	22	3	4	3	2
1.B.	M	14	15	10	10	20	2	6	4	0
1.C.*	M	13	13	13	13	26	5	5	1	1
1.D.	M	13	12	10	10	20	5	5	1	1
1.E.*	F	13	10	8	14	22	6	4	0	2
1.F.*	F	13	21	14	8	22	6	0	0	6
$\bar{X}$			12.00	10.80	11.20		4.50			2.0
s			6.57	2.23	2.23		1.64			2.1
2.A.*	F	15	12	11	14	25	5	4	1	2
2.B.*	M	13	16	11	10	21	1	2	5	4
2.C.*	M	13	6	10	13	23	4	3	2	3
$\bar{X}$			11.30	10.60	12.30		3.30			3.0
s			5.03	0.58	2.11		2.08			1.0

LEGEND:
*: denotes students selected for sample
**NI: No Information available for student
TRS: Teacher Rating Scale
I+: Intellectual Achievement Responsibility Scale (Plus)
I-: Intellectual Achievement Responsibility Scale (Minus)
IAR-Total: Intellectual Achievement Responsibility Scale (Total)
E+: Effort Versus Ability Subscale (Effort Plus)
E-: Effort Versus Ability Subscale (Effort Minus)
A+: Effort Versus Ability Subscale (Ability Plus)
A-: Effort Versus Ability Subscale (Ability Minus)

STUDENT CODE	SEX	AGE	TRS	I+	I-	IAR Total	E+	E-	A+	A-
3.A.	M	14	14	15	11	26	5	4	1	2
3.B.*	M	13	13	13	16	29	6	4	0	2
3.C.	M	14	12	14	12	26	5	6	1	0
3.D.	M	15	5	13	14	27	5	5	1	1
3.E.	F	14	11	16	11	27	4	3	2	3
3.F.	F	13	14	10	11	21	5	4	1	2
3.G.	F	14	5	11	9	20	5	5	1	1
3.H.	F	14	7	15	14	29	6	6	0	0
3.I.*	M	14	23	9	14	23	4	3	3	2
3.J.	M	13	NI**	8	12	20	5	3	1	3
3.K.*	M	14	20	8	12	20	6	3	0	3
$\bar{X}$			12.40	12.00	12.40		5.1			1.7
s			5.93	2.93	1.96		0.7			1.1
4.A.*	M	14	22	10	12	22	6	4	0	2
4.B.	F	14	10	11	10	21	6	5	0	1
4.C.	M	14	7	7	13	20	2	4	4	2
4.D.*	M	14	13	16	15	31	6	5	0	1
4.E.*	M	13	20	10	10	20	5	4	1	2
$\bar{X}$			14.40	10.80	12.00		5.00			1.60
s			6.43	3.27	2.12		1.73			0.55

STUDENT CODE	SEX	AGE	TRS	I+	I-	IAR Total	E+	E-	A+	A-
5.A.*	F	12	7	13	13	26	3	2	3	4
5.B.*	F	13	16	11	10	21	2	3	4	3
5.C.	M	12	1	11	12	23	5	5	1	1
5.D.	F	13	3	13	14	27	6	6	0	0
5.E.*	M	13	6	12	12	24	5	4	1	2
5.F.	M	13	4	11	11	22	6	3	0	3
5.G.	M	13	4	12	12	24	4	3	2	3
$\bar{X}$			5.90	11.90	12.00		4.40			2.30
s			4.88	0.92	1.29		1.51			1.38
6.A.	F	12	12	8	11	19	2	4	4	2
6.B.	F	13	1	12	10	22	6	6	0	0
6.C.*	M	13	18	12	14	26	6	5	0	1
6.D.	M	12	16	13	9	22	5	5	2	0
6.E.*	M	12	17	9	9	18	4	2	2	4
6.F.	M	13	5	15	10	25	5	6	1	0
6.G.*	M	13	16	12	10	22	4	4	2	2
6.H.	M	12	12	16	12	28	6	6	0	0
$\bar{X}$			12.10	12.1	10.60		4.80			1.10
s			6.13	2.7	1.69		1.39			1.46

STUDENT CODE	SEX	AGE	TRS	I+	I-	IAR Total	E+	E-	A+	A-
7.A.*	F	13	5	15	16	31	6	6	0	0
7.B.	M	12	3	15	15	30	6	6	0	0
7.C.*	F	12	4	13	12	25	6	4	0	2
7.D.	M	13	2	13	15	28	5	6	1	0
7.E.*	F	13	4	13	12	25	6	6	0	0
7.F.	F	13	3	15	9	24	6	6	0	0
7.G.	M	12	5	14	10	24	3	6	3	0
$\bar{X}$			3.70	14.0	11.40		5.40			0.30
s			1.03	1.0	3.04		1.13			0.75
8.A.*	M	13	3	13	14	27	6	1	0	5
8.B.*	M	14	7	17	16	33	6	5	0	1
8.C.	M	14	4	17	11	28	2	6	4	0
8.D.*	M	13	7	8	13	21	3	3	3	3
$\bar{X}$			5.30	13.80	13.50		4.30			2.30
s			2.06	4.27	2.08		2.06			2.22

STUDENT CODE	SEX	AGE	TRS	I+	I-	IAR Total	E+	E-	A+	A-
9.A.	M	14	1	13	16	29	6	6	0	0
9.B.*	M	14	7	17	15	32	2	5	4	1
9.C.	M	15	1	7	8	15	2	1	4	5
9.D.*	M	14	6	10	10	20	4	3	2	3
9.E.	F	14	1	12	11	23	4	6	2	0
9.F.*	M	15	13	16	14	30	6	6	0	0
9.G.*	M	13	9	6	10	16	4	2	2	4
9.H.*	M	13	17	2	16	18	5	3	1	3
9.I.*	M	13	9	14	8	22	4	5	2	1
$\bar{X}$			8.0	10.9	11.90		4.30			1.90
s			6.0	4.7	3.11		1.49			1.79

TOTAL NUMBER STUDENTS: 60
Female: 19(32%) Male:41(68%)
Age Range: 12-15 Years

Appendix E

Teacher Manual for Attribution Retraining Group

SCHOOL:
TEACHER:

The students from your class that have been selected as "target" students for intervention are:

1.
2.
3.

You have been randomly assigned to the intervention group involving attribution retraining. In other words, you will try to change the inappropriate attributions or reasons that your students give for failure and success. This will involve modelling more appropriate attributions to your students and then having them repeat the modelled attributions to themselves.

During the one period per day that intervention will occur, you will have the students cite the reasons that they give for both failure and success experiences. Some students will do this spontaneously whereas others may have to be queried. When the reasons they give are inappropriate (according to guidelines outlined below) you will, as quickly as possible after the reason has been given, model a more appropriate reason and have the student repeat that statement. This should be done at least once per day and

preferably once in a failure situation and once in a success situation.

For Failure Experiences:

When a student blames failure on a lack of his or her ability (Eg. "I'm so dumb in math"):

a) Model an attribution that reflects a need to try harder if it is evident that it was due to a lack of effort.

   Eg. "No, you didn't get it....That means you need to try harder or you may need more information."

b) Model an attribution that reflects the difficulty of the task if this is a subject area that is difficult for the student.

   Eg. "No, you didn't get it....That means that this is a difficult question and you may need more information."

In both cases, model an attribution that does **NOT** reflect that the student failed because of a **lack of ability**. To get the students to internalize the attributions, ask the student to repeat the attribution that you stated, first aloud, and then to himself or herself. It may be helpful to make an analogy to a tape recording that we can turn on or off; the alternate reasons that they say to themselves can be likened to a tape that they play in their heads. The

message that we want them to play is that failure is not due to a lack of their ability.

For Success Experiences:

When students attribute success to luck or ease of task, i.e. "I must have been lucky on this test." or "It was just an easy test.", model an attributions that reflects their ability.
Eg. "Yes, you got that one....You really know how to do these questions."

When students attribute success only to their effort, try to encourage them to also attribute it to their abilities.
Eg. "Yes, you got that one and you tried hard but it seems that you also really know how to do these questions."

In both cases, you want the student to take some credit for success because of his or her ability. As in the case of reasons they give for failure, have the students repeat the attribution that you model, first aloud and then to themselves. To continue the analogy to the tape recorder, you want them to play the message that their success is due to their ability.

Although your "target" students are the three students listed above, you do not have to limit your attribution modelling to only those students. However, try to ensure that you are focusing on the reasons that those three students give for failure and success, model more appropriate attributions and have them repeat the modelled attributions to themselves.

In order to see the frequency of use of the strategy in all the schools, it is necessary to keep track of how many times per day you have modelled different attributions to each of the students. As well, any anecdotal comments that you might have regarding the students' patterns of attributions, their reactions to the modelled attributions and their internalization of the attributions would also be helpful. Please see the enclosed calendar for your use in monitoring the frequency of use.

Good luck!

Appendix F

Teacher Manual for COPS Strategy

SCHOOL:
TEACHER:

The students from your class that have been selected as "target" students for intervention are:

1.
2.
3.

You have been randomly assigned to the intervention group involving use of strategies. The strategy that you will use is an error-monitoring strategy for written language assignments called COPS*. This strategy should be demonstrated using samples of your students' work or a sample that you provide. Give them an opportunity to try the strategy and have them say the four steps of the COPS strategy to themselves (Capitalization, Overall Appearance, Punctuation, Spelling). A visual reference summarizing the strategy should be displayed for students. This should be easily accessible to them and should be displayed on their desks if possible or at least in the front of their language arts books.

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* The COPS strategy has been adopted from SPELT (A Strategies Program for Effective Learning/Thinking): A Teachers' Manual, 1987 Inservice Edition by Bob Mulcahy, Kofi Marfo, David Peat and Jac Andrews. (See page 78-80 of the SPELT manual for a complete review of the COPS strategy.)

Every day during your language arts period, direct your students to use the COPS strategy whenever they do written work. This reminder should be provided once per period as the written task begins. The writing tasks could include story or paragraph writing or may just involve their written answers to workbook pages. A quick review of the strategy should be provided in the first week. Remind them to read their compositions four times, each time to check one of the specific aspects represented by the letters C O P S. Otherwise, there will likely be a tendency on the students' part to proof it just once, looking at all four aspects at once.

A description of the strategy follows:

C Are the first words in each sentence as well as proper names capitalized?

O What is the overall neatness, appearance and readability like? (i.e. legibility, neatness of printing or writing, spacing, indentation of paragraphs, complete sentences, etc.)

P Is the punctuation correct? (Check for periods, commas, colons, semi-colons, exclamation marks, question marks.)

S Are the words spelled correctly?

Although your "target" students are the three students listed above, you do not have to limit your directives to use the strategy to only those students. However, try to ensure that those three students are utilizing the strategy

on their written assignments. Monitor their application of the strategy and reinforce their use of COPS through comments such as, "Yes, you picked out that error. You remembered that the beginning word of a sentence needs a capital letter." or "Yes, you saw that error in punctuation. You remembered that sentences that ask a question need a question mark at the end." When they become more familiar with the use of the strategy, have them verbalize the reasons for their editing changes. For example, "I see you changed the `a' at the beginning of Alberta to a capital `A'..What rule are you following?"

In order to see the frequency of use of the strategy in all the schools, it is necessary to keep track of how many times per day you have directed the students to use the COPS strategy. As well, any anecdotal comments that you might have regarding the students' use of the strategy would also be helpful. Please see the enclosed calendar for your use in monitoring the frequency of use.

Good luck!

Appendix G

Teacher Manual for Math Word Problem Solving Strategy

SCHOOL:
TEACHER:

The students from your class that have been selected as "target" students for intervention are:

1.
2.
3.

You have been randomly assigned to the intervention group involving use of strategies. The strategy that you will use is a math problem-solving strategy for solving word problems*. This strategy should be demonstrated using sample problems from past or current word problems in their math textbooks. Give them an opportunity to try the strategy and have them say the seven steps of the Math Word Problem (MWP) Strategy to themselves as they work through each step. Monitor their use of the strategy by having them verbally "walk through" the steps they do so you can check their ease in using the strategy. This should be done at least once in the first week, once in the second week and periodically thereafter. A visual reference summarizing the strategy should be displayed for students. This should be

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* The Math Word Problem Solving Strategy is adopted from SPELT (A Strategies Program for Effective Learning/Thinking): A Teachers' Manual, 1987 Inservice Edition by Bob Mulcahy, Kofi Marfo, David Peat and Jac Andrews. (See page 107-108 of the SPELT manual for a complete review of the Math Word Problem Strategy.)

easily accessible for them and should be displayed on their desks if possible or at least in the front of their math books. As well, it may be helpful to teach a first letter mnemonic strategy to help them remember the first letter of each step (R R A P E S C). For example, a sentence that has a word that starts with each letter of the steps to remember: Roving Rabbits Ate Pete's Every Single Carrot. Students can come up with their own sentences to help them remember the seven steps. If students are using their own mnemonics make a note of this in your anecdotal records.

Every day during your math period, direct your students to use the MWP strategy whenever they do math word problems. A quick review of the strategy at least once during the first week should be included. Remind them to work through each step sequentially and with thought; otherwise, the tendency is to be less thorough.

A description of the strategy follows:

Step 1. Read the problem. Be sure you understand all vocabulary; if not, ask or use a dictionary.

Step 2. Read the problem again. This time put it into your own words, reducing it to the key parts.

Step 3. Ask yourself, "What facts are given? Did I include them all in Step 2?"

Step 4. Plan your attack. Decide what to do.

Step 5. Estimate an answer.

Step 6. Solve the problem.

Step 7. Check your work.

Although your "target" students are the three students listed above, you do not have to limit your directives to use the strategy to only those students. However, try to ensure that those three students are utilizing the strategy on their math word problems. Monitor their application of the strategy and reinforce their use of the MWP strategy at least once daily through comments such as, "I see your estimate of the answer was very close to your final answer." or "I see you are reading the problem over again; that's good to put it into your own words to make sure you understand it."

In order to see the frequency of use of the strategy in all the schools, it is necessary to keep track of how many times per day you have directed the students to use the MWP strategy. As well, any anecdotal comments that you might have regarding the students' use of the strategy would also be helpful. Please see the enclosed calendar for your use in monitoring the frequency of use.

Good luck!

Appendix H

Post-test Data

STUDENT CODE	SEX	AGE	TRS	I+	I-	IAR Total	E+	E-	A+	A-
1.A.	F	15	1	13	9	22	4	4	2	2
1.B.	M	14	15	10	9	19	4	1	2	5
1.C.*	M	14	8	16	13	29	3	5	3	1
1.D.	M	13	4	11	11	22	3	6	3	0
1.E.*	F	13	9	9	9	18	2	5	4	1
1.F.*	F	13	21	13	8	21	6	2	0	4
3.A.	M	14	17	12	12	24	6	3	0	3
3.B.*	M	13	13	13	13	26	6	4	0	2
3.C.	M	14	15	14	13	27	2	4	4	2
3.D.	M	15	4	14	15	29	6	5	0	1
3.E.	F	14	2	14	7	21	5	3	1	3
3.G.	F	14	6	12	10	22	6	4	0	2
3.H.	F	14	6	12	13	25	4	5	2	1
3.I.*	M	14	22	14	10	24	3	4	3	2
3.K.*	M	14	9	9	11	20	5	4	1	2

STUDENT CODE	SEX	AGE	TRS	I+	I-	IAR Total	E+	E-	A+	A-
4.A.*	M	14	21	15	9	24	6	6	0	0
4.B.	F	14	8	14	16	30	6	6	0	0
4.C.	M	14	7	7	9	16	2	4	4	2
4.D.*	M	14	10	17	16	33	6	6	0	0
4.E.*	M	14	11	9	13	22	6	5	0	1
5.A.*	F	12	2	12	9	21	1	6	5	0
5.B.*	F	13	3	11	8	19	2	4	4	2
5.C.	M	12	1	10	9	19	4	6	2	0
5.D.	F	13	1	15	14	29	6	6	0	0
5.E.*	M	13	5	13	15	28	6	6	0	0
5.F.	M	13	4	11	12	23	4	4	2	2
5.G.	M	13	5	12	5	17	5	1	1	5
6.A.	F	13	8	7	10	17	2	6	4	0
6.B.	F	13	2	14	15	29	5	6	1	0
6.C.*	M	13	6	13	11	24	5	5	1	1
6.D.	M	12	11	12	7	19	4	3	2	3
6.E.*	M	12	20	14	10	24	4	3	2	3
6.F.	M	13	3	14	14	28	5	6	1	0
6.G.*	M	13	6	10	14	24	4	3	2	3
6.H.	M	13	12	16	11	27	6	5	0	1

STUDENT CODE	SEX	AGE	TRS	I+	I-	IAR Total	E+	E-	A+	A-
7.A.*	F	13	10	15	15	30	6	6	0	0
7.B.	M	12	5	15	13	28	6	6	0	0
7.C.*	F	12	7	16	14	30	6	6	0	0
7.D.	M	13	2	12	10	22	6	4	0	2
7.E.*	F	13	7	15	11	26	6	6	0	0
7.F.	F	13	7	14	11	25	6	5	0	1
7.G.	M	12	6	16	13	29	6	6	0	0
8.A.*	M	13	1	13	12	25	6	2	0	4
8.B.*	M	14	10	15	15	30	6	5	0	1
8.C.	M	14	9	14	10	24	5	6	1	0
8.D.	M	14	5	9	12	21	4	2	2	4
9.A.	M	15	0	15	14	29	6	5	0	1
9.B.*	M	15	10	12	10	22	1	5	5	1
9.C.	M	15	2	11	8	19	3	5	3	1
9.D.*	M	14	6	11	8	19	5	6	1	0
9.E.	F	14	2	10	9	19	6	5	0	1
9.F.*	M	15	9	15	15	30	5	6	1	0
9.G.*	M	13	21	9	10	19	4	4	2	2
9.H.*	M	13	19	3	16	19	5	2	1	4
9.I.*	M	13	11	12	11	23	4	5	2	1

Note: Post-test data not included for School 2 (Subjects 2.A., 2.B. and 2.C.) as involvement in study was terminated prior to post-testing. Subjects 3.F. and 3.J. transferred schools prior to post-testing.