

Learning Goals and Progress Feedback During Reading Comprehension Instruction

By: [Dale H. Schunk](#) and Jo Mary Rice

Schunk, D. H., & Rice, J. M. (1991). Learning goals and progress feedback during reading comprehension instruction. *Journal of Reading Behavior*, 23, 351-364.

Made available courtesy of Taylor and Francis: <http://www.taylorandfrancis.com/>

*****Reprinted with permission. No further reproduction is authorized without written permission from Taylor and Francis. This version of the document is not the version of record. Figures and/or pictures may be missing from this format of the document.*****

Abstract:

This experiment investigated the effects of goals and goal progress feedback on reading comprehension self-efficacy and skill. Remedial readers received comprehension strategy instruction on finding main ideas. Some subjects were provided a product goal of answering questions, others were given a process goal of learning to use the strategy, and subjects in a third condition received process goals combined with feedback on goal progress. The condition receiving process goals and progress feedback demonstrated significantly higher performance on the self-efficacy and skill tests than the process goal and product goal conditions, which did not differ. Subjects assigned to the process goal and process goal plus feedback conditions judged perceived progress in strategy learning higher than product goal subjects. These results show that remedial readers benefit from explicit feedback on their mastery of a comprehension strategy and have implications for comprehension instruction.

Article:

The present investigation represents a follow-up study to an experiment by Schunk and Rice (1989), which explored the effects of goal setting on students' achievement outcomes during reading comprehension instruction. The conceptual focus was theory and research showing that goal setting, which involves establishing a standard for performance, represents an important source of motivation (Bandura, 1988; Locke & Latham, 1990; Locke, Shaw, Saari, & Latham, 1981). When individuals make a commitment to attempt to attain a designated standard, they are likely to sustain their efforts until they achieve that standard. Given that children are limited in their capacity to cognitively represent complex goals in thought, short-term goals that incorporate specific performance standards lead to higher performance than do temporally distant goals, general goals (e.g., "Do your best"), or no goals (Bandura & Schunk, 1981; Schunk, 1989, 1990; Tollefson, Tracy, Johnsen, Farmer, & Buenning, 1984).

The effects of goals on behavior presumably depend in part on perceived *self-efficacy*, or personal beliefs about one's capabilities to organize and implement actions necessary to attain designated performance levels (Bandura, 1986, 1988). Self-efficacy affects choice of activities, effort expended, persistence, and achievement. Students with low self-efficacy for accomplishing a task may avoid it; those who believe they are capable should engage more readily. Especially when facing obstacles, learners with high self-efficacy ought to work harder, persist longer, and achieve at a higher level, than those who doubt their capabilities. Individuals acquire self-efficacy information from their performances, vicarious (observational) experiences, forms of persuasion, and physiological indexes (e.g., sweating, heart rate). Research shows that self-efficacy can influence students' motivation and learning in various domains (Schunk, 1989, 1990).

When students are given or establish a goal, they may experience a sense of self-efficacy for attaining it (Bandura, 1988; Schunk, 1989). As they pursue a goal, they are apt to engage in activities they believe will help them attain it; for example, they are likely to attend to instruction, rehearse information to be remembered, and persist at the task, all of which increase on-task behaviors and achievement. Students' initial sense of self-efficacy is substantiated as they work on the task and observe goal progress because the perception of progress

conveys they are becoming skillful (Elliott & Dweck, 1988). Heightened self-efficacy can sustain motivation and lead learners to establish new goals when they master their present ones. In the absence of a learning goal, students may be less motivated to work diligently and less sure of their capabilities because they lack standards against which to gauge progress. These self-doubts can interfere with skill acquisition (Licht & Kistner, 1986).

A distinction sometimes is drawn between *product* goals, which concern what students should know or be able to accomplish as a result of learning, and *process* goals that focus on techniques and strategies students can use to promote learning (Weinstein & Mayer, 1986). Most goal-setting research has employed product goals (e.g., quantity of work to be completed), but educational researchers and practitioners increasingly are advocating teaching students *learning strategies*, or systematic plans for improving encoding of information and performance (Mayer, 1988; Paris, Lipson, & Wixson, 1983). In this view, strategies are processes used by students to attain such products as correct answers, high test scores, and good grades. This process-product goal distinction is somewhat artificial because strategies also are products of educational interventions in which they are taught to students. We use the terms *product* and *process* in this article because the strategy was designed to be a process for attaining the product of better comprehension.

Schunk and Rice (1989) taught remedial readers a comprehension strategy for finding main ideas. Some received a product goal of correctly answering comprehension questions; others were given a process goal of learning the strategy; control students were given a general goal of working productively. It was expected that each specific goal would promote self-efficacy and skills better than the general goal. Pursuing a specific goal allows students to compare their performances against the goal to determine progress, and the perception of progress enhances self-efficacy, motivation, and skill acquisition. With a general goal, learners might wonder whether they were making progress, which does not raise self-efficacy.

Schunk and Rice also hypothesized that the process goal would promote achievement outcomes better than the product goal. Emphasizing the strategy should lead students to view it as an important means for improving comprehension. Students who believe they have learned a useful strategy may feel they have greater control over their learning, which raises self-efficacy (Schunk, 1989). Perceived strategy usefulness can lead learners to apply the strategy diligently, which enhances skill acquisition and retention. Students' use of effective learning strategies bears a positive relation to self-efficacy (Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1990). Emphasizing a product goal might lead students to perceive the strategy as less important to their successes than other factors (e.g., time available, ability). Learners who believe a strategy does not contribute much may not employ it systematically or feel efficacious about improving their skills (Fabricius & Hagen, 1984; Paris, Newman, & McVey, 1982; Ringel & Springer, 1980). These considerations are especially relevant to remedial readers, who often believe they have little control over academic outcomes and doubt their capabilities (Butkowsky & Willows, 1980).

Process and product goals led to higher self-efficacy than the control treatment and process goal students demonstrated higher comprehension skill than the controls, but there was no difference between process and product goals on self-efficacy or skill. Schunk and Rice (1989) noted that, because the process and product goals were short term and specific, they may have raised students' sense of self-efficacy for learning, which was substantiated as they successfully worked on the task.

It also is possible that process goal students had difficulty determining whether they were making progress learning the strategy and whether strategy use was enhancing their performances. During the instruction, all students received feedback on the accuracy of their answers to comprehension questions, but process goal students never were given feedback on how well they were learning the strategy or that strategy use was improving their performances. They may have gauged self-efficacy using the same criterion employed by product goal learners—how well they were answering questions. Greater benefits of process goals might have been obtained had students been given progress feedback. Telling students they are learning the strategy informs them of progress and implies that the strategy is helping them answer questions. Such explicit feedback has beneficial effects on remedial readers' self-efficacy and skills (Schunk & Rice, 1987).

In this study, we replicated the Schunk and Rice (1989) methodology except we replaced the control condition with one in which students received the process goal combined with feedback on their progress in learning the strategy and applying it to answer questions. We expected that the product and process goal conditions would not differ, but that students who received process goals and progress feed-back would demonstrate the highest perceived progress in learning, self-efficacy, and skill.

METHOD

Subjects

The final sample comprised 30 students from two fifth-grade classes in one elementary school in the Houston, Texas, metropolitan area. The 16 boys and 14 girls ranged in age from 10 years 7 months to 14 years 2 months ($M = 11.3$ years). This rather large age range is somewhat misleading because it resulted from a few subjects having been retained in grade. At the time the study was conducted, 90% of the sample was under the age of 13, or an age range of 2 years 4 months. Although different socioeconomic backgrounds were represented, students predominantly were lower-middle class. Ethnic composition of the sample was 63% Hispanic, 19% Black, 18% White. Teachers nominated students who they felt would not experience excessive decoding problems while receiving comprehension instruction. We limited the sample in this fashion because the experiment focused on comprehension, and decoding difficulties could mask the effects of the treatments. Excluding these students limits generalizability of results but allows for their meaningful interpretation.

Subjects regularly received remedial reading instruction, They had been placed in remedial classes by the school district because their total reading scores (vocabulary, comprehension) on the *SRA Achievement Series* Level D (Naslund, Thorpe, & Lefever, 1978) were at or below the 20th percentile (roughly equivalent to Grade 3). Two-thirds of the subjects were in their first year of enrollment in the remedial program; 53% received some instruction in English as a second language classes. The latter subjects were close to transition and subsequently were integrated into English language classes.

Table 1

Sample Self-Efficacy Passage and Question

The gorilla's life is not always quiet. Sometimes the father gorilla does a very strange thing. In a way it is a kind of dance. First he makes a soft hooting noise. Then he picks a leaf and holds it in his lips. He stands up high on his back legs. He hoots faster. He throws leaves in the air. He hits his great chest so hard the noise can be heard far away. He kicks one leg in the air. He runs sideways. He rips leaves and branches off trees. Then, to end it all, he hits the ground with his mighty hand.

What is this story mainly about?

- A. How the father gorilla rips up trees.
- B. A strange dance of the father gorilla.
- C. The life of the father gorilla.
- D. How a father gorilla makes a hooting noise.

Materials and Procedure

Pretest. Each subject was pretested on comprehension self-efficacy and skill by a female member of the project staff from outside the school. The *self-efficacy* test assessed perceived capabilities for correctly answering different types of questions that tapped comprehension of main ideas. The efficacy scale ranged in 10-unit intervals from *not sure*-10, through intermediate values, to *really sure*-100.

The reading materials included eight expository passages drawn from books A, B, and C of *Scoring High in Reading* (Cohen & Foreman, 1978). The eight passages described and provided information about persons, animals, places, and events. Passages ranged in length from 4 to 25 sentences ($M=14$ sentences), and each passage was followed by one to four questions (e.g., "What is the first paragraph mostly about?", "What is the most important idea in this passage?", "What is the writer's feeling?", "What is a good title for this passage?") for a total of 20 questions. Passages and questions ranged in difficulty; four passages (nine questions) were appropriate for Grade 2 students of average reading ability (Book A), two passages (six questions) for Grade 3 students (Book B), and two passages (five questions) for Grade 4 students (Book C). Passages and questions

corresponded in reading level to those on the skill test but were not identical. A sample self-efficacy passage and question are shown in Table 1.

Subjects learned the meaning of the scale's direction and the different numerical values by judging their certainty of successfully jumping progressively longer distances and by reading aloud a practice passage with two sample questions. Following this practice, subjects read aloud each of the eight passages. After they read each passage, the tester read its questions one at a time. For each question, subjects privately judged their certainty of correctly answering questions of that type questions that asked for the same kind of information and that were about as easy or hard as that question. Thus, subjects judged their capabilities of answering types of questions and not whether they could answer particular questions. We minimized the likelihood that subjects judged whether they could answer particular questions by not allowing them to consult passages while making efficacy judgments, by not putting questions on their test pages, and by the tester reading only the question without its multiple-choice alternatives. The 20 judgments were summed and averaged.

Subjects were advised to be honest and mark the efficacy value that matched how they felt. Because subjects in the sample had language deficiencies, we took precautions to ensure they understood the directions. Subjects were given practice using the scale with a concrete (jumping) task and with sample comprehension questions. Following the practice, the tester repeated the instructions and asked each subject to tell her the instructions until she was satisfied that the subject understood them. Although subjects initially were unfamiliar with the efficacy assessment, we feel confident that they understood the procedure and that their efficacy judgments are valid measures of their perceived capabilities.

The reliability of the efficacy measure was assessed in prior research (Schunk & Rice, 1987) with subjects comparable in age and reading skills to those in the present study. The test-retest reliability coefficient was $r = .82$.

The *comprehension skill* test was given immediately after the efficacy assessment. It comprised eight passages with 20 questions. Passages and questions were drawn from Cohen and Foreman (1978) and ranged in difficulty as described above. Two different forms of the skill test were developed, neither of which was used for the efficacy test. These parallel forms were used on the pretest and posttest to eliminate potential effects due to passage familiarity. Reliability was assessed during a previous study (Schunk & Rice, 1987); subjects' scores on these parallel forms correlated $r = .87$.

The tester gave subjects the passages one at a time with their one or more multiple-choice questions. After subjects read each passage they answered its questions without help or feedback. The measure of skill was the number of questions answered correctly.

Instructional program. Following the pretest, subjects were assigned randomly, within sex and classroom, to one of three treatment conditions ($n=10$ per condition): product goal, process goal, process goal plus progress feedback. All subjects received daily 35-minute training sessions for 15 school days and worked on instructional materials covering comprehension of main ideas. Subjects assigned to the same experimental condition met in groups of five in a private room with a female instructor, who was a member of the project staff from outside the school. There were two small groups for each experimental condition (total of six groups). The order in which groups met with the instructor was rotated to eliminate potential effects due to meeting time. Prior to the start of the study, the instructor received instruction on the procedures from the authors and practiced the procedures until the authors were satisfied she was implementing them properly.

The instructional material consisted of a packet that included several reading passages, each of which was followed by one or more multiple-choice questions assessing comprehension of main ideas. The passages were drawn from different sources and were similar to those typically used by subjects' remedial teachers. Passages were ordered from least-to-most difficult; 40% was appropriate for a second-grade class of average reading ability, 40% for a third-grade class, and 20% for a fourth-grade class. Difficulty was varied with vocabulary and

passage length. Within the packet, material was ordered such that subjects initially answered questions based on only a few sentences or short passages. Passage length increased until subjects were reading passages with several paragraphs. By the end of the instructional program, subjects were working on fourth-grade-level-appropriate materials; however, about 90% of the material was at or below subjects' reading level.

In the training room the five-step comprehension strategy was printed on a poster board. This strategy was as follows (Schunk & Rice, 1989):

What do I have to do?

- (1) Read the questions.
- (2) Read the passage to find out what it is mostly about,
- (3) Think about what the details have in common.
- (4) Think about what would make a good title.
- (5) Reread the story if I don't know the answer to a question.

At the start of the first session, the instructor told subjects they would use the steps to answer questions and gave instructions appropriate for subjects' experimental assignment (described below). The instructor pointed to the poster board and modeled the strategy and its application by verbalizing, "What do I have to do? Read the questions." The instructor read aloud the multiple-choice questions for the first passage while subjects followed along, after which she pointed to and verbalized steps (2) and (3). The instructor explained that details referred to bits of information and gave examples; she said that while she was reading the passage she would be thinking about what the details had in common. She then read the passage aloud. The instructor pointed to and verbalized step (4), and explained that trying to think of a good title helps one remember important ideas in a passage. She stated some of the details, explained what they had in common, and made up a title for the passage. The instructor then read aloud the first question and its multiple-choice answers, selected the correct answer, and explained her selection by referring to the passage. She answered the remaining questions in the same fashion.

Following this modeled demonstration, the instructor asked subjects to repeat aloud each step after she verbalized it. She then said, "What do I have to do? Read the questions." After subjects verbalized these statements, she selected one subject to read the questions aloud. When this subject finished, the instructor asked subjects to repeat after her steps (2) and (3). The instructor called on a different subject to read the passage aloud, after which she asked subjects to repeat step (4) after her. A third subject was selected to think of a title and explain his or her answer. The instructor then called on individual subjects to read aloud each of the questions with its answer and to answer that question. If a subject answered a question incorrectly, he or she repeated step (5) and reread enough of the passage to answer the question properly. When subjects stumbled on a word while reading, the instructor prompted with contextual and phonetic cues.

The instructional format for the remainder of the first session and the rest of the instructional program was identical except that the instructor did not model the strategy and subjects did not verbalize each step prior to applying it. Instead, she referred to steps at the appropriate places and occasionally asked subjects to verbalize them. The instructional procedure was scripted to ensure standardized implementation; however, the instructor did not read the script but rather referred to it periodically to ensure she had covered the material appropriately. This format was repetitive and, to maintain subjects' attention, we employed short (35-min) sessions and high-interest materials on such topics as animals, children, and explorations. We also included some narrative passages (about 10% of the total instructional packet) to further enhance interest. Our periodic observations of the sessions confirmed they were implemented correctly and that subjects maintained interest. We also believe that subjects in the three conditions spent comparable amounts of time academically engaged, so that any differences in achievement outcomes are not due to differences in time on task.

Experimental conditions. *Product goal* subjects were told by the instructor at the start of each session, "While you're working, it helps to keep in mind what you're trying to do. You'll be trying to answer questions about

what you've read." In this and the other conditions, the instructor asked subjects if the goal sounded reasonable; this was done to promote subjects' goal commitment, Goals do not enhance performance if individuals do not make a commitment to attempt to attain them (Locke et al., 1981). No subject in any condition expressed displeasure with the goal.

To *process goal* subjects, the instructor emphasized learning the steps in the strategy by remarking at the start of each session, "While you're working, it helps to keep in mind what you're trying to do. You'll be trying to learn how to use the steps to answer questions about what you've read." Subjects in the *process goal plus progress feedback* condition received the process goal at the start of each session. In addition, each subject was given progress feedback 3-4 times each session. The purpose of the feedback was to convey to subjects that they were making progress toward their goal of learning to use the steps in the strategy to answer questions about what they had read. The instructor verbally delivered the feedback to each subject individually with such statements as:

- You're learning to use the steps.
- You're using the steps to answer the questions.
- You're getting good at using the steps.
- You got it right because you followed the steps in order.

This goal progress feedback should not be confused with performance feedback concerning the accuracy of subjects' answers to questions (e.g., "That's correct"). All subjects received performance feedback; only process goal plus feedback subjects received goal progress feedback. The latter was delivered after subjects received performance feedback (e.g., "That's correct. You're learning to use the steps").

Posttest, Following the last instructional session, subjects' perceived progress in learning the strategy was assessed. Subjects judged how well they could use the strategy now compared with when the project began. The 10-unit scale ranged from *not better* (10), through *a little better* (40) and *much better* (70), to *a whole lot better* (100). Subjects were asked to think back to when the project began and to mark a number that matched how they felt about how they were doing now compared with then. Subjects were told there were no right or wrong answers, after which they marked their papers privately. The posttest on self-efficacy and skill was administered one or two days after the last instructional session, The instruments and instructions were identical to those of the pretest except that the parallel form of the skill test was used.

Table 2
Means (and Standard Deviations) by Experimental Condition

Measure	Phase	Experimental Condition		
		Product Goal	Process Goal	Process Goal + Feedback
Self-Efficacy	Pretest	59.1 (9.8)	63.0 (9.1)	62.2 (12.2)
	Posttest	69.8 (18.6)	71.1 (9.7)	88.5 (7.7)
Skill	Pretest	6.9 (2.7)	6.5 (2.4)	6.1 (1.9)
	Posttest	8.0 (2.7)	8.7 (2.2)	11.6 (2.7)
Progress	Posttest	61.0 (20.8)	83.0 (11.4)	86.0 (11.0)

Note. N = 30; n = 10 per condition. Self-efficacy means represent the average judgment per question; range of scale is 10(low)-100. Skill means represent the number of correct answers on 20 questions. Range of progress measure is 10(low)-100.

RESULTS

Means and standard deviations are shown in Table 2. Preliminary analyses of variance (ANOVAs) yielded no significant between-conditions differences on pre-test measures or on any measure due to students' sex or classroom. Experimental conditions did not differ in the number of passages completed during instruction.

Analysis of covariance (ANCOVA) procedures were used to determine whether there were significant between-conditions -differences on posttest self-efficacy and skill. The use of ANCOVA necessitated demonstration of homogeneity of slopes across experimental conditions (Pedhazur, 1982). Tests of slope differences for each

measure were made by comparing a linear model that allowed separate slopes for each condition against one that had only one slope parameter for estimating the pretest-posttest relationship across the three conditions. These analyses found tenable the assumption of slope homogeneity ($p > .05$).

Posttest self-efficacy and skill were analyzed with multivariate analysis of covariance (MANCOVA); the three conditions constituted the treatment factor and the two pretest measures served as covariates. This analysis was significant, Wilks's lambda = .413, $F(4, 48) = 6.67$, $p < .01$. ANCOVA applied to each post, test measure yielded significant effects: self-efficacy, $F(2, 26) = 6.60$, $p < .01$, $MS_e = 156.08$; skill, $F(2, 26) = 11.60$, $p < .01$, $MS_e = 5.87$. Posttest means were evaluated separately using Dunn's multiple comparison procedure (Kirk, 1982). Students in the process goal plus feedback condition scored significantly higher on the self-efficacy and skill tests than process goal ($p < .05$) and product goal ($p < .01$) subjects. Product goal and process goal conditions did not differ on either measure.

ANOVA applied to the perceived progress measure yielded a significant between-conditions difference, $F(2, 27) = 12.01$, $p < .01$, $MS_e = 227.41$. Dunn's procedure showed that the process goal and process goal plus feedback conditions did not differ but that each judged progress significantly higher than the product goal condition ($p < .01$).

Product-moment correlations were computed among perceived progress, post-test self-efficacy, and skill. Between-conditions differences in correlations were nonsignificant; correlations were averaged across conditions using an r to z transformation (Edwards, 1984). All measures were significantly related: Self-efficacy/skill ($r = .61$, $p < .01$); self-efficacy/progress ($r = .44$, $p < .05$); progress/skill ($r = .36$, $p < .05$).

DISCUSSION

These results show that providing remedial readers with a goal of learning a strategy and feedback on their learning progress enhances their achievement out-comes. These benefits of process goals and progress feedback on self-efficacy and skill cannot be due to instructional differences between treatment conditions because all conditions received the same amount and type of instruction.

One explanation for these results is as follows. The process goal plus feedback condition included strategy instruction, a goal of learning the strategy, and feedback on goal progress. These factors motivate students to learn, teach them a means of improving their achievement, convey information that they are learning the strategy, and imply that strategy use is helping to improve their performances. As a result, students are likely to experience a greater sense of control over learning outcomes, which raises self-efficacy (Schunk, 1990). Students' self-efficacy for learning likely was validated during instruction as they successfully applied the strategy. Perceived control and high self-efficacy may be particularly important with poor readers, because many of them doubt their learning capabilities and believe they have little control over academic outcomes (Butkowsky & Willows, 1980; Schunk, 1989).

Subjects in the process goal and process goal plus feedback conditions did not differ in their perceptions of progress in strategy learning. The progress measure may have been too general to detect differences because it asked subjects to judge progress in learning the entire strategy. Separate judgments for each of the five steps might yield differences in progress perceptions. Another possibility is that the goal instructions made the goal of learning the strategy equally salient to subjects in both conditions, and subsequent participation in the instructional program enhanced subjects' progress perceptions.

The present study cannot disentangle these potential influences, but it seems clear that increases in self-efficacy and skill depend on more than perceived progress in strategy learning. Such gains may also depend on the belief that the strategy is useful for improving one's reading comprehension. The progress feedback in the present study informed subjects that they were learning the strategy and implied that the strategy was useful for answering questions. Perceived strategy usefulness should make it more likely that subjects will continue to apply the strategy when no longer required to do so (e.g., on the posttest and afterwards), thereby producing

higher achievement. This explanation is suggestive because we did not collect measures of perceived strategy usefulness or of students' actual strategy use on the posttest; however, research shows that students' use of effective learning strategies is positively related to self-efficacy (Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1990). Future research needs to investigate the effects of progress feedback on strategy use and perceived strategy usefulness.

Research also should examine the effects of goals and feedback on transfer (maintenance and generalization) of strategy use and achievement outcomes. There are many examples of successful strategy training studies in the literature, but much research also shows that subjects do not maintain use of a strategy over time or generalize use to other tasks (Borkowski, 1985; Ringel & Springer, 1980). This failure to transfer may be due to subjects failing to realize that their use of the strategy has promoted their achievement or that the strategy would be beneficial outside of the experimental setting, doubting their ability to apply the strategy successfully or believing that the strategy is not as important for success as other factors. Providing students with a goal of learning a strategy and feedback on their learning progress might address these factors and aid strategy transfer better than strategy instruction alone. Research findings on transfer have important implications for the teaching of strategies.

The present study increases our understanding of learning processes during reading instruction, but the results have limited generalizability. Our sample size was small, our subjects were drawn from one school, and our results are based on comprehension of main ideas in a small number of expository passages. In addition, our subjects had been placed in remedial reading classes because of reading problems. Students with comprehension difficulties often do not work on tasks systematically, whereas better readers typically assess their purpose in reading and employ learning strategies (Paris et al., 1983). Good readers also are more likely to monitor their comprehension successes and difficulties; remedial readers benefit from explicit sources of information linking systematic efforts with improved performances. This is not to suggest that good readers could not benefit from goal setting, strategy instruction, and progress feedback; rather, these procedures are particularly useful for students with learning problems (Hallahan, Kneedler, & Lloyd, 1983; Licht & Kistner, 1986; Schunk, 1989).

This research supports the idea that self-efficacy is influenced by one's performances and is not merely a reflection of them (Bandura, 1986). Though conditions did not differ in the number of passages and questions completed during instruction, subjects assigned to the process goal plus feedback condition subsequently judged self-efficacy higher. Students who believe they have learned a strategy that improves their achievement are apt to feel efficacious about applying the strategy to answer questions. This study also shows that self-efficacy is positively related to comprehension performance. Various theoretical approaches postulate that expectations for success are important influences on achievement (Bandura, 1986; Licht & Kistner, 1986; Paris et al., 1983; Schunk, 1989).

The present findings have implications for teaching. Integrating goals and progress feedback with strategy instruction can be accomplished easily during small group reading instruction. Simply providing students with goals may yield few benefits. Process learning goals and progress feedback seem well suited for enhancing remedial readers' strategy learning to promote skills and a sense of self-efficacy for learning.

REFERENCES

- Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1988). Self-regulation of motivation and action through goal systems. In V. Hamilton, G. H. Bower, & N. H. Frijda (Eds.), *Cognitive perspectives on emotion and motivation* (pp. 37-61). Dordrecht, Netherlands: Kluwer Academic.
- Bandura, A., & Schunk, D. H. (1981). Cultivating competence, self-efficacy, and intrinsic interest through proximal self-motivation. *Journal of Personality and Social Psychology*, *41*, 586-598.
- Borkowski, J. G. (1985). Signs of intelligence: Strategy generalization and metacognition. In S. Yussen (Ed.), *The growth of reflection in children* (pp. 105-144). New York: Academic Press.

- Butkowsky, S., & Willows, D. M. (1980). Cognitive-motivational characteristics of children varying in reading ability: Evidence for learned helplessness in poor readers, *Journal of Educational Psychology*, 72, 408-422.
- Cohen, S. A., & Foreman, D. I. (1978), *Scoring high in reading*. New York: Random House.
- Edwards, A. L. (1984). *An introduction to linear regression and correlation* (2nd ed.), San Francisco: Freeman.
- Elliott, E. S., Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology*, 54, 5-12.
- Fabricsius, W. V., & Hagen, J. W. (1984). Use of causal attributions about recall performance to assess metamemory and predict strategic memory behavior in young children. *Developmental Psychology*, 20, 975-987.
- Hallahan, D. P., Kneedler, R. D., & Lloyd, J. W. (1983). Cognitive behavior modification techniques for learning disabled children: Self-instruction and self-monitoring. In J. D. McKinney & L. Feagans (Eds.), *Current topics in learning disabilities* (Vol. I, pp. 207-244). Norwood, NJ: Ablex.
- Kirk, R. E. (1982). *Experimental design: Procedures for the behavioral sciences* (2nd ed.). Belmont, CA: Brooks/Cole.
- Licht, B. G., & Kistner, J. A. (1986). Motivational problems of learning-disabled children: Individual differences and their implications for treatment. In J. K. Torgesen & B. W. L. Wong (Eds.), *Psychological and educational perspectives on learning disabilities* (pp. 225-255). Orlando, FL: Academic Press.
- Locke, E. A., & Latham, G. P. (1990), *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice-Hall.
- Locke, E. A., Shaw, K. N., Saari, L. M., & Latham, G. P. (1981). Goal setting and task performance: 1969-1980. *Psychological Bulletin*, 90, 125-152.
- Mayer, R. E. (1988). Learning strategies: An overview. In C. E. Weinstein, E. T. Goetz, & P. A. Alexander (Eds.), *Learning and study strategies: Issues in assessment, instruction, and evaluation* (pp. 11-22). San Diego: Academic Press.
- Naslund, R. A., Thome, L. P., & Lefever, D. W. (1978), *SRA achievement series*. Chicago: Science Research Associates,
- Paris, S. G., Lipson, M. Y., & Wixson, K. K. (1983). Becoming a strategic reader. *Contemporary Educational Psychology*, 8, 293-316.
- Paris, S. G., Newman, R. S., & McVey, K. A. (1982), Learning the functional significance of mnemonic actions: A microgenetic study of strategy acquisition, *Journal of Experimental Child Psychology*, 34, 490-509.
- Pedhazur, E. J. (1982). *Multiple regression in behavioral research: Explanation and prediction* (2nd ed.). New York: Holt, Rinehart & Winston.
- Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance, *Journal of Educational Psychology*, 82, 33-40,
- Ringel, B. A., & Springer, C. J. (1980). On knowing how well one is remembering: The persistence of strategy use during transfer. *Journal of Experimental Child Psychology*, 29, 322-333.
- Schunk, D. H. (1989). Self-efficacy and cognitive achievement: implications for students with learning problems. *Journal of Learning Disabilities*, 22, 14-22.
- Schunk, D. H. (1990). Goal setting and self-efficacy during self-regulated learning. *Educational Psychologist*, 25, 71-86.
- Schunk, D. H., & Rice, J. M. (1987). Enhancing comprehension skill and self-efficacy with strategy value information. *Journal of Reading Behavior*, 19, 285-302.
- Schunk, D. H., & Rice, J. M. (1989). Learning goals and children's reading comprehension. *Journal of Reading Behavior*, 21, 279-293.
- Tollefson, N., Tracy, D. B., Johnsen, E. P., Farmer, A. W., & Buenning, M. (1984). Goal setting and personal responsibility training for LD adolescents. *Psychology in the Schools*, 21, 224-233.
- Weinstein, C. E., & Mayer, R. E. (1986), The teaching of learning strategies. In M. C. Wittrock *Handbook of research on teaching* (3rd ed., pp. 315-327). New York: Macmillan,
- Zimmerman, B. I., & Martinez-Pons, M. (1990). Student differences in self-regulated learning: Relating grade, sex, and giftedness to self-efficacy and strategy use. *Journal of Educational Psychology*, 82, 51-59,