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City University of New York PH.D. 1983

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THE ALLEVIATION OF LEARNED HELPLESSNESS IN POOR READERS THROUGH MODELED OPTIMISM AND COMPETENCY TRAINING: A SELF-EFFICACY ANALYSIS

by

KAREN W. STEKEL

A dissertation submitted to the Graduate Faculty in Educational Psychology, in partial fulfillment of the requirements for the degree of Doctor of Philosophy, the City University of New York

1983

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This manuscript has been read and accepted for the Graduate Faculty in Educational Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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Abstract

THE ALLEVIATION OF LEARNED HELPLESSNESS IN POOR READERS THROUGH MODELED OPTIMISM AND COMPETENCY TRAINING: A SELF-EFFICACY ANALYSIS

by

Karen W. Stekel

Adviser: Professor Barry J. Zimmerman

The present study examined several variables that were hypothesized to be related to the poor reading performance of sixty, fourth- and fifth-grade children according to a social learning theory. Two variables were identified for study: first, children's lack of reading competence and second, their negative self-efficacy beliefs. It is well known that these poor readers' lack of basic skills leads to repeated failure experiences. These experiences have been found in prior research to foster feelings of helplessness in reading. Self-efficacy theory specifies several points of intervention in this failure-helplessness cycle. Direct and vicarious treatments have been developed by social learning theorists to improve children's motivation and performance. These changes are assumed to come about because of increases in children's self-efficacy.

In the present research, children were taught a semantic rule for affix use. Competency training was carried out through direct instruction on related stem words and affixes. Self-efficacy was manipulated through exposure to an optimistic or pessimistic model learning the same task. It was found that children receiving competency training outperformed their untrained peers on transfer measures of affix use. These results were also evident during transfer testing after a one

day delay. The children exposed to the optimistic model made higher self-efficacy judgments than those who saw the pessimistic model during both transfer and delayed transfer testing; however, only the difference during the delayed transfer phase achieved statistical significance. The relationship between self-efficacy measures and task performance was unexpectedly found to be low. This outcome was suggested to be due to inflated self-efficacy judgments by the children. The self-efficacy ratings were found to vary based on the successfulness of the children's performance however. These findings were discussed in the context of self-efficacy theory and prior research. Limitations of the present study were noted and suggestions for future research were offered. Implications for education were described.

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My family for their constant love and support; they deserve much credit for my achievement.

And my husband for his endurance and love.

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CHAPTER I

Introduction

This study attempted to alleviate the performance deficits and negative self-perceptions of children who experienced repeated failure in reading. Many of the children who experience repeated academic failure also lose interest in academic activities and are unwilling to pursue them. Several theoretical, conceptual models have been devised to explain the negative psychological effects of the children's experiences with failure such as: eroded motivation, low achievement, diminished self-esteem, anxiety, learned helplessness, and reduced self-efficacy. Initially, these negative effects were all attributed to anxiety. Ample literature documents the linkage of failure and anxiety (Sarason, 1981). Some researchers hypothesized that children's performance would be improved if their affective arousal could be reduced. Research, however, yielded inconsistent results; reduced anxiety did not always bring about improved achievement. Also the anxiety hypothesis did not adequately treat the cognitive processes that underlie anxiety. Until recently, anxiety research focused on performance and instructional conditions rather than process variables.

More recently, the concept of learned helplessness has been used to explain the performance deficits related to children's experiences of academic failure. Learned helplessness refers to "the learning or perception of independence between one's behavior and the presentation and/or withdrawal of aversive events" (Dweck, 1975, p. 674).

The theory of learned helplessness holds that children's perceptions of outcomes as uncontrollable, i.e. as independent of one's behavior, influences children's willingness to try to learn. Previous research

relied on children's self-reports to measure how much independence between their actions and outcomes they perceived, hence how helpless they felt. More recently, elements of attribution theory and social learning theory have been included in refinements of learned helplessness theory (Seligman, 1975; Abramson, Seligman, & Teasdale, 1978; Miller & Norman, 1979; Roth 1980).

In the present study, children's helplessness is measured cognitively in terms of their self-reported concerns about achieving success, faulty achievement and failure attributions and negative self-percepts of ability or efficacy. Helplessness is measured behaviorally as a lack of persistence and withdrawal from action and decreased amplitude of performance. Together these cognitive and behavioral outcomes constitute a helplessness syndrome (Butkowsky & Willows, 1980; Fowler & Peterson, 1981; Johnson, 1981; Schunk, 1981).

The helplessness syndrome exhibited by poor students has concerned educators. Recent evidence suggests that children with records of chronic poor achievement in school expressed profound feelings of helplessness (Butkowsky & Willows, 1980; Fowler & Peterson, 1981; Johnson, 1981). Furthermore, these feelings were responsible for performance deficits associated with the "learned" helplessness syndrome.

To date, researchers have attempted to alleviate children's feelings of helplessness by remedial instruction and by teaching them to interpret more accurately (i.e., attribute) the success and failure of their attemps to learn (Dweck, 1975; Butkowsky & Willows, 1980; Fowler & Peterson, 1981; Johnson, 1981). Although attribution training efforts have improved student achievement to some degree, the theory has little to say about the role of children's behavioral competence and self-concept in achievement striving.

Recently, Bandura (1977; 1982) has presented a social learning theory view of learned helplessness that considers children's performance outcomes and self-efficacy judgments as well as attribution judgments. Bandura's (1977; 1982) self-efficacy theory assumes a reciprocal relationship between feelings of helplessness and performance. Poor performance leads to feelings of low self-efficacy and conversely, these beliefs decrease future achievement efforts. In Bandura's approach, self-referent beliefs and intellectual competence both determine children's willingness to try to learn. The theory considers both facets of the problem considered in the present study: (a) children lack basic skills, and because they do not have basic skills, (b) they experience punitive outcomes (e.g., failure), which reinforce beliefs which lead to helpless behavior. This approach implies that children need to develop both basic competencies and expectations of self-efficacy. In its strictest form, self-efficacy theory predicts that treatments promote changes in persistence and performance through changes in a person's sense of self-efficacy. Thus, experiences that raise a person's sense of self-efficacy should also enhance a person's persistence and performance quality.

The reciprocal influence assumption can explain the helplessness of children who repeatedly fail at academic tasks: Children who fail repeatedly in a school subject will avoid these learning situations and thereby sustain their negative self-efficacy beliefs indefinitely. The advantage of self-efficacy theory is that it specifies several points of intervention for breaking through this vicious cycle. It suggests a two-pronged approach focusing on performance competence as well as belief retraining. Social learning theory has another advantage: It

details how modeling experiences can influence children's self-efficacy and competence as well as direct performance outcomes. Thus, personal deficits in self-efficacy and competence need not be a limiting condition for learning.

Evidence for the validity of self-efficacy theory in educational applications is limited but promising. Recent studies have indicated the following: modeled failure can inhibit student achievement (Brown & Inouye, 1978); modeled success can improve children's achievement (Zimmerman & Ringle, 1981); successful performance experiences can also improve achievement (Zimmerman & Blotner, 1979; Chartier & Friedlander, 1981; Schunk, 1981). Also, vicariously induced achievement motivation has been shown to have some degree of permanence and generalizability to different tasks (Zimmerman & Ringle, 1981). Further evidence suggests that confidence verbalized by a model can affect children's self-efficacy beliefs and performance (Zimmerman & Ringle, 1981). Implications of this evidence are straightforward: vicarious experience gained from confident, optimistic models can affect self-efficacy, especially when it is integrated with corrective performance or competency training.

To date, there has been no systematic investigation of how modeling experiences affect helpless children's self-efficacy judgments, task persistence, and achievement. The proposed study represents an attempt to apply the self-efficacy theory of Bandura (1977; 1982) to alleviate the feelings of helplessness of children who have experienced repeated failure in reading.

Answers to the following questions will be sought: What is the effect of modeled optimism (or pessimism) and the effect of direct

competency training on helpless children's persistence, achievement, and self-efficacy? Will changes in efficacy beliefs and achievement persist over time? What are the consequences of these beliefs on subsequent learning behaviors?

Review of the Literature

Self-efficacy Theory

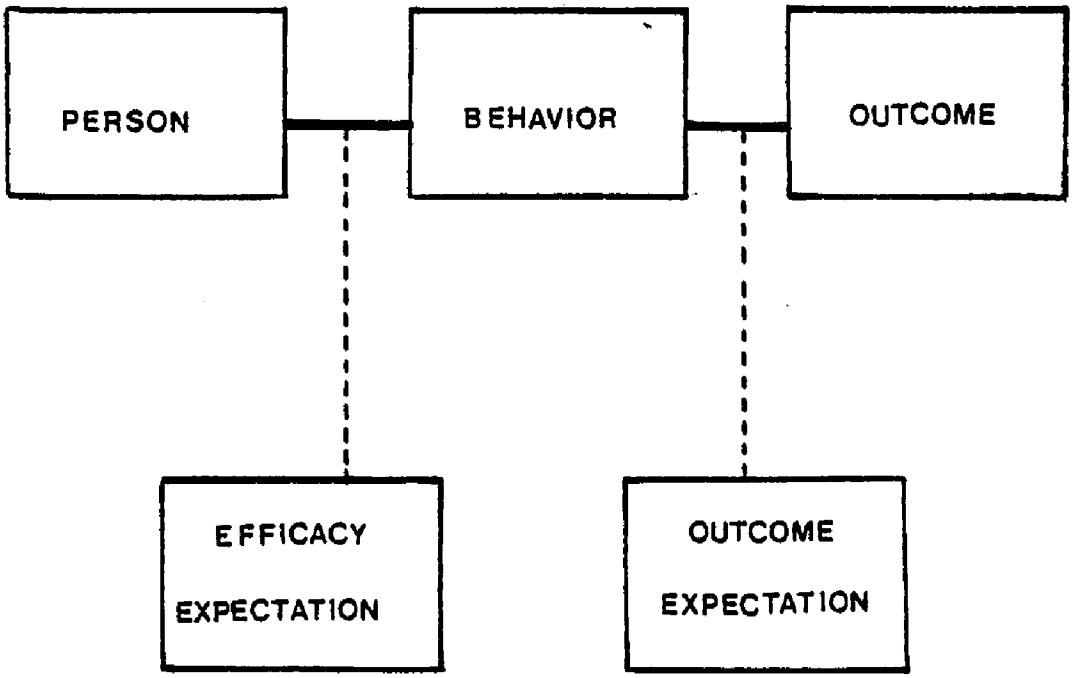
The aim of self-efficacy theory is to provide a unifying conceptual framework to describe diverse modes of influence that are known to alter behavior. From a self-efficacy theory perspective, various modes of influence partly alter coping behavior by creating and strengthening self-percepts of efficacy (Bandura, 1982). Self-efficacy theory is concerned with how people judge their own capabilities and how these judgments affect their subsequent motivation and behavior. In this theory it is assumed that judgments of self-efficacy determine how much effort people will initially expend and how long they will persist in the face of obstacles or aversive experiences (Bandura, 1977, 1982; Bandura & Schunk, 1981; Brown & Inouye, 1978; Schunk, 1981). The theory also holds that perseverance can improve a person's achievement. For this reason, self-efficacy seems an especially relevant dimension of children's achievement behavior.

According to self-efficacy theory (Bandura, 1977, 1982) people avoid activities they believe exceed their coping capabilities, but they will undertake activities that they judge to be within their own capabilities. Thus, judgments of one's capabilities can determine one's choice of activities and rate of skill acquisition. Because acting on misjudgments of personal efficacy can produce aversive consequences (underachievement or failure), accurate appraisal of one's own capabilities has considerable functional value.

In self-efficacy theory, a distinction is drawn between two different kinds of expectations. According to Bandura (1977, 1982) these

FIGURE 1

Sources of Efficacy and Outcome Expectations



Bandura (1977, p. 193)

are: (1) efficacy expectation, the conviction that one can successfully execute the behavior required to produce the desired outcomes; and (b) outcome expectation, a person's estimate that a given behavior will lead to certain outcomes. Efficacy and outcome expectations may be diagrammed as shown in Figure 1. Efficacy and outcome expectations are

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Insert Figure 1 here

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differentiated because people can form separate opinions whether: (a) certain actions lead to desired outcomes and (b) whether they personally can perform these actions. Conversely, people may believe themselves capable of action but may believe that their actions will not be successful.

Efficacy expectations are suggested to affect children's initiation and persistence of coping behaviors. Also, children's self-efficacy expectations determine the amount of effort they expend in difficult or ambiguous situations. Their self-efficacy expectations will not be sustained for long if component capabilities are missing. Behavior is best predicted over the long term by considering both, expectations and their behavioral consequences.

According to self-efficacy theory, judgments of efficacy are based on four principal sources of information: (a) enactive performance attainments; (b) vicarious experiences observing the performance of others; (c) verbal persuasion that one has certain capabilities; and (d) physiological states accompanying performance (Bandura, 1977, 1982). Successful performance opportunities can develop capabilities, and verify and strengthen self-efficacy beliefs. Bandura (1977) cites research to support the superiority of such performance-based procedures over purely

symbolic methods (e.g., general attribution training) to induce lasting changes in self-efficacy beliefs (Schunk, 1981).

According to Bandura (1977), self-efficacy expectations derived from vicarious experience, although highly influential, are more vulnerable to change and extinction than those derived from personal, enactive experiences. Observational learning involves social comparisons between oneself and a model. Since the "fit" is never perfect, a model's outcomes are a less dependable source of information for predicting future personal success than are comtemporary personal experiences. Bandura (1977) suggests that modeling procedures can nonetheless reduce avoidance by raising efficacy expectations. Zimmerman and Ringle (1981) provide some support for the hypothesis that vicarious experience affects children's beliefs about their capabilities to succeed and influences their achievement as well. Young children's persistence on retention and transfer tasks increased significantly after modeling treatment. They observed an adult model persist (and fail) to solve a puzzle. The model made statements about his confidence to solve the puzzle. His statements of confidence were found to improve significantly the children's estimates of their self-efficacy on a similar (transfer) task. Furthermore, children's self-efficacy judgments on a different (generalization) task were also enhanced by exposure to the confident, optimistic model.

According to Bandura (1977), verbal persuasion is a weak source of influence compared with personal outcomes of performance. Other people's judgments of probable outcomes are usually less reliable as a source of information than prior consequences of one's own coping efforts. Perceived self-efficacy affects one's emotional arousal. Persons who

believe themselves to be competent are less beset by negative affect. Success in coping in situations initially evoking fear or anxiety can strengthen self-efficacy beliefs.

The impact of information on efficacy expectations depends on how it is cognitively appraised. Bandura (1977) posits a central processor of efficacy information. He suggests that people process, weigh, and integrate diverse sources of information concerning their capability, and regulate their choice of behavior and of expenditure of effort accordingly. Situational and contextual factors enter into these cognitive appraisals.

Self-efficacy and Learned Helplessness

Chronic failure as a precursor of learned helplessness. Failures and successes are integral parts of the learning process. Prolonged academic failure is of concern to educators and parents because it undermines motivation, and that can lead to withdrawal from learning situations. Persons with learned helplessness believe that their responses will not affect outcomes. This acquired belief can become permanently debilitating, if those who feel helpless do not willingly expose themselves to experiences which could change their negative beliefs.

In learned helplessness theory, it is hypothesized that experience with noncontingency (i.e., that actions are not followed by expected outcomes) produces generalized expectancies for uncontrollability of outcomes in the future. Originally, the helpless feelings were thought to produce physical passivity (Seligman, 1975). Initial versions of learned helplessness theory focused on specific behavioral deficits rather than cognitive deficits, probably because learned helplessness theory and research evolved from animal studies. Recent versions have

extended learned helplessness theory to specify the attributions that underlie human deficits in motivation and performance (Abramson, Seligman, & Teasdale, 1978; Miller & Norman, 1979; Roth, 1980). According to these recent accounts, when outcomes are viewed as uncontrollable either personally or universally, the helpless behavioral syndrome emerges. Prolonged failure inevitably leads to feelings of helplessness.

In support of this hypothesis, recent research indicates that children who have experienced chronic failure do show evidence of helplessness. These children make faulty attributions for outcomes, especially following failure (Butkowsky & Willows, 1980; Fowler & Peterson, 1981; Johnson, 1981; Schunk, 1981). They also exhibit diminished self-esteem (Butkowsky & Willows, 1980; Johnson, 1981) and display low persistence (Butkowsky & Willows, 1980; Schunk, 1981).

Alleviation of learned helplessness deficits. An initial attempt to alleviate learned helplessness deficits was conducted by Dweck (1975). She reasoned that such deficits could be altered by changing children's attributions for failure. Dweck asked teachers, school psychologists, and middle-school administrators to rate the helplessness of 750 school children. The 12 most severely helpless children were chosen from this pool. The independent ratings of the children revealed that all displayed reduced academic performance, especially following failure in regular academic situations. In Dweck's experiment, the children were taught to attribute failure in arithmetic to lack of effort rather than personal inability. She found that children in the group that received effort-reattribution training significantly outperformed helpless children in the success-only condition. Children in the success-only condition were given arithmetic problems which could be solved easily and within the

the time limit on every trial. Success was attributed to the children's responses, and failure, when it occurred, was glossed over or ignored. Thus, children in this treatment condition did not learn how to cope with failure realistically during learning or assessment. Children who were taught to take responsibility for failure and to attribute failure to lack of effort, evidenced improved performance. Also they changed their beliefs about the cause of their failure from their ability to insufficient (personal) effort.

Fowler and Peterson (1981) examined the effectiveness of direct reattribution training to alleviate helplessness in reading. Data on attribution and persistence were collected from 28 children who read below grade level. The reading-level assessments were derived from objective test scores and teachers' judgments.

Fowler and Peterson (1981) compared four treatments: (a) partial reinforcement with single failure feedback; (b) partial reinforcement with multiple failure feedback; (c) partial reinforcement with multiple failure feedback and indirect attribution retraining; and (d) partial reinforcement with multiple failure feedback and direct attribution retraining. In the indirect condition, children's failures were verbally attributed to a lack of effort by the adult experimenter-model. Direct attribution retraining involved teaching children to use covert rehearsal of self-instructions. The children listened to a record of a peer model attributing outcomes to effort. Children in this direct attribution retraining condition were asked to practice the statements made by the peer model during three training sessions. During the first session children repeated aloud the recorded attributions for outcomes. During the second training session children were instructed to whisper

their attributions. Finally, they were told to tell themselves silently what to say during the last session. These instructions were given following feedback for each response the children made during the three training sessions. Fowler and Peterson (1981) found that only direct attribution retraining instruction significantly modified attributional patterns and increased the reading persistence of helpless children. When they were taught to use covert, self-instruction, children altered their perceptions of failure and changed their original attributions for failure to their effort.

These conclusions were similar to those drawn by Butkowsky and Willows (1980). They suggested that poor readers' persistence and expectancies of success in reading could be increased by modifying the children's self-judgments of their performance. Butkowsky and Willows (1980) studied the academic performance and self-concept of 72 fifth-grade boys. They compared good, average, and poor readers for: task persistence, estimated success, attributions for outcomes, and expectancies of success following failure on two different tasks. The reading-related task consisted of five solvable five-letter anagrams. In the failure condition a single letter in each anagram was changed. The changes made the anagrams unsolvable. The other task consisted of a series of five line drawings which the children were asked to trace over without lifting their pens or retracing any lines. As with the reading-related tasks, solvable and unsolvable forms of these puzzles were constructed. Butkowsky and Willows (1980) concluded that poor readers displayed characteristics indicating learned helplessness and low self-concepts of ability. Poor readers' attributions for outcomes were similar to those described by learned helplessness theorists (e.g.,

Abramson, et al, 1978) and were consistent with attribution theory interpretations of learned helplessness. Poor readers persisted at reading and non reading tasks less than other children in the study. Also, these children took less personal responsibility for success. They attributed failure, however, to internal, stable causes, such as their ability. Of special interest to the present study were results involving expectancies of future success. Poor readers' initial expectancies of future success were lower than those of good readers. Moreover, poor readers' expectancies of success transferred across tasks as well as following failure. Butkowsky and Willows (1980) concluded, therefore, that poor readers were more "reactive" to failure than other children in their study. Also, poor readers reported less confidence in their ability to attain future success after failure than good readers. Butkowsky and Willows (1980) suggested that the way children perceive their potential for future academic success and how they interpret academic outcomes may be as important as an adequate level of ability for academic success.

Johnson (1981) studied children with chronic experiences of failure. She attempted to compare an attributional interpretation of learned helplessness theory with value expectancy theory. Value expectancy theory stresses the need to consider the value of outcomes (e.g., attractiveness, importance, reinforcement, incentive) and expectancy of success when predicting behavior. Learned helplessness theory does not deal with outcome value. Johnson (1981) studied how long children with chronic experiences of failure persisted on an unsolvable problem if they were paid for their effort. Their performance was compared to that of unpaid peers. She also studied the children's attributions for failure on the unsolvable problem. Her study compared the persistence and outcome

attributions for three achievement groups: (a) average, (b) failing, and (c) failing but receiving remediation in various academic subjects. Johnson examined the relationships among four variables: (a) school achievement, (b) task persistence, (c) self-concept, and (d) attributions for outcomes. She decided that a case could be made for any one of these variables being the cause of any of the others. The final decision, however, depended on the theoretical frame adopted. She found that outcome value as well as expectancy of success affected the persistence of failing children. Moreover, she found that when the monetary reward was not achievable, it lost its reinforcement value. She interpreted her results within a framework of learned helplessness theory. She noted, however, that her results agreed with social learning theory: A reinforcement which is not achievable loses its value but remediation can help to reinstate success at academic tasks as a reinforcement for children in her study. She concluded, therefore, that both expectancy and outcome value were necessary to predict children's achievement behavior. Further, she concluded that the inclusion of value in learned helplessness theory would improve its validity. She suggested that helpless children's self-esteem could be raised by teaching them to attribute success to personal factors, such as ability.

In summary, all of the studies described above have focused on children's helplessness in naturalistic settings. Furthermore, these feelings of helplessness were initially acquired in naturalistic settings. The children's prolonged experience with academic failure was assumed to be the main cause of their helplessness. Studies of the alleviation of helplessness have focused on teaching the children to change their faulty attributions for outcomes. The retraining has resulted in increased task

persistence and improved achievement. The combined effects of subsequent success and expectancies of future success improved helpless children's self-referent beliefs.

Self-efficacy and Achievement

Self-efficacy theory incorporates many constructs postulated by other theorists to explain motivation, such as locus of control, attribution, and learned helplessness. Like the locus of control approach, self-efficacy theory assumes that people's motivations are determined by their beliefs about their personal control of their environment. Consistent with attributional theories, self-efficacy theory states that people's interpretations of outcomes are affected by specific task properties such as stability. Like learned helplessness theories, the self-efficacy approach focuses on experiences which lead to the self-fulfilling consequences of personal beliefs of helplessness. Like attribution theorists, social learning researchers assume that once a belief has been established, it affects performance and exposure to subsequent experiences. The results of such diminished exposure sustain the existing belief system. Vicarious learning experiences and the suggestions of others can also affect one's self-percepts of efficacy or futility.

Modeling studies. Self-efficacy theory has only recently been applied to educational problems. Recently, several researchers have investigated how well self-efficacy judgments explain children's motivation to achieve on intellectual tasks. One of the first investigations was conducted by Brown and Inouye (1978). They hypothesized that learned helplessness could be induced through a vicarious failure experience by a model who students perceived to be of similar competence. College

students were used as subjects in their experiment, and the task involved an unsolvable anagram. Subjects' perceptions of the model as having the same or less competence than themselves was manipulated prior to vicarious training. The results supported their hypothesis: students who believed themselves to be of similar competence to the model persisted for shorter times on the unsolvable task and displayed more negative ratings of self-efficacy than did those who believed themselves to be of superior competence to the model. Results of this study supported the argument that vicarious as well as direct experiences could produce learned helplessness and that self-efficacy measures were highly predictive of task persistence.

Brown and Inouye's research indicated that from a social learning perspective, lowered self-efficacy expectations and helplessness could result from indirect (vicarious) experiences with failure. Vicarious influences have important social implications because they can affect groups as well as individuals. Brown and Inouye showed that behavioral competence does not necessarily guarantee high or even realistic self-efficacy perceptions. Low perceived self-efficacy may lead even competent individuals to shun activities or avoid optimal effort and to fail as a result. The extent to which other people's failure precipitates learned helplessness and undermines personal self-efficacy depends on the similarity subjects perceive between the model and his or her situation, and their own competence and task parameters. Brown and Inouye (1978) studied modeled failure and interpreted their findings within a self-efficacy framework. They did not study the effects of the success of a peer model.

Chartier and Friedlander (1981) studied the effects of modeled success on adult subjects, using an experimental paradigm similar to that described by Brown and Inouye. Chartier and Friedlander obtained modeling effects as well as direct participation effects. Thus, their results add validity to the hypothesis that vicarious experience can induce changes in performance and beliefs about efficacy.

Zimmerman and Blotner (1979) reported a study examining the influence of modeling on young children's persistence during problem solving. They exposed white, middle-class children in the first and second grades to an adult model who persisted for either a long or short duration on a wire puzzle task. Both the model's duration of persistence and degree of success significantly affected the children's task persistence in the expected direction. Children exposed to a successful, persistent model persisted longer on the task than did children in the control group; whereas children exposed to the unsuccessful, nonpersistent model persisted for a significantly shorted time on the task than did the control group. This study provides evidence that modeling experience could improve children's persistence. Although the study was designed to be compatable with Bandura's self-efficacy hypothesis, no effort was made to study the children's self-efficacy judgments.

A study conducted by Zimmerman and Ringle (1981) represents the first effort to study the role of self-efficacy estimates during observational learning with young children. As suggested by the theory, self-efficacy estimates were collected before, during, and after the modeling experience in a task-specific manner: children were shown the task and then asked to give a first self-efficacy estimate for solving the problem; children gave a second self-efficacy estimate after

observing the adult model fail on the task; and they gave a third estimate after their own attempts at solving the unsolvable puzzle. The study was intended as a replication and extension, using Black and Hispanic subjects, of the aforementioned study by Zimmerman and Blotner (1979). Zimmerman and Ringle attempted to examine for the first time the generalization and retention of vicariously acquired motivations to achieve. Retention was measured using a wire puzzle task after a one-day delay. Generalization was assessed by use of an embedded figures task. Zimmerman and Ringle also sought to examine the effects of the model's expressed degree of confidence during the model's problem solving --optimism or pessimism--on the children's self-efficacy ratings and their task persistence.

The results provide the first evidence that vicariously induced motivations to achieve are generalizable to a different task. Also, transfer findings were obtained after a one-day delay, indicating some degree of permanence in the children's vicariously enhanced achievement. These findings are notable because they show no performance declines on transfer tasks. This study also provides the first evidence that confidence about achieving a solution that is expressed by an adult model can influence the children's persistence. The impact of the model's statements of confidence were stronger in situations where the overt modeling experience supported the model's expressed beliefs. In the Zimmerman and Ringle study, the model's statements proved to have seven times more influence on the children's task persistence than the model's actual duration of persistence. Thus, Zimmerman and Ringle support conclusions drawn by Brown and Inouye regarding the importance of the observer's beliefs about a model's credibility.

A related study was conducted by Schunk (1981). Although he did not test hypotheses from learned helplessness theory, all the children in his sample experienced profound, repeated failure in arithmetic and displayed deficits identified in other research as characteristic of learned helplessness. These deficits included: (a) chronic low achievement, (b) reluctance to engage in or approach achievement-related tasks, resulting in diminished persistence, (c) eroded self-esteem, and (d) faulty attributions for achievement outcomes. As in other studies, subjects in the Schunk study appeared to display helplessness because of their beliefs. Either they did not believe that their efforts would result in success (personal helplessness); or they did not believe that anyone could produce the desired behavior (universal helplessness).

Schunk's focus, however, differed from an attributional interpretation of helplessness theory. He derived his hypotheses from self-efficacy theory. He incorporated the differences between efficacy-based futility and outcome-based futility as determinants of beliefs thought to precipitate helplessness, especially following experiences of chronic failure.

Schunk investigated how modeling and effort reattribution affected the achievement, persistence, and self-referent beliefs of children who had failed repeatedly in arithmetic. His sample included 56 fourth-grade children who had experienced frequent failure in arithmetic. He drew his subjects from regular elementary classes but selected children on the basis of their repeated failure in arithmetic. Ostensibly, choosing subjects from regular classes eliminates those with severe learning disabilities. Children enrolled in regular classes do not have diagnosed

learning disabilities, as a rule, and are considered capable of grade-level work.

Schunk reasoned that active engagement in learning promotes the development of skills and self-efficacy beliefs. Effort reattribution was postulated to affect the amount of effort the children expended. He hypothesized that modeling would result in higher arithmetic achievement, longer persistence, improved self-efficacy, and greater accuracy of self-appraisal than would didactic instruction. Also, within treatments, effort reattribution was expected to lead to improvements on these measures.

The results led Schunk to conclude that modeled instruction, especially when combined with effort reattribution training, was more effective than didactic instruction in promoting skill development. He found no significant differences in the effects of treatments on self-efficacy or persistence. He attributed the failure to support the hypothesis of significant gains in self-efficacy to the similarity of the instructional treatments. Both treatments provided children with instruction concerning division principles, practical applications of these principles, guided practice and problem solving, corrective feedback, and self-directed mastery. The major difference between treatments was that children in the modeling condition observed division strategies during instructional sessions whose content differed from the examples given in the feedback sessions. Children's reattributions to effort did not influence self-efficacy, persistence, or skill accomplishment. Perceived efficacy was shown to be an accurate predictor of arithmetic performance across levels of task difficulty and treatment conditions.

An interesting aspect of this study concerned the indirect versus the direct effects of the treatments on persistence and accuracy of self-perceptions. Schunk developed a four-variable path analysis. Direct causal links emerged from treatment to self-efficacy, from self-efficacy to persistence, from self-efficacy to accuracy, and from persistence to accuracy. He found no direct paths from treatment to persistence or to accuracy. He concluded that treatment, therefore, had no direct effect on either persistence or accuracy. His analysis revealed: the treatment influenced persistence and accuracy indirectly through its effects on self-efficacy; self-efficacy also influenced accuracy indirectly through persistence. His findings are consistent with self-efficacy theory in its strictest interpretation, which postulates that treatments promote changes in behavior through changes in self-percepts of efficacy (Bandura, 1977). Thus, the study by Schunk (1981) offers evidence for the validity of self-efficacy theory as a frame in which to study the modification of helpless children's beliefs and subsequent persistence and achievement. Furthermore, his use of path analysis revealed significant relationships which were not supported by more traditional analytic techniques.

Bandura and Schunk (1981) studied the self-motivation, self-efficacy beliefs, and competencies of children who exhibited gross deficits and lack of interest in mathematical tasks. The mathematical tasks were presented as a hierarchic series of simple operations. Thus, children could master complex skills by completing a set of easier computations. Completion of these component computations represented proximal subgoals for children in the Bandura and Schunk study. They reasoned that perceived competence would mediate personal efficacy beliefs and thereby

generate interest in a mathematical task. They predicted that self-motivation through the implementation of proximal sub-goals would prove to be most effective in cultivating intrinsic interest, mathematical competencies, and self-percepts of efficacy in mathematical activities. Further, they hypothesized that self-efficacy would predict subsequent accuracy of the children's performance on mathematical tasks and on their levels of intrinsic interest. The result indicated that proximal sub-goals increased self-efficacy estimates. Children who used proximal sub-goals surpassed all others in subtractive skills achievement. With respect to persistence, children who gained in self-efficacy because of their skill acquisition solved problems easily and, therefore, did not need to spend much time on the task. Also, these children were most accurate in their appraisals of their self-efficacy in terms of their actual performance. Proximal sub-goals were found to affect intrinsic interest positively.

Bandura and Schunk's data supported the contention that skill acquisition builds self-efficacy. Children who achieved mastery of mathematical operations displayed increased self-efficacy. Also, these children's interest in previously shunned activities was increased after skill acquisition. Skillful children needed less time to solve problems than their less skilled counterparts. This factor attenuated the relationship between self-efficacy and persistence.

Bandura and Schunk conducted an analysis of congruence between self-efficacy judgments and performance. They found that accurate self-efficacy judgments depended on the complexity and variety of skills required for successful performance. Self-efficacy estimates were found to depend on: task characteristics (e.g., level of difficulty, multiple

operations); personal characteristics (e.g., accuracy of self-knowledge, selective attention to competencies and deficiencies); and external standards against which performances were appraised. Bandura and Schunk concluded that judgments of self-efficacy are not simply reflections of past performance. Self-efficacy judgments reflect an inferential process which is continuous and interactive rather than discrete and sequential. This process reflects an interrelationship among personal, environmental, and behavioral factors.

In formal statements of self-efficacy theory, Bandura (1977; 1982) has predicted that providing children with modeled and guided performance, corrective feedback, and self-directed mastery fosters the development of self-efficacy. Evidence suggests also that vicarious experiences with persistent, confident, and successful models changes children's beliefs about their self-efficacy and competence (Brown & Inouye, 1978; Chartier & Friedlander, 1981; Zimmerman & Blotner, 1979; Zimmerman & Ringle, 1981). There have been attempts to combine skill training and effort reattribution treatments to improve the persistence and achievement of children manifesting severe academic deficiencies (Dweck, 1975; Butkowsky & Willows, 1980; Fowler & Peterson, 1981; Johnson, 1981; Schunk, 1981). Only Schunk (1981) attempted to alter children's beliefs about their self-efficacy. The other research reported with helpless children did not attempt to change their self-efficacy judgments.

Because self-efficacy is postulated to have motivational effects, it is especially relevant to children's success in academic situations. Experiences designed to raise self-efficacy should increase children's expectancies for success. Their increased expectancies should increase

their willingness to approach and engage in activities they formerly avoided and should improve children's task persistence.

Research cited by Zimmerman and Rosenthal (1974) suggests that providing explanatory principles with exemplary modeling is more effective than providing explanatory principles alone as a means of developing children's cognitive skills. Additional evidence has been presented which suggests that vicarious or observational learning conditions which include these features also changes children's self-efficacy beliefs (Brown & Inouye, 1978; Zimmerman & Blotner, 1979; Zimmerman & Ringle, 1981).

Review of the literature on children characterized as helpless reveals no systematic investigations of children's vicarious experience with an optimistic model and competency training. The present study represents a first attempt to test instructional hypotheses derived from self-efficacy theory concerning semantic rule learning by children displaying helplessness.

The present study concerns the effects of peer-modeled optimism (and pessimism) and competency training on self-efficacy, achievement, and persistence. Children who have experienced repeated failure in reading will be taught a semantic rule for prefix-suffix use. Finally, the present study represents an attempt to test hypotheses from self-efficacy theory. It will be argued that instruction will improve self-efficacy, increase achievement, and reduce the motivational disruption associated with helplessness, that is, increase persistence. It is expected that these improvements will transfer to analogous tasks and persist over time.

Hypotheses

Hypotheses are advanced separately for each dependent variable and phase of this study. The first set of hypotheses refers to the initial Transfer Phase. During initial Transfer Phase testing, feedback was given following each response the children made.

1. Children receiving competency training and observing an optimistic model will show:
   a. higher self-efficacy on a transfer task than will children receiving either treatment separately.
   b. higher persistence on a transfer task than will children receiving either treatment separately.
   c. higher rule learning on a transfer task than will children receiving either treatment separately.
2. Children receiving competency training will show:
   a. higher self-efficacy on a transfer task than children who do not receive competency training.
   b. higher persistence on a transfer task than children who do not receive competency training.
   c. higher rule learning on a transfer task than children who do not receive competency training.
3. Children observing an optimistic model will show:
   a. higher self-efficacy on a transfer task than will children observing a pessimistic model.
   b. higher persistence on a transfer task than will children observing a pessimistic model.

The second set of hypotheses refers to the Delayed Transfer Phase. During delayed transfer testing, no feedback was provided.

4. Children receiving competency training and observing an optimistic model will show:

   a. higher self-efficacy on a delayed transfer task than children in any other condition.

   b. higher rule learning on a delayed transfer task than children in any other condition.

5. Children receiving competency training will show higher self-efficacy on a delayed transfer task than will children who do not receive competency training.

6. Children receiving optimism-no competency training will show:

   a. lower self-efficacy on a delayed transfer task than will children in the competency training-pessimism group.

   b. lower rule learning on a delayed transfer task than will children in the competency training-pessimism group.

CHAPTER II

Method

Subjects and Experimenter

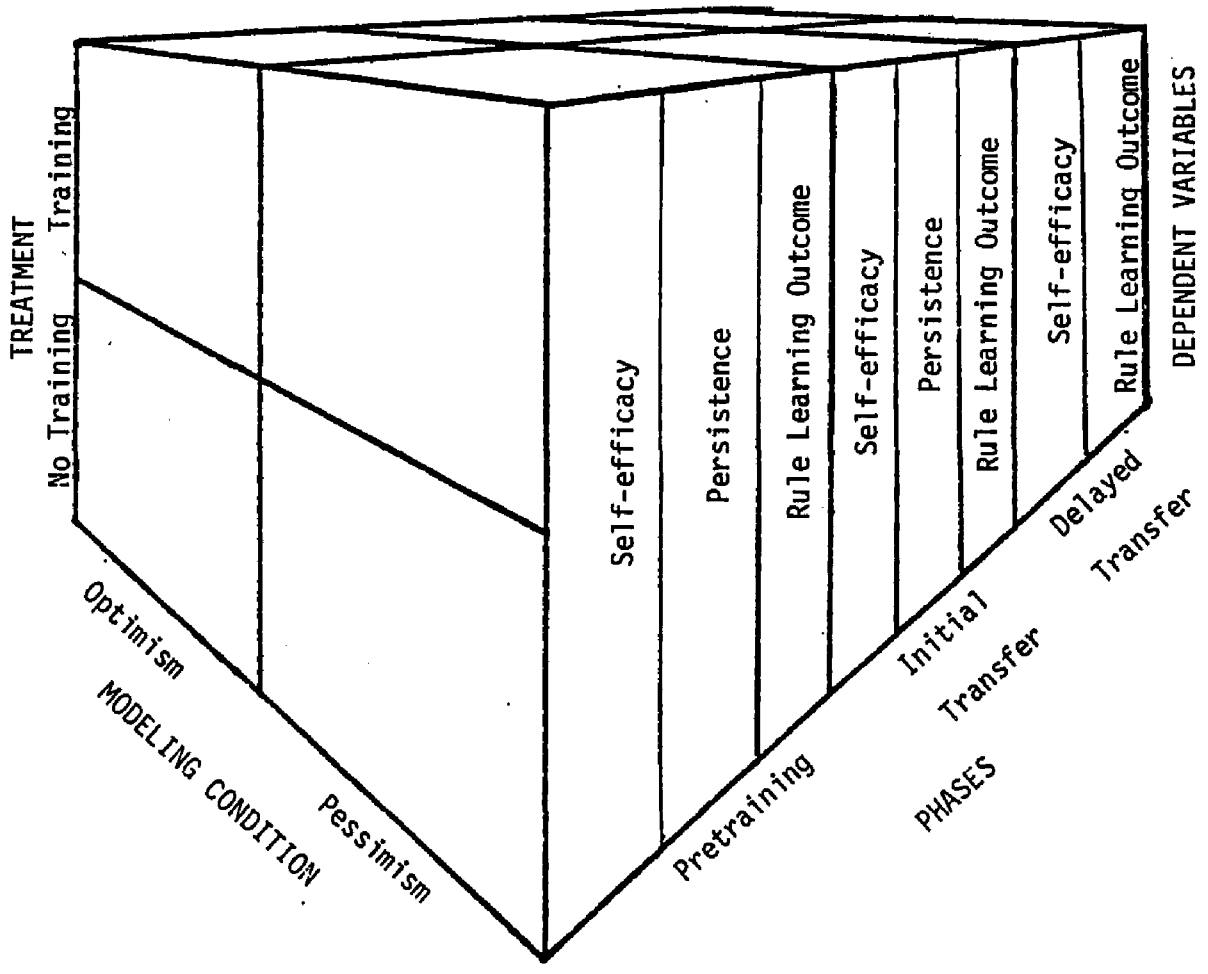
Subjects were 60 children of predominantly lower-middle class backgrounds, ranging in age from 8 years to 11 years 1 month, with a mean age of 9 years 8 months. There were 38 males and 22 females. Children were drawn from seven Catholic parochial schools. In the sample, six children were in the fifth grade, 52 were in the fourth grade, and two were repeating third grade. As an initial screening procedure for learned helplessness, teachers were asked to identify students in their classes who displayed gross deficits in reading and who exhibited low interest in reading-related activities. These children were further screened on the basis of their low scores on the state-wide Pupil Evaluation Program (PEP) examination. At the start of third grade they scored below a raw score of 20 on this first criterion. A third screening criterion involved their scores on the Science Research (SRA) reading subtest given during the spring to third grades throughout the archdiocese. These youngsters fell at or below grade equivalent scores of 2.5. Children who were below these criteria were included in the sample. Parental consent was obtained (Appendix D) for their participation in a training study. A female graduate student served as experimenter.

Design

The experimental design was a 2 x 2 factorial with the following independent variables: training condition with two levels (competency training or no training); and modeling judgments condition with two levels (optimism or pessimism). The dependent variables included:

FIGURE 2

Three-Dimensional Summary of Design



judgments of self-efficacy; persistence; and semantic rule learning outcomes. Data for these variables were collected during three separate phases of the study: pretraining, initial transfer, and delayed transfer. A summary of the design is presented in Figure 2.

Insert Figure 2 here

Measures

Helplessness. Children's helplessness in reading was assessed using two measures: a 14-item questionnaire completed by their teachers; and a seven-item questionnaire completed personally be each child. The teachers' questionnaire was adapted from one developed by Fowler and Peterson (1981). Teachers were asked to express how applicable each statement was with respect to a particular child. The higher the scale value, the greater the helplessness. A high congruence between self-report data and observed student helplessness was found in the Fowler and Peterson (1981) study. The items asked about the child's behaviors during reading; help-seeking behaviors; persistence in the face of difficulty; spontaneous enthusiasm during reading activities; pride in one's work; reactions to praise; attributions for achievement outcomes; and avoidance behaviors. This instrument is listed in Appendix E.

Before measuring the students' pretraining self-efficacy, children were given seven questions designed to assess their feelings of helplessness with respect to reading and related activities. Subjects were asked to indicate their confidence about various situations related to reading on a five-point scale. The higher the scale value, the greater the self-perceived helplessness. These questions asked how confident the subjects felt about the following: a) not knowing what

to do during a classroom reading assignment; b) being the only student who does not finish a classroom reading assignment; c) being called on to read aloud in class; d) never learning how to read; e) not being able to answer questions about a reading assignment; f) not recognizing new words when reading. Finally, g) they were asked to rate how often they had trouble concentrating on their reading. This instrument is presented in Appendix F.

Root Words

The experimenter trained each subject individually to define 10 root words with 80% accuracy. These root words were used throughout the study in conjunction with affixes and constituted the experimental tasks. These words were selected from teaching materials appropriate for use with regular fourth- and fifth-grade classes. Words selected from the sight and meaning vocabularies of the fourth grade were: use, help, connect, cook, heat, arrange, pack, play, taste, work. An additional six root words were used during the competency training and debriefing sessions only. These words were: joy, sorrow, cheer, place, trust, and do. These words and their definitions are listed in Appendix A.

Affixes

The experimental task involved learning and transfer of a prefix-suffix semantic rule. Six affixes that could combine with all ten root words were chosen. The affixes included three prefixes: un-, re-, and dis-; and three suffixes: -er, -ful, and -less. These affixes and their definitions are listed in Appendix B. They were presented to the subjects either as part of the competency training session or during the debriefing process.

The three stimulus lists used are similar in composition: the same ten root words and six affixes appeared on each list. The various combinations of these roots and affixes, however, makes each list distinctive. For example, heater means "a thing which provides or emits heat or warmth;" heatless means "cold; without any heat;" and reheat means "to make hot or warm again." The task of learning the semantic rules involved knowing: a) the meaning of the root words and affixes; and b) how addition of the affix altered the meaning of the root word. These lists are presented in Appendix C.

Self-Efficacy Judgments

A board was constructed to assess the children's self-efficacy. A moveable pointer enabled the children to indicate "how sure" they were about defining correctly the word shown. The pointer could be moved to one of five numbers on a scale ranging between two faces which depicted "very unsure" (scale value 1) and "positively sure" (scale value 5). The higher the scale value, the greater the children's perceived self-efficacy. This instrument is presented in Appendix H.

Procedure

Preassessment Phase

The experimenter escorted each subject to the room designated for their use. The experimenter and subject were seated at right angles to each other at the corner of a desk or table. The experimenter explained that the study was part of a project to learn how boys and girls learn to define words when they read. To minimize students' concerns about being evaluated, they were told that their answers would be confidential. Then the experimenter presented to the subject the helplessness questions. She read the following instructions to each subject:

> Your answers to the following questions will help us learn how boys and girls in the fourth and fifth grade feel about reading. Please answer the questions as honestly as you can. Circle the number which best describes your feelings. A circle around the number 1 means that you do not worry at all about that statement. A circle around the number 2 means that it worries you just a little. A circle around the number 3 means that you worry about it sometimes. A circle around the number 4 means that you worry about it more often. A circle around the number 5 means that you worry about it a lot or all the time.

The subject's understanding of the scale was then checked. When the subject completed the seven questions, the experimenter said,

> We will be looking at many words during the next few days. To make sure that we mean the same thing when we use these words, I would like to look at some of them with you now. Please tell me what each word means. I will tell you if you are right or not and then we will work on the words that gave you trouble.

Subjects were trained to a level of 80% accuracy on the ten root words. This criterion was achieved when the subject could define correctly the same eight (or more) words on two consecutive passes through the list of root words. During the Preassessment Phase, the experimenter gave feedback to each response the subjects made. If the response was correct, she said, "OK, that's correct." If the response was partially correct, she said, "Well, that's almost right. Do you want to try again or do you want me to tell you? If the response was not correct, she said, "No, that's not right. The word means _____. Now you say it. Can you use it in a sentence?" At the end of the Preassessment Phase the experimenter escorted the child back to the classroom. The next child was tested and trained in the same way.

Pretraining Phase

The Pretraining Phase was conducted on the next consecutive school day following the Preassessment Phase. The experimenter escorted each child to the room. They were seated at right angles to each other, the

subject to the left of the experimenter. This seating arrangement allowed for eye-contact and enabled the experimenter to handle the word cards with the least distraction to the children. When the experimenter brought the child into the room the cards were lying face-down on the table. She placed the self-efficacy board in front of the subject after they were seated and said,

> I am going to show you some words. I would like you to use this board to show how certain you are that you know the meaning of each word. Move the pointer to the number 1 if you are positive that you do not know what the word means. If you are very unsure of the meaning, move the pointer to the number 2. If you are just a little unsure of the meaning, move the pointer to the number 3. If you are pretty sure of the meaning, move the pointer to the number 4. If you are positive that you know what the word means, move the pointer to the number 5.

The experimenter then let the child practice moving the pointer and touching the board. This was done to minimize the novelty of the self-efficacy instrument. The experimenter gave the child the instructions for making self-efficacy judgments. She said:

> I am going to show you one card at a time. Please say the word you see on the card. Then use the arrow to show how sure you are about defining the word correctly. Are there any questions?

The experimenter then showed the child each word from the Pretraining Phase list (List 1), one-at-a-time, and recorded his or her estimate of self-efficacy for each word. This constituted the measure of Pretraining self-efficacy.

When all the words had been displayed and the child had indicated his or her judgment of self-efficacy for each, the experimenter said, "OK, now let's see what these words mean. This time, please tell me what you think the word means." The experimenter showed each word to the subject again. If the subject gave a correct response, the

experimenter said, "That's right," or "Good" and "Now let's go on to the next word." If the response was not correct she said, "No, that's not correct. Would you rather skip this word and go on to the next one or would you like to try again?" The experimenter recorded the number of attempts the subject made to define each word. This constituted the measure of Pretraining Phase persistence. The accuracy of each response was also recorded for each word on List 1. This constituted the measure of Pretraining Phase semantic rule learning outcome. At the end of the Pretraining Phase, subjects in the no-training condition were shown either the optimistic or pessimistic film, depending on assignment to experimental treatment groups. Children in the competency training condition were given explicit instruction in structural analysis and synthesis by the experimenter.

The experimenter and subject remained seated, the experimenter placed a legal-sized yellow pad in front of the child. She also placed two felt-tipped pens on the table. Then she said, "Some of the words on the list seemed to give you trouble. I want to show you something that might make it easier for you in the future to understand big words." The experimenter printed several words on the pad in front of the child. She said, "What do these words mean?" The words were: joy, sorrow, cheer, place, trust, and do. After the subject defined the words, the experimenter printed a suffix after each of these root words. The words became: joyful, sorrowful, cheerful, placer, truster, and doer. Again, the experimenter asked the subject to define the words. She gave the subject explicit instruction as to the meaning of each suffix and how adding it to a root word changed the meaning of the original word. Thus, the subject received explicit instruction in semantic rules for structural

analysis and synthesis. The experimenter introduced the third suffix: joyless, cheerless, and asked the subject, "Do you see how adding a suffix changed the meaning of these words? Did you notice that the suffixes -ful and -less have opposite meanings when they are added to a root word?" She repeated the semantic rule for morpheme analysis using prefixed words as examples: unjoyful, undo, replace, redo. She explicitly instructed the child about the meaning of these prefixes and what effect they had on the meaning of the root words. Then the experimenter asked the subject, "What does the word displace mean?" To illustrate the meaning of the prefix dis-, the experimenter used the example of five friends who play schoolyard basketball together every day. She said,

> Each has a place on the team until a new boy moves into the neighborhood. The new friend is fast, tall, and the best basketball player in the borough. There is room for only five boys on the team. Now there are six friends. One will have to sit on the bench. The one who sits on the bench does not have a place on the team any more. He lacks a place on the starting team. He has been displaced by the new boy on the block.

Then the experimenter asked the subject to explain distrust. If the subject did not say "lack of trust" the experimenter prompted the child to give the correct definition. At the conclusion of this prompting, the meaning of distrust was stated clearly. She used another story about "lost homework" and "someone who used to be your best friend" and how "you lack trust in him after he lost your homework." Also, the experimenter gave examples in which both a prefix and suffix had been added to a root word: distrustful, uncheerful. These were given to illustrate how the prefix and suffix could be used to discern the meaning of a word, even if the child was unsure of the meaning of the root alone. At the conculsion of the competency training session, subjects were

shown the appropriate modeling film, depending on their experimental group assignment. After viewing the film, the experimenter escorted each child back to the classroom. She reset the equipment and materials and called for the next child. Children in the competency training group were provided with explicit instruction in semantic rules for structural analysis and synthesis. They were trained with words not on any of the other lists. In the no-training condition, subjects received no instruction.

Children exposed to the optimistic model viewed a 90-second Polavision film of a peer model (an eleven-year old boy) giving optimistic responses to the self-efficacy instrument with words from the Transfer Phase list (List 2). Optimistic responses were operationalized as scale values of 4 ("pretty sure") and 5 ("positive" or "very sure"). The film showed the experimenter and model sitting across a small table with the word list cards, face-down in front of the experimenter. The self-efficacy board was in front of the model. Children saw only the arms of the experimenter and model from the elbows down, to focus attention on the modeling behavior and on the task. The film was synchronized with an audiocassette of the model verbalizing the scaled responses to each word displayed. The model pronounced each word as it was displayed and moved the pointer to the appropriate scale position as the experimenter replaced the card. Then the model verbalized how certain he was of correctly defining the word he had just seen. For example, the experimenter displayed the word "rearrange." The model said, "rearrange" and moved the pointer to position 4 on the scale. The experimenter replaced the card at the bottom of the deck. The model said, "I'm pretty sure that I know what that word means." The

experimenter said nothing. Words from the Transfer Phase list (List 2) were displayed in the same order in which they occurred in the Transfer Phase assessment.

Children exposed to the pessimistic model also viewed a 90-second Polavision film of the same peer model giving pessimistic responses to the self-efficacy instrument using words from the Transfer Phase list (List 2). Pessimistic responses were operationalized as scale values of 1 ("very unsure"), 2 ("pretty unsure"), and 3 ("not too sure"). The film was identical to the optimism film except that pessimistic responses were given to the words displayed. For example, the experimenter displayed the word "rearrange." The model said "rearrange" and moved the pointer to position 1 on the scale. The experimenter replaced the card in the deck. The model said, "I'm very unsure about that word. I don't know what it means." Words were displayed in the same order in which they occurred in the Transfer Phase assessment.

The four experimental groups were defined in terms of combinations of independent variables: treatment condition (competency training or no training) and modeling condition (optimism or pessimism). In the competency training and optimism condition, the experimenter provided subjects with explicit instruction and guided practice in learning and using a semantic rule relating to structural analysis and synthesis. Children in this group were exposed to an optimistic model. They viewed a film of a peer model responding to the self-efficacy instrument with optimistic judgments. Words from the Transfer Phase list were used in the film. In a competency training and pessimism condition, the experimenter provided subjects with explicit instruction and guided practice in learning a semantic rule for structural analysis. Children

in this condition were exposed to a pessimistic model. They viewed a film of a peer model responding to the self-efficacy instrument with pessimistic judgments. Words from the Transfer Phase list were used. In an optimism-only condition, subjects received no training. They viewed the film of the optimistic model. In a pessimism-only condition children received no training. They viewed a film of the pessimistic model.

Transfer Phase

The Transfer Phase occurred on the next consecutive school day following the Pretraining Phase. Procedures were identical to those used in the previous phase. As in the previous phase, feedback was given after each response the subject made. Data were collected for self-efficacy judgments, persistence, and semantic rule learning outcomes, relative to the subject's responses to words from the Transfer Phase list (List 2).

Delayed Transfer Phase

The final, Delayed Transfer Phase occurred on the next consecutive school day following the Transfer Phase session. Children were given words from the Delayed Transfer Phase list (List 3) without feedback to measure their retention of the semantic rules. Procedures for administering the self-efficacy instrument were identical with those used in the previous phases of the study. Self-efficacy judgments were also recorded in the same manner as in the earlier phases. Children were not given feedback about the accuracy of their responses during this phase of the study. This was done to permit examination of the retention of the semantic rule learning and to provide further evidence for the transfer of learning across phases. Because no feedback was given, no

persistence data could be collected during this final experimental phase. Following self-efficacy assessments, the experimenter said, "Let's see if you can go straight through the list of words this time." She then showed the child each word on List 3. When the child responded to the word, no feedback was given. Rather, the experimenter made neutral verbalizations, such as "umm" or "next." When the child's accuracy had been recorded for all ten words on the Delayed Transfer list (List 3) the debriefing sessions began.

Debriefing

During debriefing, children in the no-competency training group were provided with instruction on the prefix-suffix semantic rule and how to apply this rule to regular reading assignments. Children in the competency training group were provided with a review of the prefix-suffix rule application. If the child had any questions, the experimenter answered them. Children were thanked for their help and given silver stickers (Appendix G) for their participation in the study. After debriefing, the experimenter returned the children to the classroom.

Scoring

Measures of self-efficacy for each phase were obtained by summing the efficacy judgments for all ten words on each stimulus list. Similarly, measures of persistence were obtained by summing the number of attempts at definition made for all words on each list. (Only two persistence measures were obtained since no feedback was given during the Delayed Transfer Phase of the study.) Outcome accuracy of rule learning was obtained by summing the correct responses for each list after each phase. Separate measures of helplessness were obtained by: a) summing the responses children made to the seven-item scale of

self-reported helplessness; and b) summing the teachers' responses to the 14-item helplessness rating scale.

CHAPTER III

Results

Main Analysis

The three dependent variables were analyzed using analysis of variance procedures.[1] Separate analyses of variance were conducted for each experimental phase because hypotheses were advanced for within-phase differences. Data from semantic rule learning outcomes for both transfer and delayed transfer phases were analyzed using two separate 2 x 2 (for two instruction conditions: competency training/no training and two modeling conditions: optimism/pessimism) analyses of variance. Self-efficacy data were analyzed using the same types of analyses. A single 2 x 2 analysis of variance model was used to analyze persistence data from the Transfer Phase. Phase-specific *t*-tests were conducted to test specific hypotheses concerning self-efficacy judgments. The dependent variable means (and standard deviations), by phase, are presented in Table 1.

Analyses of Transfer Phase data revealed a significant main effect for treatment condition, F (1,59) = 13.19, $p < .001$. Children who received competency training scored higher on semantic rule learning (M = 8.77) than did those who did not receive training (M = 7.17). This effect accounted for almost 19% of the variance. The optimism main effect and optimism x training interaction did not prove significant.

Analysis of Delayed Transfer Phase data also revealed a significant main effect for treatment conditions, F (1,59) = 5.95, $p < .02$. Children

[1]There were no reliable differences due to sex on any of the pretreatment or posttreatment measures; therefore, the data were pooled for subsequent analyses.

Table 1

Dependent Variables by Phase: Means (and Standard Deviations)

Treatment Group*	Pretraining		
	Rule Learning Outcome	Self-efficacy	Persistence
Competency Training and Optimism	5.93 (1.98)	40.53 (4.02)	12.67 (2.47)
Compentency Training and Pessimism	5.93 (1.76)	36.47 (5.46)	12.33 (3.58)
Optimism Only	5.67 (1.59)	38.73 (5.79)	12.0 (4.82)
Pessimism Only	5.40 (1.80)	38.67 (8.02)	12.13 (4.34)

* N = 60; n = 15

Table I (cont'd)

Dependent Variables by Phase: Means (and Standard Deviations)

Treatment Group*	Initial Transfer		
	Rule Learning Outcome	Self-efficacy	Persistence
Competency Training and Optimism	9.0 (1.00)	41.93 (5.11)	13.87 (5.10)
Compentency Training and Pessimism	8.53 (1.60)	38.67 (6.66)	14.60 (6.13)
Optimism Only	7.0 (1.81)	39.53 (6.30)	14.40 (5.96)
Pessimism Only	7.33 (2.19)	37.87 (6.89)	15.73 (5.87)

* N = 60; n = 15

Table 1 (cont'd)

Dependent Variables by Phase: Means (and Standard Deviations)

Treatment Groups*	Delayed Transfer	
	Rule Learning Outcome	Self-efficacy
Compentency Training and Optimism	7.27 (2.15)	43.13 (5..34)
Compentency Training and Pessimism	7.33 (1.99)	35.73 (6.45)
Optimism Only	6.33 (1.59)	39.73 (7.64)
Pessimism Only	5.80 (2.08)	38.80 (7.20)

* N = 60; n = 15

who received competency training scored significantly higher in semantic rule learning ($\underline{M}$ = 7.30) than did those who did not receive training ($\underline{M}$ = 6.07). The training main effect accounted for almost 10% of the Delayed Transfer Phase variance. No other main effect and no interactions were significant for semantic rule learning during delayed transfer testing.

A significant main effect for modeling condition was found for self-efficacy during the Delayed Transfer Phase, $\underline{F}$ (1,59) = 5.77, $\underline{p} < .02$. Children who observed the optimistic model gave significantly higher self-efficacy estimates ($\underline{M}$ = 41.43) than did youngsters who observed the pessimistic model ($\underline{M}$ = 37.27). The modeling effect accounted for 9% of the variation in self-efficacy during delayed transfer testing. Means for self-efficacy from pretraining through delayed transfer are presented in Table 2. No other main effects and no interaction effects for self-efficacy attained statistical significance.

An effort was made to examine the reliability and validity of the self-efficacy measures used in the present study. The reliability of these measures was assessed using coefficient alpha (Cronbach, 1970). The obtained coefficients were .67 for pretesting, .74 for transfer, and .80 for delayed transfer testing.

The validity of the self-efficacy measures was assessed using the following analysis. Self-efficacy judgments for correctly defined words were compared to those given for incorrect or incomplete responses for all children. This was performed separately for each phase-specific stimulus list and results of the correlated $\underline{t}$-tests are presented in Table 3. Analyses revealed that for all phases, self-efficacy judgments

Table 2

Self-efficacy Means (and Standard Deviations)

by Phase by Modeling Condition

Modeling Condition	Phases		
	Pretraining	Transfer	Delayed Transfer
Optimism	39.63	40.73	41.43
	(4.98)	(5.77)	(6.70)
Pessimism	37.57	38.27	37.37
	(6.84)	(6.67)	(6.90)

Table 3

Correlated t-tests for Efficacy and

Rule Learning Outcomes

	Mean Self-efficacy Judgments		
Phase	Correct Answer	Wrong Answer	t-test[a]
Pretraining	4.15	3.54	4.60*
Transfer	4.07	2.70	5.57*
Delayed Transfer	4.22	3.09	7.16*

[a] N = 60
* $p < .01$

given for correct answers were significantly higher than for incorrect answers.

The persistence, or number of attempts the children made to get the correct definition during assessment was analyzed using a 2 x 2 analysis of variance model. This analysis failed to reveal any significant main effects or interactions.

Data from two formal measures of helplessness (the Helplessness Rating Scale completed by teachers, and the Children's Self-Reported Helplessness Scale) failed to confirm the teachers' initial characterization of subjects as helpless. The reliability of the Helplessness Rating Scale was assessed using Cronbach's alpha statistic. The obtained coefficient was very high, .97. These data are presented in Table 4. Average scale values so close to 1 ("does not apply at all") indicated that the teachers did not judge these children as helpless in reading. This outcome was puzzling because of extensive evidence in school records of the children's repeated failure in reading and their low scores on objective reading tests, and because it contradicted informal initial teacher judgments of the children. In view of these anomalous and benign teachers' ratings, further analyses of these data would have been pointless.

Children's self-reported feelings of helplessness (Children's Self-Reported Helplessness Scale) did not provide much evidence for characterizing subjects as helpless in reading. Responses to the seven questions about self-perceived helplessness are summarized in Table 5. The children reported helplessness values near the mid-point ($\underline{M}$ = 2.76) of the five-point scale, indicating that they only "worried sometimes" about the statement presented to them. However, responses to items

Table 4

Helplessness Rating Scale for Teachers[a]

Item Content	Mean Response[b]
1. Child acts passive at start of reading activities	1.60
2. Teacher must get child started in reading activities	1.50
3. Child makes only half-hearted attempts at reading and does not believe that he/she will succeed	1.62
4. Child becomes easily discouraged and quits trying in the face of difficulty during reading	1.83
5. Child does not ask for help if he/she meets obstacles in reading.	1.95
6. If reading task goes poorly, child becomes disruptive	1.48
7. If reading task goes poorly, child withdraws	1.90
8. Child does not show reading work to teacher spontaneously	1.82
9. Child does not show enthusiasm or pride during or about reading	1.75
10. Praise makes child uncomfortable or tense	1.17
11. Child does not respond to praise	1.37
12. Child attributes failure to ability, not effort	1.53
13. Child attributes success to external factor, not ability or effort	1.28
14. Child does just enough work in reading to avoid punishment, rather than to succeed in reading	1.85

[a] Scale values ranged between 1 ("does not apply at all") to 5 ("very applicable")

[b] N = 60

Table 5

Children's Self-reported Helplessness Scale[a]

Item	Content	Mean Response[b]
1.	Worried about not knowing what to do during in-class reading assignment	2.53
2.	Worried that all others in class will finish work but he/she will not finish	2.48
3.	Worried about reading aloud to class	2.15
4.	Worried about never learning how to read	3.12
5.	Worried about not being able to answer questions about a reading assignment	2.92
6.	Worried about not recognizing new words while reading	3.01
7.	Problems concentrating during reading	3.03

[a] Scale values ranged between 1 ("not at all") and 5 ("all the time")

[b] N = 60

assessing worry about: not learning how to read; inability to answer questions based on the reading assignments; and difficulty in recognizing new words were slightly higher indicating that children in the sample had greater doubts about their ability to read than in other areas. The Children's Self-Reported Helplessness Scale's reliability was assessed using coefficient alpha (Cronbach, 1970). A coefficient of .59 was obtained.

Correlational Analyses

Pearson correlations were calculated for all dependent variables across phases, and for subjects' objective test scores in reading, and self-reported helplessness. These correlations are presented in Table 6. With respect to subjects' prior achievement, raw scores on the Pupil Evaluation Program (PEP) examination in reading were significantly related to their grade equivalent scores on the reading subtest of the Science Research Associates (SRA) examination, $r = .51$, $p < .01$. PEP scores were inversely related to persistence across the Pretraining and Initial Transfer Phases ($r = -.20$, $p < .08$, and $r = -.30$, $p < .01$, respectively). PEP scores were positively related to both Initial and Delayed Transfer Phase rule learning outcomes ($r = .20$, $p < .06$, and $r = .27$, $p < .02$, respectively). PEP scores were positively related to children's initial self-efficacy judgments, $r = .28$, $p < .02$. SRA grade equivalents were inversely related to both persistence measures, $r = -.25$, $p < .03$, and $r = -.38$, $p < .01$, respectively. Suprisingly, SRA scores and self-reported helplessness were positively related, $r = .27$, $p < .02$.

Table 6

Pearson Correlations Among Dependent Measures[a]

Variables	PEP	SRA	LH	PSE	T1SE	T2SE	PPR	TPR	PO	T1O	T2O
Pupil Evaluation Program Exam (PEP)		.51*	-.06	.28*	-.05	.01	-.20'	-.30*	.03	.20'	.27*
Science Research Associates Exam (SRA)			.27*	.10	.08	-.04	-.25*	-.38*	-.13	-.01	.10
Helplessness (LH)				-.24*	-.11	-.24*	-.20'	.04	-.28*	-.20'	-.02
Pretraining Self-efficacy (PSE)					.57*	.60*	.31*	.07	.35*	.06	.11
Initial Transfer Self-efficacy (T1SE)						.79*	.27*	-.02	.24*	.16	-.01
Delayed Transfer Self-efficacy (T2SE)							.39*	-.02	.33*	.29*	.06
Pretraining Persistence (PPR)								.48*	.04	.01	-.08
Transfer Persistence (TPR)									-.24*	-.35*	-.17'
Pretraining Rule Learning Outcome (PO)										.37*	.35*
Initial Transfer Rule Learning Outcome (T1O)											.33*
Delayed Transfer Rule Learning Outcome (T2O)											

[a] N = 60

* $p < .05$

' $p < .10$

Self-reported helplessness was negatively related to almost all of the other variables in the study. (Only negative correlations attained statistical significance.) Of some interest were identical correlations obtained between measurers of self-reported helplessness and phase-specific self-efficacy measures. Both Pretraining and Delayed Transfer Phase self-efficacy were inversely related to the measure of self-reported helplessness, $\underline{r} = -.24$, $\underline{p} < .03$. These negative correlations suggest that subjects who perceived themselves as able to define words on these phase-specific lists did not perceive themselves as helpless prior to any experimental manipulations. Surprisingly, self-reported helplessness was inversely related to Pretraining persistence, $\underline{r} = -20$, $\underline{p} < .07$. Negative correlations between self-reported helplessness and rule learning outcome measures suggest that subjects who did not perceive themselves as helpless initially were able to define words from the Pretraining ($\underline{r} = -.28$, $\underline{p} < .06$) and initial transfer ($\underline{r} = -.20$, $\underline{p} < .06$) Phase lists. Feedback was provided to their responses to these word lists and might, therefore, explain why the negative correlation between self-reported helplessness and the Delayed Transfer Phase outcome measure did not attain statistical significance.

With respect to the dependent variables, measures of self-efficacy were significantly related across phases: Pretraining and Initial Transfer Phase self-efficacy, $\underline{r} = .57$, $\underline{p} < .01$; Pretraining and Delayed Transfer Phase self-efficacy, $\underline{r} = .60$, $\underline{p} < .01$; and Initial and Delayed Transfer Phase self-efficacy, $\underline{r} = .79$, $\underline{p} < .01$. Pretraining and Initial Transfer Phase persistence were also significantly related, $\underline{r} = .48$, $\underline{p} < .01$. Rule learning outcome measures were significantly related acorss phases: Pretraining and Initial Transfer Phase outcomes, $\underline{r} = .37$, $p < .01$;

Pretraining and Delayed Transfer Phase outcomes, $r = .35$, $p < .01$; Initial and Delayed Transfer Phase outcomes, $r = .33$, $p < .01$.

Several dependent variables were significantly related both across phases and between phases and between variables as well. Pretraining self-efficacy was related to Pretraining persistence, $r = .31$, $p < .01$. Pretraining self-efficacy was also related to Pretraining learning outcome, $r = .35$, $p < .01$. Initial Transfer Phase self-efficacy and Pretraining Phase persistence were related, $r = .27$, $p < .02$. Pretraining learning outcome and Initial Transfer Phase self-efficacy were related, $r = .24$, $p < .04$. Delayed Transfer self-efficacy was related to Pretraining persistence, $r = .39$, $p < .01$. Also, Delayed Transfer Phase self-efficacy was related to both Pretraining and Initial Phase learning outcome measures, $r = .33$, $p < .01$ and $r = .29$, $p < .01$, respectively. Initial Transfer persistence was inversely related to Pretraining Phase outcome, $r = .17$, $p < .10$. Initial Transfer persistence and outcome measures were also inversely related, $r = -.35$, $p < .01$. These correlations suggest the nature of the relationship between self-efficacy and achievement. Also, these correlations indicate an inverse relationship between persistence and achievement. This inverse relationship suggests that the relationship between self-efficacy and persistence may not be linear.

Conclusions

Specific hypotheses were advanced for each phase of the study. It was predicted that children receiving competency training and observing an optimistic model would show higher self-efficacy, semantic rule learning, and persistence on an initial transfer task (with feedback) than

would children receiving either treatment separately. These hypotheses were not supported by the data. No interaction effects proved to be statistically significant during initial Transfer Phase testing for any of the dependent variables.

It was also expected that children receiving competency training would show higher self-efficacy, rule learning, and persistence on an initial transfer task than would children in either modeling condition. Only one of these hypotheses was supported; a significant main effect for treatment condition was obtained. Children who received competency training scored higher on semantic rule learning outcome measures than did their untrained peers. No training effects were obtained on self-efficacy or persistence measures.

Children viewing the optimistic model were expected to show higher self-efficacy and persistence (but not necessarily rule learning) on an initial transfer task than children receiving only pessimism. The data did not provide support for the hypothesized modeling effect during the Initial Transfer Phase.

For the Delayed Transfer Phase, it was anticipated that children receiving competency training and optimism would show higher self-efficacy and rule learning on the delayed transfer task (without feedback) than would children receiving either treatment separately. The hypothesized interaction between competency training and modeling did not attain statistical significance.

Also, children receiving competency training were expected to show higher self-efficacy on a delayed transfer task than were children in either modeling condition. This hypothesized treatment effect for self-efficacy was not supported by the data. However, analyses revealed

a significant training effect on rule learning. Children who received competency training scored significantly higher on a delayed transfer task than their untrained peers, irrespective of the modeling condition.

Finally, children receiving only optimism were expected to show lower self-efficacy and rule learning on a delayed transfer task than the children who received competency training. This predicted effect was not supported by the data. Rather, the children who observed the optimistic model gave significantly higher self-efficacy estimates than those who viewed the pessimistic model, irrespective of treatment condition. Predictions concerning rule learning outcomes did not attain statistical significance.

CHAPTER IV

Discussion

Semantic Rule Learning

The present results indicate that training children in rules of word structure analysis and morpheme synthesis was effective even though the children had previously experienced repeated failure in reading. Moreover, these performance gains were found to transfer to novel word stems and affix combinations after two days. Thus, the results provide some evidence for the delayed transfer of prefix-suffix rule learning.

These results, although statistically reliable, did not reflect a numerically substantial change in definition skill. Performance levels of trained and untrained children were separated only by approximately one point. The small differences indicated the relatively high levels of skill by untrained children. Since there was little evidence of ceiling effects, the small differences indicate that more extensive training was needed to bring the younsters to mastery of the prefix-suffix rule.

Self-efficacy Judgments

None of the predictions regarding self-efficacy were supported. However, a significant main effect for modeling condition (optimism/pessimism) was obtained during Delayed Transfer Phase testing. Children exposed to an optimistic model gave significantly higher self-efficacy judgments than did those exposed to a pessimistic model. An examination of the means for the optimism and pessimism treatment groups from pretraining through delayed transfer revealed that exposure to an optimistic model produced consistent improvements in children's self-efficacy judgments. These nonsignificant improvements occurred during

initial transfer testing despite feedback to the children regarding their successes. During delayed transfer testing when no feedback was given, these differences in self-efficacy attained statistical significance. These results imply that modeled self-efficacy judgments and some degree of personal experience on the task can alter an observer's self-efficacy beliefs.

The construct of self-efficacy is closely related to the construct of causal attributions (Stipek and Weisz, 1981). As was discussed earlier, self-efficacy refers to a person's expectations of control over outcomes of future events. Attribution theory is related to a person's perception of control over a past event. According to this approach, people who judge outcomes as determined by controllable internal forces are likely to be motivated to perform in that situation in the future. Bandura has noted that one's own performance attributions concerning past experiences should be related to self-efficacy judgments of future events. In the present study, the children's self-efficacy judgments appeared to have influenced the children's interpretation of their feedback during the initial transfer phase. Children exposed to the optimistic model increased their self-efficacy judgments from initial to delayed transfer phases; whereas children exposed to the pessimistic model decreased their self-efficacy judgments between these two phases. Although no causal attribution data were collected in the present study, it would appear that modeled optimism influenced the children's causal attributions of their feedback during the initial transfer phase. This interpretation receives support by the fact that significant differences in modeled self-efficacy emerged after the children performed during initial transfer (self-efficacy increased before delayed transfer).

Another possible explanation for the observed results might be that aversive forms of feedback such as criticism were not used. Students were simply told that their answer was incorrect. This factor might have reduced potential differences in feelings of helplessness between groups and could explain why optimism was sustained by the no-competency training group.

A more plausible explanation, however, involves the self-efficacy measure. Children's initial self-efficacy judgments were uniformly high, between three ("somewhat sure") and four ("pretty sure") on a five-point scale. Such optimistic judgments were unrealistic given middle levels of semantic rule functioning. Such ceiling effects reduced the potential for improvements in self-efficacy. Zimmerman and Ringle (1981) reported that subjects in their study also gave very optimistic judgments. These outcomes "obviated a statistical test of the relationship between self-efficacy and persistence in problem solving" (p. 492). Bandura and Schunk (1981) discussed the possibility that "incongruities between perceived self-efficacy and action" might reflect misrepresented task demands as well as lack of skills or knowledge (p. 595). They remarked that it was not surprising that some subjects overestimated their capabilities, especially when the task appeared simple. This finding raises the question of whether children can make accurate self-referent judgments about efficacy without some form of pretraining. Self-efficacy judgments apparently do not veridically reflect past performance, as Bandura (1982) has noted. He argued that they reflect the results of an inferential process based on attributions of importance to personal and situational factors which accompany performance.

In an effort to examine the validity of the self-efficacy scale in the present study, the children's self-efficacy judgments for correct definitions were compared to judgments for incorrect definitions. These analyses did indicate some degree of validity for the children's self-efficacy judgments as was expected. Correct definitions were accorded higher self-efficacy judgments than incorrect definitions. These differences were, however, quite small. This analysis shows that the self-efficacy measures were valid according to relative criterion but not according to an absolute criterion. These self-efficacy data indicated that the children did not experience helplessness to any substantial degree.

Learned Helplessness

In recent research on academic achievement, learned helplessness has been described as emerging from a history of poor achievement, negative outcomes, and attributional patterns to personal inability (Butkowsky & Willows, 1980; Fowler & Peterson, 1981; Johnson, 1981). The present study attempted to define helplessness as resulting from: a learning history of nonreward or punishment; beliefs of personal inadequacy and futility; and a lack of requisite task-related skills. Both objective and self-report data failed to support initial characterizations of these children as helpless in reading. Only scores from standardized tests documented the children's inability to read at grade level.

The results suggest that the teachers' ratings were skewed in a direction different from the children's self-reported helplessness. Children reported feeling worried about reading and related activities "sometimes;" teachers, however, did not rate these children as helpless

in similar activities related to reading. Teachers' responses to the helplessness rating scale fell below a value of two. This indicated very little perception of helplessness in their students' reading. Post-experimental conversations with teachers revealed one reason for the disparity of teachers' informal and formal assessment of students as helpless. The teachers admitted to reluctance in formally describing their children as "helpless." The children's self-report data generally also failed to reveal significant feelings of helplessness in reading.

Task-specific questions dealing with self-efficacy elicited the same pattern of overly optimistic responses as did the more general helplessness questions. Apparently, subjects did not consider themselves as inept in prefix-suffix rule use despite their repeated failures in reading, and their willing participation in the study which was depicted in part as providing tutorial or instructional help for poor readers. A question must be raised involving how widespread feelings of (learned) helplessness are and in which specific subareas of reading they occur most often. Dweck (1975) selected a sample of only 12 subjects from a pool of 750 children. (It is possible that a profound level of helplessness is not found among parochial school children because of the entrance selection requirements.) It appears that profound cases of learned helplessness, so vividly described in the literature, are not widespread. Clearly, the children involved in the present study did not hold pessimistic beliefs about their ability to define words, and therefore, did not demonstrate the self-fulfilling consequences of helplessness.

Persistence

Another disappointing aspect of the results was the lack of findings with respect to persistence. Despite the findings of Zimmerman and Ringle (1981) that a model's verbal statements of confidence (self-efficacy judgments) affected children's persistence more than did the actual modeled behavior of the task, the present results indicate that persistence data are not always a linear function of self-efficacy or intellectual competence. This position is supported by research conducted by Zimmerman and Martinez (1983). They found a negative relationship between children's persistence and their measured intelligence on an unsolvable task. They concluded that highly intellectually competent individuals do not blindly persist on a problem solving task but instead discontinue if their hypotheses do not yield positive outcomes.

A reason for the lack of consistent correlation between self-efficacy measures and task persistence on solvable problem solving tasks was revealed in a study by Bandura and Schunk (1981). They concluded that children who gain high self-efficacy through mathematics skill acquisition solve problems readily and do not need to spend much time on each problem. This outcome, of course, lowers their persistence score. It is possible that children who doubt their capabilities may quite sooner than those who believe that they can master a task. Conversely, they may persist extraordinarily long, distrusting the outcomes due to their insecurity about making personal competence judgments. This analysis suggests that persistence measures may be a much more complex measure of motivation than initially believed.

Summary

There have been relatively few studies of the relationship between self-efficacy judgments and learning (Bandura & Schunk, 1981; Zimmerman & Ringle, 1981). In the present study, competency training led to small increases in performance on immediate and delayed transfer tasks, but not to reliable changes in self-efficacy judgments. The magnitude of the improvement in semantic rule use was not very large and this may have undermined efforts to test validly a self-efficacy hypothesis. It appears that valid self-efficacy assessment with young children may require some form of specific scale-related instruction. To date, much self-efficacy research on young children seems to have been contaminated by their systematic overestimation.

Vicarious exposure to an optimistic model affected children's self-efficacy judgments. Zimmerman and Ringle (1981) found that exposure to a confident model significantly affected young children's self-efficacy estimates as well as their persistence. They found that observation of a confident (i.e., optimistic) model persisting for a short duration produced significantly higher self-efficacy estimates on similar and transfer tasks. In the present study, children who observed an optimistic model gave significantly higher self-efficacy judgments than did those who saw a pessimistic model perform. Thus, the results provide some support for the findings reported by Zimmerman and Ringle (1981), that children's self-efficacy could be influenced by observational learning. Moreover, the present results indicate that this influence can emerge after a delay between children's exposure to an optimistic model and their subsequent self-efficacy judgments.

There was no support, however for self-efficacy hypotheses concerning increased persistence. In fact, persistence was found to be inversely related to both efficacy and learning outcome measures in the present study. In prior research, the use of persistence measures has yielded equivocal results which indicate that reconceptualization is needed regarding the use of these measures.

Children who were characterized as helpless in reading and who expressed moderate self-reported helplessness gave significantly higher self-efficacy estimates after exposure to an optimistic peer model. The observed differences in efficacy judgments however, were small. Thus, they provide limited support for vicarious alleviation of certain helplessness symptoms through the observation of an optimistic peer model. Formal assessment of children by their teachers did not support their initial, informal judgments of the children as helpless.

Considered with the children's moderate self-reported helplessness, failure to support initial characterization of subjects as truly helpless undercuts the validity of the study as a test of hypotheses involving helplessness. In future research, larger training effects are required to test self-efficacy hypotheses. These may be achieved by redesign of the training and testing tasks, or by selection of larger samples of more severely disabled children as subjects. To ensure that subjects are adequately classified as disabled, teachers may have to be given more assistance to accurately evaluate their students. Also, little social learning research has focused on remediating helplessness in children identified as helpless by self-report data.

It was difficult to ensure optimal conditions in the present study: persistence measures did not assess children's motivation; severe forms

of helplessness were not as prevalent as originally thought; and young children tended to overestimate their efficacy to perform. Despite the conditions, competency training produced performance changes, and there is reason to expect that the procedure can work in future research. The present study does offer a basis for improving the procedures for future studies. Self-efficacy beliefs and helplessness are legitimate educational concerns and deserve the attention of future research efforts.

Educational Implications

Despite its limitations, this study has important implications for the field of education. The challenge to educators involves providing children with strategies for making realistic, accurate assessments of their own efficacy. Children may need to learn how to assess which tasks they can perform, and to differentiate between problems that are unsolvable and problems that they do not yet have the skills to solve. Children can be taught how to make these different types of judgments. Results of this and previous research suggest that children's efficacy judgments can be guided by the example of adults and peers. Also, observational learning can affect groups as well as individual learners. The provision of valid statements of confidence during instruction can provide learners with the example they need to make accurate self-referent assessments. Also, providing children with time to assimilate a model's optimism or to authenticate their own competence through direct performance attainments can improve the accuracy of their self-efficacy judgments.

Another implication concerns skill acquisition. According to self-efficacy theory, self-efficacy belief change along will not sustain

behavioral changes; the development of constituent competencies is also needed.

Persistence may not be an accurate measure of motivation. The relationship between persisting behavior and the motivation construct is probably more complex than indicated by this and current research. Teachers should understand that telling children to "try harder" or "try again" can be counterproductive and self-defeating in some circumstances. Continued perseveration in their use of a poor strategy is unwise. Varied performance or alternatives in goals is preferable. When children can make accurate appraisals of their competencies and task demands, persistence is less likely and less desirable as a psychological outcome.

In practical terms, children need accurate knowledge of their capabilities to perform successfully in school. They should spend enough time on achievement-related activities to develop requisite skills and accurate self-efficacy beliefs. Self-judgment rules can be influenced by what children observe in class. They are susceptible to influences from both peers' and adults' verbal and nonverbal behaviors. Children who erroniously doubt their efficacy will succumb to the self-fulfilling consequences of their negative beliefs. Such children need enactive experiences to confirm their potential to learn and their essential competence. Interventions should consider both facets of the problem accompanying academic failure--children's actual capabilities and their self-referent beliefs. The role of observational learning in developing accurate self-efficacy beliefs warrants further consideration.

APPENDIX A

Root Words

Preassessment List

USE	to put into service for a purpose as an instrument or material
HELP	to make easier for another person; to do part of another person's work
CONNECT	to join or be joined together
COOK	to prepare food for eating by using heat
HEAT	a sensation of hotness or warmth; to emit warmth
ARRANGE	to put into a certain order; to adjust; to form plans
PACK	to put things or objects into a container for transport or storage
PLAY	to participate in a game; to have fun
TAST	to discover or test the flavor of something by putting it in one's mouth
WORK	to make mental or physical effort towards a goal

Compentency Training List

JOY	a deep emotion of pleasure or great happiness
SORROW	a deep feeling of grief or sadness
CHEER	a feeling of gladness
PLACE	a particular area on a surface, a position; to put into a particular position
DO	to act or perform a work, duty, job
TRUST	to believe in the reliability, truth, or strength of a person or thing; confidence

APPENDIX B

Affixes

Prefix List

re-	again
un-	not
dis-	lack of

Suffix List

-er	one who performs an action or function named by the root
-ful	full of; a lot of
-less	none; without any

APPENDIX C

Stimulus Lists

Pretraining Phase - List 1

USEFUL	able to produce good results; able to do the work; having many functions
HELPER	a person who makes it easier for another person; an assistant
RECONNECT	to join or put together again
COOKLESS	without cooking or heating food for a meal
ARRANGER	someone who puts things in order; someone who makes plans
UNPACK	to take things out of a container or storage
REPLAY	to play a game or recording over again
DISTASTE	a lack of taste; a lack of flavor
WORKLESS	without effort; without work
HEATER	a thing which provides or emits heat or warmth

APPENDIX C (cont'd)

Stimulus Lists

Initial Transfer Phase - List 2

PLAYER	a person who takes part in a game or plays a musical instrument
TASTEFUL	having good taste; full of flavor
REARRANGE	to put things in order again; to put things in a different order
COOKER	a thing used to prepare food in; a person who cooks
DISCONNECT	to break or sever the connection; to take apart; lack of connection
USELESS	serving no purpose, without purpose; good for nothing
WORKER	a person who expends energy or effort for a purpose; a person who has a job
REPACK	to put things into a container or storage again
UNHELPFUL	not giving help; useless
HEATLESS	cold; without heat

APPENDIX C (cont'd)

Stimulus Lists

Delayed Transfer Phase - List 3

PLAYFUL	full of fun
DISARRANGE	lack of order
CONNECTER	a person or thing that joins other things together
TASTELESS	having no flavor; showing poor taste
RECOOK	to prepare food again by heating it (again)
HELPLESS	needing help or assistance; without aid
DISUSE	lack of use
REHEAT	to make hot or warm again
PACKER	a person who puts things into a container or storage
REWORK	to do something again to get a different result; to do a job over again

APPENDIX D

Parental Consent Form

Dear Parent:

We would like to include your child in a very brief (one week) and new tutorial project in Reading, designed to correct some basic problems in vocabulary development. Students selected to participate in this project should learn a very basic skill to help them understand new words. By participating in this Reading project, students are also expected to feel better about themselves and their chances for success in Reading and related activities.

While information will be collected to assess improvement in your child's performance, this information will be used only for diagnostic purposes and will not become part of your child's school record.

The Archdiocese has given permission for this project but it is not part of the regular school program so we are requesting your permission to include your child in the group of students who will receive the individualized tutoring.

Please return this consent form tomorrow. Thank you for your cooperation.

I give permission for _____to participate in the project.

_____ _____

(signature) (date)

APPENDIX E

Helplessness Rating Scale for Teachers

Suppose you give your entire class reading exercises. Assume that you offer "good reader awards" to those who work diligently and that you make sure that each child receives tasks that are suited to his or her level of ability.

CIRCLE the number which best indicates the way you think that _____(name of child) would behave during the reading activity. A circle around number "1" means that the statement is not at all applicable. A circle around number "2" means that it is a little applicable. A circle around number "3" means that it is somewhat applicable. A circle around number "4" means that it is more applicable. A circle around number "5" means that the statement is very applicable to the child's behavior during reading. Please feel free to comment at any point.

	How Applicable is the Statement?				
	Not at All	A Little	Somewhat	More	A Lot
1. Instead of beginning the reading exercises immediately, the child will just sit there and make no attempt to begin work.	1	2	3	4	5
2. The child will not begin until you (the teacher) intervene to help him or her get started	1	2	3	4	5

APPENDIX E (cont'd)

Helplessness Rating Scale for Teachers

	How Applicable is the Statement?				
	Not at All	A Little	Somewhat	More	A Lot
3. When the child does begin to read, the attempt appears half-hearted, as though he or she doesn't believe he or she could ever win an award.	1	2	3	4	5
4. If the child encounters any obstacle in reading, he or she will get very discouraged and stop trying.	1	2	3	4	5
5. On these occasions the child will not ask for help.	1	2	3	4	5
6. If the reading task is not going well, the child will become disruptive.	1	2	3	4	5
7. If the reading task is not going well, the child withdraws.	1	2	3	4	5
8. The child will not spontaneously show his or her work in reading to the teacher.	1	2	3	4	5

APPENDIX E (cont'd)

Helplessness Rating Scale for Teachers

	How Applicable is the Statement?				
	Not at All	A Little	Somewhat	More	A Lot
9. When asked how he or she is doing with reading exercises, the child will not respond with pride or enthusiasm.	1	2	3	4	5
10. When you praise the child's work in reading, he or she will look tense and uncomfortable.	1	2	3	4	5
11. When you praise the child's work in reading, he or she will not respond with any visible change of expression.	1	2	3	4	5
12. If the child does not win a prize, he or she will think it is because he or she is poor in reading, not because he or she did not try.	1	2	3	4	5

APPENDIX E (cont'd)

Helplessness Rating Scale for Teachers

	How Applicable is the Statement?				
	Not at All	A Little	Somewhat	More	A Lot
13. If the child does win a prize, he or she will think he or she received it because the teacher is being nice and not because the child read well and really earned it.	1	2	3	4	5
14. Overall, the child will do just enough to barely get by (to avoid punishment), rather than enough to win an award (achieve success) in reading and related activities.	1	2	3	4	5

APPENDIX F

Children's Self-Reported Helplessness Scale

Your answers to the following questions will help us learn how boys and girls in the fourth grade feel about reading. Please answer the questions as honestly as you can. CIRCLE the number which best describes your feelings.

A circle around number "1" means that you do not worry at all about the statement. A circle around number "2" means that it worries you a little. A circle around number "3" means that you worry about it sometimes. A circle around number "4" means that you worry about it more often. A circle around number "5" means that you worry about it a lot or all the time.

	How Worried I Feel				
	Not at all	A Little	Some-times	More Often	A Lot or All the Time
1. When you have a reading assignment during class, how worried are you that you won't know what to do?	1	2	3	4	5
2. When you have a reading assignment, how worried are you that everyone else will finish but you will not?	1	2	3	4	5

APPENDIX F (cont'd)

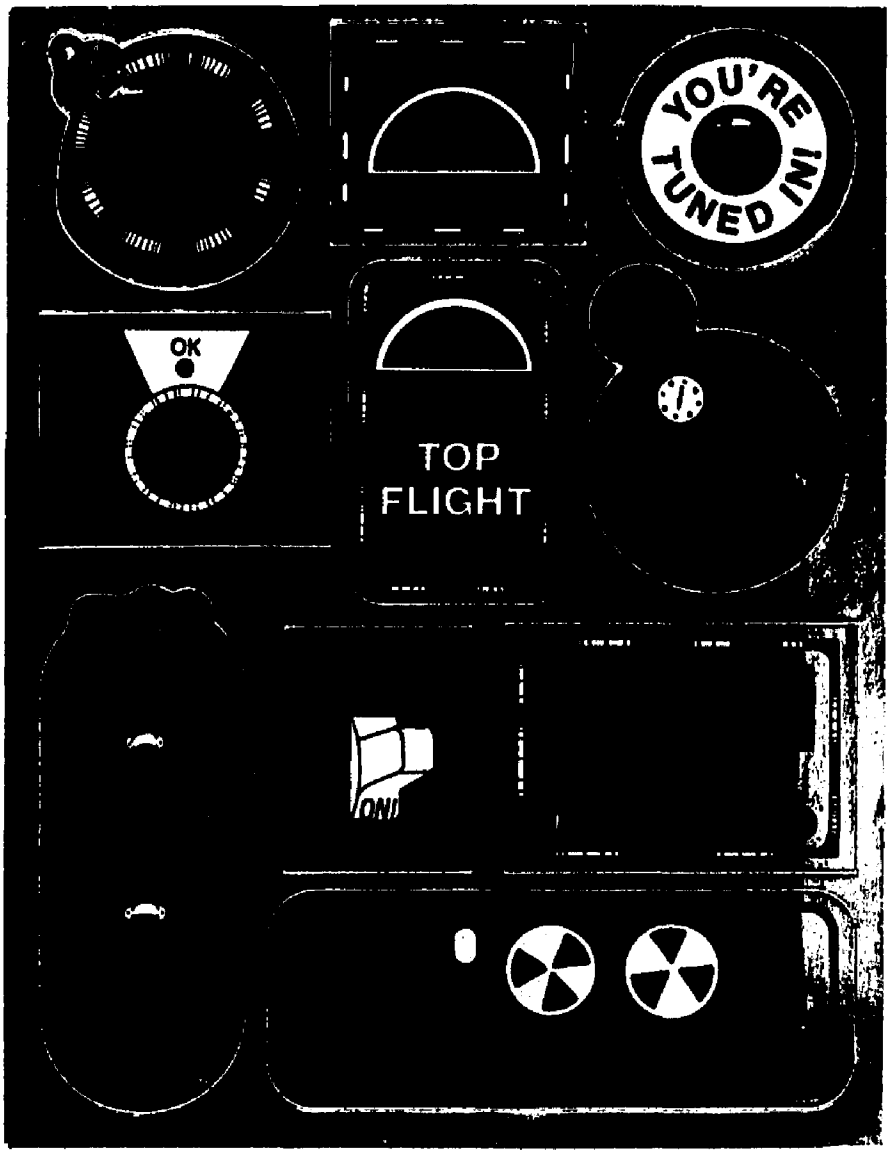
Children's Self-Reported Helpless Scale

	How Worried I Feel				
	Not at all	A Little	Some-times	More Often	A Lot or All the Time
3. How worried are you that the teacher will call on you to read aloud?	1	2	3	4	5
4. How worried are you that you may never learn how to read?	1	2	3	4	5
5. How worried are you that you won't be able to answer questions about a reading assignment?	1	2	3	4	5
6. When you read something, how worried are you that you won't recognize many words?	1	2	3	4	5
7. How often do you have trouble concentrating on your reading?	1	2	3	4	5

THANK YOU FOR YOUR HELP!

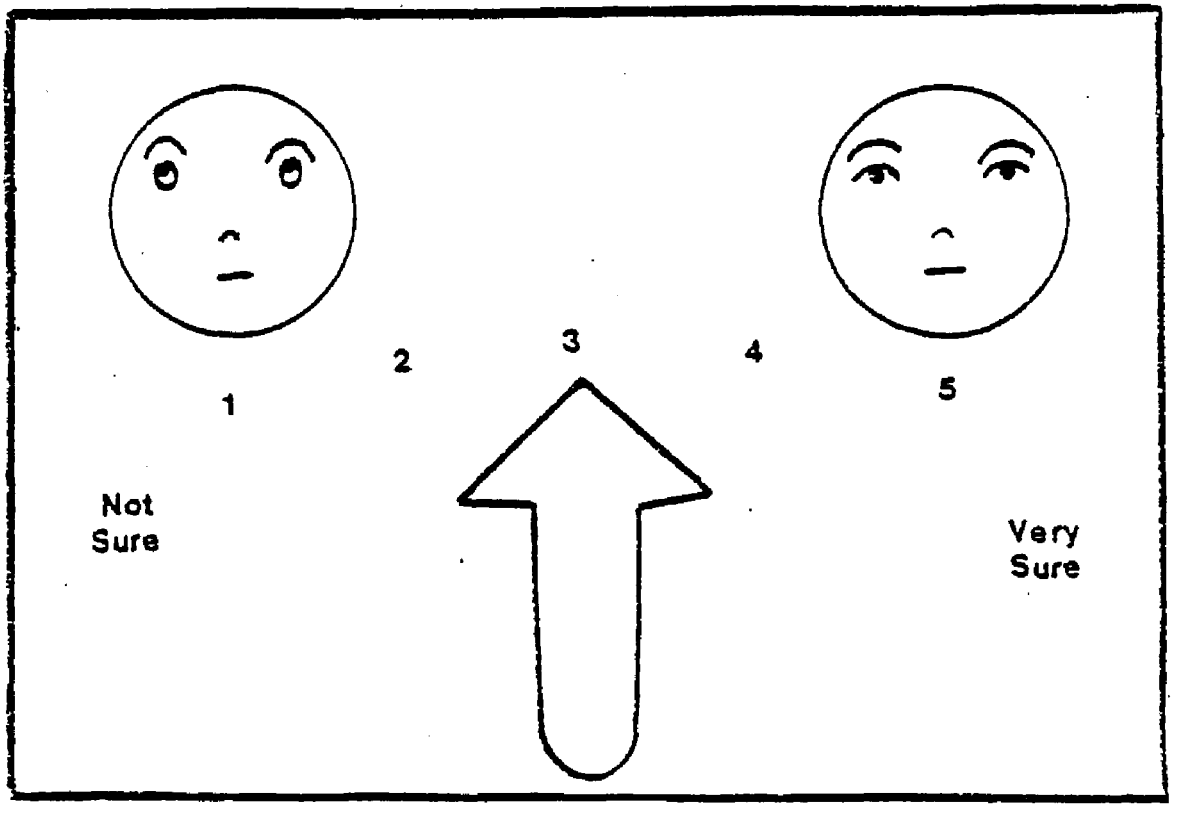
APPENDIX G

Silver Stickers



APPENDIX H

Self-Efficacy Board



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