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ABSTRACT

The influence of goal setting and progress feedback on self-efficacy and writing achievement was investigated for 60 fifth-grade children (33 girls and 27 boys) from three classes in two elementary schools. The sample included 37 White, 20 Black, two Hispanic American, and one Asian American students. The students received writing strategy instruction and were given a process goal of learning the strategy, a product goal of writing paragraphs, or a general goal of working productively (control condition). Half of the process-goal children periodically received feedback on their progress. Students assigned to the process goal plus feedback condition demonstrated higher self-efficacy, writing skill, and perceived progress in learning the strategy than did students in either the product goal or control conditions. Students who received the process goal without progress feedback judged self-efficacy higher than did control students, and demonstrated higher skill than did product-goal and control students. The product goal led to few benefits compared to the effects of strategy instruction. Self-efficacy judgments were significantly and positively correlated with writing skills. Research suggestions and implications for teaching are discussed. A 38-item list of references and one data table are included. (Author/SLD)

# Process Goals and Progress Feedback: Effects on Children's Self-Efficacy and Skills

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## Abstract

This experiment investigated the influence of goal setting and progress feedback on self-efficacy and writing achievement. Fifth-grade children received writing strategy instruction and were given a process goal of learning the strategy, a product goal of writing paragraphs, or a general goal of working productively (control condition). Half of the process-goal children periodically received feedback on their progress in learning to use the strategy to write paragraphs. Students assigned to the process goal plus feedback condition demonstrated higher self-efficacy, writing skill, and perceived progress in learning the strategy, than students in the product goal and control conditions. Students who received the process goal without progress feedback judged self-efficacy higher than control students and demonstrated higher skill than product-goal and control students. The product goal led to few benefits compared with the effects of strategy instruction. Self-efficacy judgments were significantly and positively correlated with writing skills. Research suggestions and implications for teaching are discussed.

# Process Goals and Progress Feedback: Effects on Children's Self-Efficacy and Skills

Goal setting, which involves establishing standards for performance, is an important influence on achievement (Bandura, 1986). Goals motivate individuals to focus on goal-relevant activities, expend effort, and persist (Locke & Latham, 1990). These motivational effects are a function of individuals comparing their goals with present performances, evaluating progress to determine whether it is acceptable, and reacting to those evaluations by maintaining or altering their activities (Schunk, 1990).

The effects of goals on behavior also depend 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 can affect choice of activities, effort, persistence, and achievement. Students with low self-efficacy for accomplishing a task may avoid it; those who believe they are capable should participate more readily. When they encounter difficulties, 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 efficacy information from their performances, vicarious (observational) experiences, forms of persuasion, and physiological indexes (e.g., sweating, heart rate).

The hypothesized links between goals, self-efficacy, and behaviors, can be illustrated with students who set or are given a goal. They may experience an initial sense of self-efficacy for attaining it and are apt to make a commitment to attempt it, which is necessary for goals to affect performance (Locke, Shaw, Saari, & Latham, 1981). As they work at the task they are likely to engage in activities they believe will lead to goal attainment: attend to instruction, rehearse information to be remembered, expend effort

and persist. Self-efficacy is substantiated as they observe goal progress, which conveys they are becoming skillful. Providing students with feedback on goal progress also raises efficacy (Bandura & Cervone, 1983). Heightened efficacy sustains motivation and improves skill development. In the absence of goals, students may be less motivated and less sure of their capabilities because they lack standards against which to gauge learning. Such doubts interfere with skill acquisition (Schunk, 1990).

In the present study we examined the influence of goals and progress feedback on self-efficacy and writing achievement. We were interested in the effects of providing students with a goal of learning a writing strategy. A distinction can be drawn between process goals that focus on techniques and strategies students use to promote learning and product goals that concern what students should know or be able to accomplish as a result of learning (Weinstein & Mayer, 1986). Most goal-setting research has employed such product goals as quantity of work or time spent (Bandura & Schunk, 1981; Morgan, 1985; Rosswork, 1977), but there is increasing emphasis on learning strategies, or systematic plans for improving encoding of information and task performance (Mayer, 1988; Paris, Lipson, & Wixson, 1983). Strategies help students attend to tasks, focus on important features, rehearse information to be remembered, and code knowledge meaningfully (Borkowski, 1985).

The goal of learning a strategy fits well with contemporary models viewing writing as a problem-solving process that can be taught to students (Flower & Hayes, 1980, 1981; Scardamalia & Bereiter, 1986). Writing involves planning, translating one's ideas into print, reviewing, and revising. Writing reflects goal-directed behaviors; writers generate goals, and as they compose they may refine or alter their goals. Of key importance are writers' cognitive processes as they engage in the different aspects of writing (de

Beaugrande, 1984). For example, Flower and Hayes postulated that writers take into account factors in the task environment (e.g., topic, audience) and formulate initial writing goals. Writers plan and organize information, translate this information into text, review what they have composed, and revise text and goals as necessary.

Self-efficacy seems relevant to this view of writing. Students who hold a low sense of efficacy for writing may attempt to shun writing tasks; when they write they may expend little effort or give up readily if they experience difficulty with the various subtasks. In contrast, students who feel efficacious about communicating their ideas are more likely to engage in writing. Self-efficacy, in turn, is influenced by the results of students' efforts. Learners who successfully execute writing subtasks are apt to feel efficacious about continuing to write well. Shell, Murphy, and Bruning (1989) found that self-efficacy helps to explain writing achievement.

Research in various domains shows that students taught strategies typically improve their achievement beliefs, strategic awareness, and achievement (Borkowski, Estrada, Milstead, & Hale, 1989; Borkowski, Johnston, & Reid, 1987; Oka & Paris, 1987), and that students' use of effective strategies relates positively to self-efficacy (Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1990). With writing, the benefits of strategy instruction seem less clear. Students who learn a strategy may have difficulty applying it while writing or may not apply it consistently (Scardamalia & Bereiter, 1986). Graham and Harris (1989b) obtained positive results when they taught learning disabled students a strategy for writing essays. Instruction improved essay quality, gains were maintained up to 12 weeks following training, and skills and strategy use generalized to writing stories. In a similar study, learning disabled children received strategy

instruction on writing stories (Graham & Harris, 1989a). Training improved students' use of story grammar elements, gains were maintained after two weeks, and outcomes generalized to the resource room. In both studies, strategy instruction raised self-efficacy.

In the present experiment, children received writing strategy instruction and were given a process goal of learning the strategy, a product goal of writing paragraphs, or a general goal of working productively. Half of the process-goal children periodically received feedback indicating they were making progress in learning to use the strategy to write paragraphs.

We expected that the process and product goals would enhance writing outcomes better than the general goal. Goals providing specific standards typically promote performances (Locke et al., 1981). Specific goals allow students to compare their performances against the goals to determine progress. The perception of progress enhances self-efficacy, motivation, and achievement (Locke & Latham, 1990; Schunk, 1990). Without a specific goal children might wonder whether they are making progress (Schunk & Rice, 1989). Doubts over whether one is learning do not enhance self-efficacy or performance (Bandura, 1988).

We also predicted that the process goal would promote achievement outcomes better than the product goal. Emphasizing learning the strategy should lead students to view it as an important means for improving writing and to experience a sense of self-efficacy for attaining the goal. When children believe they have learned a useful strategy they are apt to feel they have greater control over learning outcomes, which heightens self-efficacy (Bandura, 1986). Perceived strategy usefulness can lead children to apply the strategy diligently, which enhances skill acquisition (Baker & Brown, 1984; Borkowski, 1985). In contrast, students given a goal of writing paragraphs

might perceive the strategy as less important to their successes than other factors (e.g., time available). Learners who believe a strategy does not contribute much may not employ it systematically or feel confident about improving their skills (Borkowski et al., 1987; Paris, Newman, & McVey, 1982).

We felt that the addition of progress feedback would enhance the benefits of the process goal. Strategy feedback generally promotes achievement outcomes and strategy use better than strategy instruction alone (Kurtz & Borkowski, 1987; Paris et al., 1982; Schunk & Rice, 1987). Feedback conveys that strategy use improves performance and raises self-efficacy by informing students of their learning progress (Schunk, 1989). Strategy information, combined with higher self-efficacy, can lead students to apply the strategy diligently. Feedback seems especially beneficial when learners have difficulty determining how well they are learning and whether strategy use is improving their work. We thought that these conditions might occur in the present study, because children might not be able to assess their writing skills reliably.

## Method

### Subjects

The final sample included 60 fifth-grade students drawn from three classes in two elementary schools. The 33 girls and 27 boys ranged in age from 10 years 0 months to 12 years 0 months ($M$ = 10 years 11 months). Although different socioeconomic backgrounds were represented, children predominantly were middle class. Ethnic composition of the sample was 37 White, 20 Black, 2 Hispanic American, 1 Asian American. Teachers initially nominated 64 children; two students were dropped because they missed instructional sessions, and two were excluded from the appropriate cells to

equalize sizes. All students received language arts instruction in their regular classes.

Pretest

The pretest, which comprised measures of self-efficacy and achievement, was administered by a tester from outside the school. The self-efficacy test assessed children's perceived capabilities for performing five tasks associated with paragraph writing: generate ideas, decide on the main idea, plan the paragraph, write the topic sentence, write the supporting sentences. The efficacy scale ranged in 10-unit intervals from not sure—10, to really sure—100. Children learned the meaning of the efficacy scale's direction and numerical values by judging their certainty of successfully jumping progressively longer distances.

Following this practice, the tester explained the distinguishing characteristics and read a sample for each of four types of paragraphs: descriptive, informative, narrative story, narrative descriptive. Children were told that descriptive paragraphs discuss objects, events, persons, or places (e.g., describe a bird; describe someone in your family). Writers paint a picture clearly so readers can recreate it in their minds. Informative paragraphs convey information effectively and correctly (write about something you like to do after school; write about the Civil War battle at Gettysburg). Writers select and arrange details based on their understanding of what readers need to know. Narrative story paragraphs contain events sequenced in order from beginning to end (tell a story about visiting a friend or relative; tell a story about a shopping trip you went on). Details are related to the subject and answer the questions who, what, when, where, why, and how. Narrative descriptive paragraphs sequence steps in the order to be followed to perform a task (describe how to make something out

of cardboard; describe how to play your favorite game). Details are specific and relevant to the task.

When the tester finished, children privately judged self-efficacy for performing the five tasks for each of the four paragraph types (20 total judgments). Specifically, for each type of paragraph children judged their capabilities for generating at least five or six ideas, thinking of a good main idea, planning the paragraph (deciding which ideas to include and what order to put them in), writing a clear topic sentence that could be understood by readers, writing clear supporting sentences that could be understood by readers. The 20 scores were summed and averaged.

The reliability of the efficacy measure was assessed with a group of 15 children who were comparable in age and writing skills to subjects but who did not participate in the study. The test-retest coefficient was $r = .92$.

The writing achievement test was administered after the efficacy assessment. Children were given four paragraph topics, each of which represented one of the four paragraph types. Two different forms of the skill test were developed; these forms included the same four paragraph types but different topics. The parallel forms were used on the pretest and posttest to eliminate potential effects due to topic familiarity.

The quality of subjects' paragraphs was assessed with four holistic scales that included the following categories drawn from different sources (Hillerich, 1985; Odell, 1981; Shell et al., 1989): organization, sentence structure and word choice, creativity, style to fit purpose. These categories were included because we felt that the strategy instruction and the goals might influence them. For each category, ratings were made on a 4-point scale ranging from 1 (low) to 4, for a total skill score ranging from 4 to 16. Each paragraph was scored independently by two individuals; for the data analyses

their scores were averaged to provide a single score for each paragraph for each subject. The correlation between the scores of the two raters for all subjects was $r$ = .87. Descriptions of the categories and scoring criteria can be obtained from the first author.

Paragraphs also were scored for length using the number of words. Raters followed simple rules in computing number of words (e.g., run-on words count as two words). Of the 240 paragraphs (four paragraphs for each of 60 students), raters disagreed on five paragraphs; for these paragraphs ratings were averaged.

Reliability of the parallel forms was determined using a different group of 15 comparable children who did not participate in the study. Children's holistic scores on these forms correlated $r$ = .85.

Instructional Program

Children were assigned randomly within sex and classroom to one of four experimental conditions ($n$ = 15 per condition): product goal, process goal, process goal plus progress feedback, instructional control (general goal). All students received 45-minute instructional sessions over 20 days; five days were devoted to each type of paragraph. Children assigned to the same condition met in small groups with a teacher from outside the school.

The procedure during the five sessions devoted to each type of paragraph was identical. At the start of the first session, a tester administered to children a measure of self-efficacy for improving their writing skills for the type of paragraph to be covered. This assessment was identical to that of the pretest except that children judged the five tasks only for the paragraph type to be covered during the next five sessions and they assessed their capabilities for improving their skills at the tasks rather than for being able to perform them. For each assessment, the five scores were averaged.

Following this assessment, the teacher introduced the session by stating that they would be working together on writing and by referring to the writing strategy. This strategy, which was displayed on a poster board, was as follows:

> What do I have to do? (1) Choose a topic to write about. (2) Write down ideas about the topic. (3) Pick the main idea. (4) Plan the paragraph. (5) Write down the main idea and the other sentences.

The teacher reiterated the type of paragraph children would be working on that week and gave the goal instructions appropriate for children's experimental assignment (discussed in next section). The teacher then modeled the strategy and its application by stating, "What do I have to do? Choose a topic to write about." The teacher stated a topic and wrote it on the board. The teacher then stated, "What do I have to do next? Write down ideas about the topic." The teacher generated ideas and wrote them on the board. After the teacher generated 8-12 ideas, the teacher said, "What do I have to do next? Pick the main idea." The teacher stated that the main idea represented what all the ideas were trying to say about the topic. The teacher explained what the ideas had in common, verbalized a main idea, and wrote it down.

Following this <u>modeled demonstration</u> (about 10 minutes), students received <u>guided practice</u> in generating ideas and the main idea for about 15 minutes. The teacher generated another topic and repeated the procedure except that the teacher called on individual children to supply ideas about the topic. After a sufficient number of ideas had been generated, the teacher asked children what the ideas had in common and what would be a good main idea. On completion of this paragraph, the teacher repeated the guided practice procedure using a second paragraph. After completing the second paragraph, the teacher verbalized another paragraph topic and explained that

children would generate ideas and the main idea on their own. Children engaged in independent practice for the remainder of the period (about 20 minutes); the teacher periodically monitored their work.

At the start of the second session, the teacher gave the appropriate goal instructions and briefly reviewed previous work. The teacher produced the ideas for the initial topic and explained they would work on step 4—plan the paragraph. The teacher explained that planning referred to deciding which ideas to include and in what order to put them. The teacher modeled the planning process by constructing a web (map) consisting of a box in the center and lines emanating from it (Hillerich, 1985). The teacher put the main idea in the box and the other ideas at the ends of the lines. To show organization, the teacher ordered the ideas starting at the top and working around the box. Following this modeled demonstration, the teacher reconstructed the ideas for the other two topics covered during guided practice of session one and asked for students' input for ideas to include and order. During the independent practice portion of this session, children planned the paragraphs they worked on during the first session.

The third session was devoted to translating ideas into the topic sentence and supporting sentences. After giving the appropriate goal, the teacher reviewed prior work. The teacher verbalized the last step in the strategy, and wrote the paragraph by translating each idea into a sentence. After completing this paragraph, the teacher gave students guided practice by putting the webs on the board and calling on students to translate ideas into sentences. Students completed the session engaged in independent practice.

Sessions four and five followed a similar format. During session four the teacher modeled the strategy with a new topic, and engaged the group in guided practice on another topic. The teacher then gave the group independent

practice, during which they applied the entire strategy. During session five the modeled demonstration was not included. Children received guided practice and then worked independently while the teacher monitored.

Experimental Conditions

The goal information given to students in the different conditions was as follows. To children assigned to the process goal and the process goal plus progress feedback conditions the teacher said during the first five sessions:

> 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 these steps to write a descriptive paragraph.

These instructions were identical for the other sessions except that the teacher substituted the name of the appropriate type of paragraph. Children assigned to the product goal condition were told the following at the start of the first five sessions:

> While you're working it helps to keep in mind what you're trying to do. You'll be trying to write a descriptive paragraph.

For the remaining sessions the teacher substituted the name of the appropriate paragraph type. The goal instructions given to instructional control students were, "While you're working, try to do your best." The latter condition controlled for the effects of receiving writing instruction, practice, and goal instructions, included in the other conditions.

Each child assigned to the process goal plus progress feedback condition received feedback 3–4 times during each session. This feedback conveyed to children that they were making progress toward their goal of learning to use the strategy's steps to write paragraphs. Feedback was delivered to each child privately during the independent practice phases. The teacher used such statements as:

You're learning to use the steps.

You're using the steps to write paragraphs.

You're getting good at using the steps.

You're doing well because you followed the steps in order.

This goal progress feedback should not be confused with performance feedback concerning children's planning and composing (e.g., "That's a good idea to include in your paragraph"). All children received performance feedback; only children assigned to the process goal plus feedback condition received progress feedback.

Posttest

The posttest included measures of perceived progress in strategy learning, goal perceptions, self-efficacy, and writing skill. For the progress measure, children privately judged how well they could use the strategy compared with when the project began. The 10-unit scale ranged from not better--10, to a whole lot better--100. Children were asked to think back to when the project began and mark the number that matched how they felt about how well they could use the strategy to write paragraphs now compared with then.

The goal perceptions measure was included to determine whether the goal instructions influenced children's perceived goals. Perceptions were assessed with four scales that ranged in 10-unit intervals from not at all--0, to a whole lot--100. The scales were labeled become a better writer, learn to use the steps, make no spelling/grammar errors, and write the paragraphs. (These measures will be referred to as Writer, Steps, Errors, and Paragraphs, respectively.) The tester told children that this paper showed four things that children might have tried to do during the instructional sessions. The tester reviewed the scales and provided examples of how hypothetical students

might answer. Children privately marked the number on each scale that matched their belief about how much they were trying to accomplish that goal.

The self-efficacy and skill instruments were identical to those of the pretest except that the parallel form of the skill test was used. All instruments were scored by persons unaware of children's experimental assignments.

## Results

Means and standard deviations are presented by condition in Table 1. Preliminary analyses of variance (ANOVAs) yielded no significant between-conditions differences on pretest measures; there also were no significant differences on any measure due to classroom or sex of student. Experimental conditions did not differ in the number of paragraphs written during the instructional program.

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Insert Table 1 about here

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Intracondition changes on self-efficacy, skill, and number of words, were evaluated using the $t$ test for correlated scores (Winer, 1971). Students in the product goal, process goal, and process goal plus feedback conditions made a significant improvement in self-efficacy from pretest to posttest ($ps < .001$ except $p < .05$ for the product-goal condition). Students in all conditions demonstrated gains in writing skill ($ps < .001$ except $p < .05$ for the control condition). Students assigned to the process goal plus feedback condition demonstrated significant gains from pretest to posttest in the number of words ($p < .001$). Compared with pretest paragraphs, control students' posttest paragraphs contained significantly fewer words ($p < .05$).

Posttest self-efficacy, writing skill, and number of words were analyzed with a multivariate analysis of covariance (MANCOVA); experimental conditions constituted the treatment factor and the corresponding pretest measures served as covariates. The treatment effect was significant, Wilks's lambda = .302, $F(9, 124.27) = 8.77$, $p < .001$. Each posttest measure was analyzed separately with analysis of covariance (ANCOVA) using the corresponding pretest measure as the covariate. ANCOVA applied to each posttest measure yielded significant effects: self-efficacy, $F(3, 55) = 11.31$, $p < .001$; skill, $F(3, 55) = 33.13$, $p < .001$; words, $F(3, 55) = 16.07$, $p < .001$.

Posttest means were evaluated using Duncan's multiple comparison procedure (Kirk, 1982). Students assigned to the process goal plus feedback condition judged self-efficacy higher than students in the product goal and control conditions ($ps < .01$); the latter two conditions did not differ. Process-goal children also judged self-efficacy higher than did control students, $p < .01$. On the measure of writing skill, all conditions received higher scores than the controls ($ps < .01$ except $p < .05$ for the product goal/control comparison). The process goal and the process goal plus progress conditions demonstrated higher skill than the product-goal condition, $ps < .01$. Process goal plus feedback children used more words in their paragraphs than children in the other three conditions ($ps < .01$); processs-goal children used more words than controls ($p < .01$).

Each of these four measures of self-efficacy for skill improvement was analyzed with an ANCOVA using as the covariate the pretest self-efficacy score for the corresponding type of paragraph. The analysis for the first type of paragraph (descriptive) was nonsignificant, but the remaining three paragraph types yielded significant results: informative, $F(3, 55) = 8.45$, $p < .001$; narrative story, $F(3, 55) = 8.73$, $p < .001$; narrative descriptive, $F(3, 55) =$

19.13, $p < .001$. On these latter measures, students assigned to the process goal and to the process goal plus feedback conditions judged self-efficacy higher than control students, $ps < .01$. For the narrative story and narrative descriptive paragraphs, process goal plus feedback children judged self-efficacy higher than product-goal students ($ps < .01$). Process-goal children also made higher efficacy judgments than product-goal students for the narrative descriptive paragraph, $p < .01$.

The perceived progress score was analyzed with ANOVA and the result was significant, $F(3, 56) = 7.72$, $p < .001$. Process goal plus feedback students judged progress higher than product-goal and control children ($ps < .01$).

MANOVA applied to the goal perceptions measures yielded a significant result, Wilks's lambda = .564, $F(12, 140.52) = 2.83$, $p < .01$. Separate analyses of the four scales yielded significance for Paragraphs, $F(3, 56) = 3.27$, $p < .05$; and Steps, $F(3, 56) = 7.61$, $p < .001$. Product-goal children placed greater emphasis on Paragraphs compared with process-goal students ($p < .05$). Process-goal and process goal plus feedback children judged Steps more important than product-goal ($p < .01$) and control ($p < .05$) students.

Correlations were computed among the progress and goal perceptions measures, the four self-efficacy for improvement measures, and the posttest measures. The following correlations were significant at the $p < .01$ level. Posttest self-efficacy was positively related to writing skill, number of words, the progress measure, and the four self-efficacy for improvement measures (range of $r$ values = .37 to .83). Writing skill and words correlated $r = .69$. Skill and words correlated positively with the progress measure and self-efficacy for improvement judgments for the informative, narrative story, and narrative descriptive paragraphs (range of $rs = .38$ to .64). The self-efficacy for improvement measures were positively interrelated (range of

rs = .35 to .57), and judgments for the narrative story and narrative descriptive paragraphs correlated positively with the progress score (rs = .40 and .39). Steps was correlated with posttest skill and self-efficacy for improvement for the narrative descriptive paragraph (rs = .34).

## Discussion

These results support the idea that providing children with writing strategy instruction and a goal of learning the strategy enhances self-efficacy and achievement more than strategy instruction alone. These results cannot be due to instructional differences, because students in all conditions were taught the writing strategy and received the same amount of practice.

One explanation is that providing students with a process goal highlights strategy use as a means to improve writing. Students may experience a sense of self-efficacy for attaining the goal, which is substantiated as they work on the task. Students who believe they are learning a useful strategy are apt to feel efficacious about improving their writing and motivated to apply the strategy (Borkowski, 1985; Schunk, 1989). In support of these points, children who received process goals (alone or combined with progress feedback) judged efficacy for skill improvement higher for three of the four paragraphs than control students. In contrast, providing children with no explicit goal or a goal of writing paragraphs may convey that the strategy is less important for improving skills. When learners do not believe that a strategy may contribute much to their achievement, they may not employ it systematically or feel confident about improving their skills (Borkowski et al., 1987; Paris et al., 1982).

Students who received process goals and progress feedback outperformed students assigned to the product-goal and control conditions. Progress

feedback conveys to students that the strategy is effective, they are making progress in learning, and they are capable of continuing to improve (Paris et al., 1982). These beliefs are validated as students successfully apply the strategy. Progress feedback may be especially beneficial with writing, because young children may have difficulty determining whether they are progressing and whether strategy use is effective.

Product-goal students demonstrated higher skill than control students, but otherwise the product-goal treatment offered no benefits over those obtained from strategy instruction alone. These results seem surprising given goal setting theory and research showing that specific goals result in higher performance and self-efficacy than general goals (Locke & Latham, 1990). It is possible that all children assumed that an important goal during the instructional sessions was to write paragraphs. If so, then the product goal provided no new information.

Although it may seem obvious that children would have assumed a goal was to write paragraphs, we did not believe that our product goal would simply restate childrens' goal because of evidence that learners adopt different achievement goals as a function of personal and situational factors (Meece, Blumenfeld, & Hoyle, 1988). Working with remedial readers, for example, Schunk and Rice (1989) found that combining strategy instruction with a goal of answering comprehension questions—which is analogous to our product-goal condition—led to higher self-efficacy and skill compared with a condition similar to our control condition. Perhaps lower achievers benefit more from being provided with specific goals that focus on task completion. Future research might examine in greater depth students' goals during writing instruction and whether goals vary with differences in ability level.

We recommend investigating students' strategy use over extended periods. Think-aloud transcripts of students engaged in writing tasks could determine how strategy use changes as self-efficacy and skills develop. This focus is consistent with current writing research employing think-aloud protocols to explore differences among writers differing in skill level (Scardamalia & Bereiter, 1986).

The present research supports the idea that self-efficacy is influenced by one's performances but is not merely a reflection of them (Bandura, 1986). Experimental conditions did not differ in the number of paragraphs completed during instruction, but the process goal enhanced self-efficacy. The belief that one can effectively apply a strategy that will improve one's performances can raise self-efficacy (Schunk, 1989). This study also shows that self-efficacy is positively related to skillful performance. Personal expectations for success are viewed as important influences on achievement by different theoretical approaches (Bandura, 1988; Covington, 1987; Weiner, 1985).

This research has implications for classroom practice. Many strategy training programs improve students' skills, but few specifically focus on building students' perceptions of their capabilities. High self-efficacy, coupled with knowledge of how to use a strategy and the belief that it raises performance, relates positively to strategy maintenance and generalization (Graham & Harris, 1989a, 1989b). Strategy training easily can be incorporated into regular classroom instruction, along with the goal of learning the strategy and feedback on goal progress. The present results suggest that an instructional program incorporating process goals and progress feedback helps to foster skills and self-efficacy.

## References

Baker, L., & Brown, A. L. (1984). Metacognitive skills and reading. In P. D. Pearson (Ed.), Handbook of reading research (pp. 353-394). New York: Longman.

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, The Netherlands: Kluwer Academic Publishers.

Bandura, A., & Cervone, D. (1983). Self-evaluative and self-efficacy mechanisms governing the motivational effects of goal systems. Journal of Personality and Social Psychology, 45, 1017-1028.

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.

Borkowski, J. G., Estrada, M. T., Milstead, M., & Hale, C. A. (1989). General problem-solving skills: Relations between metacognition and strategic processing. Learning Disability Quarterly, 12, 57-70.

Borkowski, J. G., Johnston, M. B., & Reid, M. K. (1987). Metacognition, motivation, and controlled performance. In S. J. Ceci (Ed.), Handbook of cognitive, social, and neuropsychological aspects of learning disabilities (Vol. 2, pp. 147-173). Hillsdale, NJ: Erlbaum.

Covington, M. V. (1987). Achievement motivation, self-attributions and exceptionality. In J. D. Day & J. G. Borkowski (Eds.), Intelligence and exceptionality: New directions for theory, assessment, and instructional practices (pp. 173-213). Norwood, NJ: Ablex.

de Beaugrande, R. (1984). Text production: Toward a science of composition. Norwood, NJ: Ablex.

Flower, L., & Hayes, J. R. (1980). The dynamics of composing: Making plans and juggling constraints. In L. W. Gregg & E. R. Steinberg (Eds.), Cognitive processes in writing (pp. 31-50). Hillsdale, NJ: Erlbaum.

Flower, L., & Hayes, J. R. (1981). A cognitive process theory of writing. College Composition and Communication, 32, 365-387.

Graham, S., & Harris, K. R. (1989a). Components analysis of cognitive strategy instruction: Effects on learning disabled students' compositions and self-efficacy. Journal of Educational Psychology, 81, 353-361.

Graham, S., & Harris, K. R. (1989b). Improving learning disabled students' skills at composing essays: Self-instructional strategy training. Exceptional Children, 56, 210-214.

Hillerich, R. L. (1985). Teaching children to write, K-8: A complete guide to developing writing skills. Englewood Cliffs, NJ: Prentice-Hall.

Kirk, R. E. (1982). Experimental design: Procedures for the behavioral sciences (2nd ed.). Belmont, CA: Brooks/Cole.

Kurtz, B. E., & Borkowski, J. G. (1987). Development of strategic skills in impulsive and reflective children: A longitudinal study of metacognition. Journal of Experimental Child Psychology, 43, 129-148.

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.

Meece, J. L., Blumenfeld, P. C., & Hoyle, R. H. (1988). Students' goal orientations and cognitive engagement in classroom activities. Journal of Educational Psychology, 80, 514-523.

Morgan, M. (1985). Self-monitoring of attained subgoals in private study. Journal of Educational Psychology, 77, 623-630.

Odell, L. (1981). Defining and assessing competence in writing. In C. R. Cooper (Ed.), The nature and measurement of competency in English (pp. 95-138). Urbana, IL: National Council of Teachers of English.

Oka, E. R., & Paris, S. G. (1987). Patterns of motivation and reading skills in underachieving children. In S. J. Ceci (Ed.), Handbook of cognitive, social, and neorupsychological aspects of learning disabilities (Vol. 2, pp. 115-145). Hillsdale, NJ: Erlbaum.

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.

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.

Rosswork, S. G. (1977). Goal setting: The effects on an academic task with varying magnitudes of incentive. Journal of Educational Psychology, 69, 710-715.

Scardamalia, M., & Bereiter, C. (1986). Research on written composition. In M. C. Wittrock (Ed.), Handbook of research on teaching (3rd ed., pp. 778-803). New York: Macmillan.

Schunk, D. H. (1989). Social cognitive theory and self-regulated learning. In B. J. Zimmerman & D. H. Schunk (Eds.), Self-regulated learning and academic achievement: Theory, research, and practice (pp. 83-110). New York: Springer-Verlag.

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.

Shell, D. F., Murphy, C. C., & Bruning, R. H. (1989). Self-efficacy and outcome expectancy mechanisms in reading and writing achievement. Journal of Educational Psychology, 81, 91-100.

Weiner, B. (1985). An attributional theory of achievement motivation and emotion. Psychological Review, 92, 548-573.

Weinstein, C. E., & Mayer, R. E. (1986). The teaching of learning strategies. In M. C. Wittrock (Ed.), Handbook of research on teaching (3rd ed., pp. 315-327). New York: Macmillan.

Winer, B. J. (1971). Statistical principles in experimental design (2nd ed.). New York: McGraw-Hill.

Zimmerman, B. J., & 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.

Table 1

Means and Standard Deviations

| Measure | Phase | Experimental Condition: Product Goal | Process Goal | Process Goal + Feedback | Control |
|---|---|---|---|---|---|
| Self-efficacy | Pretest | 62.5 (13.8) | 62.0 (14.9) | 63.7 (14.4) | 61.5 (14.6) |
| | Posttest | 73.4 (6.6) | 81.2 (6.2) | 85.6 (8.5) | 68.9 (11.8) |
| Skill | Pretest | 8.3 (0.9) | 8.3 (1.3) | 8.2 (1.3) | 8.2 (1.4) |
| | Posttest | 10.2 (0.6) | 11.7 (1.2) | 12.5 (1.4) | 9.1 (0.7) |
| Words | Pretest | 37.5 (8.0) | 38.9 (7.8) | 38.4 (5.8) | 36. (6.6) |
| | Posttest | 37.6 (10.9) | 42.1 (7.2) | 52.8 (8.9) | 31.8 (5.9) |
| Self-efficacy for improvement | Week 1 | 73.5 (12.2) | 76.9 (8.9) | 82.5 (12.6) | 73.1 (14.9) |
| | Week 2 | 73.9 (9.9) | 79.5 (10.8) | 85.5 (9.5) | 65.1 (15.1) |
| | Week 3 | 71.9 (12.2) | 81.7 (8.7) | 86.3 (9.1) | 67.2 (13.7) |
| | Week 4 | 66.5 (14.4) | 87.1 (6.0) | 87.9 (9.0) | 64.3 (13.4) |
| Perceived progress | Posttest | 67.3 (16.2) | 75.3 (11.9) | 87.3 (12.2) | 68.0 (10.8) |
| Goal perceptions - Writer | Posttest | 91.3 (13.6) | 84.0 (18.0) | 86.7 (10.5) | 88.7 (10.6) |
| Goal perceptions - Steps | Posttest | 66.7 (18.0) | 86.0 (14.0) | 85.3 (11.9) | 70.0 (12.0) |
| Goal perceptions - Errors | Posttest | 71.3 (22.9) | 63.3 (19.1) | 59.3 (25.2) | 71.3 (26.7) |
| Goal perceptions - Paragraphs | Posttest | 88.0 (14.7) | 70.0 (17.3) | 76.7 (21.9) | 73.3 (11.1) |

Note. N = 60; n per condition = 15. Self-efficacy means represent the average judgment per item; range of scale is 10 (low) to 100. Skill means represent the total scores on the holistic scales; range is 4 (low) to 16. The mean for words is the average number of words per paragraph. Self-efficacy for improvement means represent average scores for descriptive (week 1), informative (week 2), narrative story (week 3), and narrative descriptive (week 4) paragraphs. Range on the perceived progress measure is 10 (low) to 100. Range of each goal perception measure is 0 (low) to 100. Scale descriptors are become a better writer (Writer), learn to use the steps (Steps), make no spelling/grammar errors (Errors), write the paragraphs (Paragraphs).