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AUTHOR Goetz, Ernest T.; Palmer, Douglas J.
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ABSTRACT

Drawing on study strategy, metacognition, and attribution research, a model of strategy use was presented and evaluated via a series of regression analyses. Data analysis was conducted in three stages: identifying frequency of stragegy use, relating strategy use to test performance, and predicting reported use of strategies that were related to students' performance. Subjects, 224 college students, reported using an average of more than eight strategies when reading--most commonly, rereading to increase understanding. Few students reported using such metacognitive strategies as formulating questions before reading or outlining material after reading. Students' performance on a short-answer test was predicted by their reported use of skimming, anticipating the test, and rereading strategies. These practices themselves were significantly predicted by one or more of the following components in the proposed strategy use model: strategy knowledge, perceived learner attributes, and strategy efficacy. (Author/MM)

The Role of Students' Perceptions of Study Strategy and Personal Attributes in Strategy Use

Ernest T. Goetz Douglas J. Palmer
Department of Educational Psychology
Texas A & M University

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Abstract

Drawing on study strategy, metacognition, and attribution research, a model of strategy use was presented and evaluated via a series of regression analyses. Data analysis was conducted in three stages: identifying frequency of strategy use, relating strategy use to test performance, and predicting reported use of strategies that were related to students' performance. The college students in the present study reported using a large number of strategies, more than eight per student on average, but several presumably effective strategies were rarely reported. Reported use of skimming, anticipating the test, and selective rereading strategies predicted students' performance on a short-answer test. Reported use of each of these strategies was significantly predicted by one or more of the following components in the proposed strategy use model: strategy knowledge — general and specific attributes, perceived learner attributes, match between strategy and learner attributes, and strategy efficacy.

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The Role of Students' Perceptions of Study Strategy and Personal Attributes in Strategy Use

During the past ten years, instructional psychology has attended not only to what students learn, but to how students go about the process of learning (Weinstein, 1978). Recent advances in cognitive psychology indicate that effective learning requires active, strategic management of the study process (e.g., Anderson, Spiro, & Montague, 1977; Brown & Campione, 1978; Wittrock, 1974). When studying text, effective study strategies may be employed before (e.g., planning, surveying), during (e.g., monitoring, predicting), and after reading (e.g., summarizing, organizing), as noted by Anderson (1980). While research has identified effective strategies, survey, interview, and observational investigations have consistently noted that students rarely use such strategies (e.g., Anderson, 1980; Dansereau, Long, McDonald, & Actkinson, 1975; Weinstein, 1978). Students' failure to use effective study strategies may result from a lack of direct strategy training (Weinstein, 1978), and/or the nature of students' metamemorial information (i.e., knowledge and beliefs) regarding strategies (Pressley, Barkowski, & O'Sullivan, 1982). Another important factor may be the interaction between learners' perceived attributes; that is personal characteristics important in determining outcomes (see Weiner, 1979) and their beliefs about the attributional requirements of strategies. If, for example, students believe that effective use of a strategy requires high intelligence and they do not see themselves as being very smart, they may be less likely to use the strategy.

In this paper, a model of the determinants of study strategy use will be presented and tested. The model provides a framework for understanding why students may employ or fail to use potentially effective strategies when

studying text. In the model, illustrated in Figure 1, students' achievement history and task characteristics affect their knowledge of study strategies and personal attributes. This strategy knowledge results in the development of strategy attributes such as beliefs about the amount of intelligence or effort required for effective strategy use. In turn, strategy attributes interact with personal attributes such as intelligence or effort when studying. This interaction or match between learner and strategy attributes affects perceived efficacy of the strategies, which mediates their use.

Insert Figure 1 about here

The model sketched above reflects recent findings in the attribution, metacognition, and study strategy literatures. Specifically, a variety of investigations have examined linkages between components and between components and strategy use. In order to provide background to the development of this model, findings related to each component of the model will be presented.

The initial causal component in this model is students' achievement history and the instructional contexts. The presence or absence of adequate strategy training (Weinstein, 1978) and history of success or failure in school (Dallago & Moely, 1980) appear to affect students' use of strategies. The nature of the instructional task and setting, as well as history of performance, are also critical antecedents to students' attributional judgments (Weiner, 1974).

Learners' perceived attributes form another component of the proposed model. Attribution theory examines the perceived causes of events and the

influence of causal beliefs on behavior. Attribution research has focused extensively on academic behavior. Using open-ended response procedures, investigators have consistently reported that individuals' ability, effort, and task characteristics are the most frequently noted attributions for academic performance (Weiner, 1979). These attributions, in turn, affect students' expectations for future performance, affective reaction, persistence, and academic performance (Weiner, 1972, 1974, 1979). We propose that the effect on academic performance is mediated in part by the use or non-use of appropriate strategies. While there is limited empirical support directly linking students' selection and use of study strategies to their achievement attributions, there is related discussion in the metacognition and attribution literatures. Flavell (1979) proposes that metacognitive knowledge consists of individuals' knowledge and beliefs concerning person, task, and strategy characteristics. Flavell and Wellman (1977) argue that the interactions of these factors influence learners' memory performance. They also suggest that the amount and kinds of strategies students undertake vary according to the perceived nature of tasks and the individual's abilities. Reflecting on Heider's (1958) analysis of action, Flavell and Wellman note that learners' attributions of ability and task difficulty may mediate a variety of cognitive activities.

Knowledge of strategies has been linked to strategy use (Fabricus & Wellman, 1983; Pressley, et al., 1982). Obviously, students will be unable to use strategies about which they know nothing. However, even when learners know enough about a strategy to be able to use it, maintenance of strategy use may be dependent, in part, on students' perception of strategy attributes. Both Kennedy and Miller (1976) and Ringel and Springer (1980) found that many youngsters who were trained to use an effective strategy did

not continue strategy use during a maintenance phase of the experiment. However, when students were given information concerning strategy efficiency, they were more likely to use the strategy during a maintenance period. We posit that the same attributes important to an individual's account of personal causes of outcomes (i.e., ability, effort, and task characteristics) will be reflected in the individual's attributional account of a strategy (e.g., How much effort will this strategy require?

Students' perceptions of their own attributes and strategy-attributes may interact resulting in judgments concerning whether use of a strategy is possible or appropriate. This notion of match between personal and strategy attributes is similar to the comparison of personal and situational characteristics alluded to in self-efficacy theory (Bandura, 1977, 1982). According to Bandura, perceived self-efficacy concerns individuals' judgments of how well they can execute responses required in various situations. He argues that people avoid activities that they believe exceed their coping capabilities but undertake those they think they can perform and that will produce desired outcomes. If students view a strategy as requiring a great deal of effort and they perceive themselves as industrious, they may be more likely to use the strategy. In contrast, students who see themselves as not very hard-working may choose not to use this strategy. Empirical support for this contention may be found in a study by Fyans and Maehr (1979). They reported that students who attribute their own success on achievement tasks to ability, effort, or luck will prefer to perform those tasks that they perceive as primarily determined by the same attribute.

Perceived differences in strategy efficacy to effect desired outcomes

may also influence learners' decisions to use strategies. Sternberg and Ketron (1982) reported that learners are aware of differences in effectiveness of problem solving strategies and choose the more optimal strategy. Paris and Cross (1983) suggest that learners fail to use relevant strategies because they may lack the inclination to apply them appropriately. They propose that students engage in a decision-making process to determine if the learning goals and behavioral effort required to accomplish that goal, e.g., through the use of strategies, are reasonable and worthwhile. If the outcome of this decision-making process is positive, they will allocate the effort, and assuming adequate knowledge of a strategy, will use it.

Reflecting on the proposed model of study strategy use, this study will examine: 1) the frequency of reported strategy use; 2) the relationship between students' reported strategy use and their performance on a text comprehension task; and 3) the extent to which components of the proposed model mediate students' reported use of the strategies.

Method

Subjects

Two hundred and twenty-four undergraduate students attending a study skills course participated in this study. The majority of students were college freshmen who had been counseled into the course by academic advisors on the basis of high school transcripts, SAT scores, or other predictors that indicated the students would be academically "at risk". Since data were collected at the beginning of the semester, the students had not participated in any study strategy training activities in the study skills course prior to this investigation.

Materials

Texts, approximately 600 words in length, were selected from four subject-matter content areas: economics, history, psychology and sociology. Within each subject matter, two passages covering the same topic were selected, one from an introductory college textbook and one from a professional journal. For each of the passages, four short-answer essay questions were prepared. Reflecting on the work of Anderson (1980) and Weinstein (1978), a list of 24 study strategies was developed. Strategies were organized in the list according to temporal sequence, i.e. pre-reading, during reading, and post reading strategies, as shown in Table 1.

Insert Table 1 about here

Design and Procedure

Subjects were randomly assigned a passage in one of the content areas at either the college or advanced level in a completely crossed, 4x2 design. The subjects were asked to "read and study the passage carefully, as we will be asking you some questions about it." They were also told that "If you wish, you may work or write on the passage itself or on the scratch paper provided." Subjects were given six minutes to study the passage.

Subjects answered four short-answer questions immediately after reading and without referring back to the text. After answering the questions, subjects were shown prototypical correct answers and asked to rate on a 12-point scale their perceived success/failure in the task. In light of their performance on the short-answer questions, subjects were asked to rate the level and importance of each of the following attributes: effort,

intelligence, industriousness, prior knowledge, and task difficulty on four point Likert-type scales. For example, subjects were asked, "How much effort did you use when reading the text?" and "How important was your level of effort in determining your performance on the questions?"

Subsequently, subjects were asked a series of questions related to study strategies. They were asked to report which strategies they used when reading the text and how frequently they use these strategies when they read texts like the one they had just read. Finally, subjects were asked to rate each of the 24 strategies on a variety of attributionally-related factors. Specifically, they were asked how much intelligence, effort, industriousness, prior instruction in the strategy, and knowledge of text content would be required to effectively use each of the strategies. The students were also asked to rate how much they knew about using the strategies effectively, the level(s) of difficulty of text for which each would be appropriate, and how beneficial the use of each would be for understanding texts such as the one they had just read.

Results

Although a variety of data were collected, this paper will focus on: 1) the frequency of reported strategy use, 2) the proportion of unique variance in students' performance on essay questions accounted for by use of study strategies, and 3) for those study strategies identified as significantly related to the performance on the essays, the proportion of unique variance in reported strategy use accounted for by various components of the model.

Frequency of Reported Strategy Use

The proportion of subjects who reported using a strategy is illustrated

in Table 1. As Weinstein et al. (1980) found, when subjects report strategy use by checking a list of experimenter-provided strategies, reported use is quite high. In the present study, students reported use of 8.36 strategies on average. Several of the strategies were reported by many of the students. For example, 4 of 5 pre-reading strategies were reported by one-third or more of the students, as were 6 of the 10 during-reading and 4 of the 9 post-reading strategies. Rereading uncomprehended material (during reading) was the most commonly reported strategy, as nearly 80% of the students reported its use. Several strategies consistent with recommendations from the studying and metacognitive literatures were conspicuous by their absence. Fewer than 1 in 5 students reported that they had formulated questions about the passage before reading, or listed major words or ideas, summarized, or outlined the passage after reading.

Objective Performance

Independent raters scored subjects' short-answer essays. Each essay was assigned a score of 0, 1, or 2, yielding a potential range of 0-8 for total essay performance. The relationship of text content area, text level, and strategy use to performance on the short-answer essay questions was examined by means of a series of SAS GLM analyses conducted in a stage-wise fashion. In the first stage, text topic, text level, and their interaction were entered. Both text topic $F(3, 216) = 18.0$, $p < .0001$, and text level, $F(1, 216) = 12.8$, $p < .001$, but not their interaction, $F < 1$, reached significance. Means and standard deviations for each of the Topic X Level cells are shown in Table 2. The text variables accounted for 25.0 percent of the variance in test performance.

Insert Table 2 about here

In the second stage, relationship of study strategy use to students' performance was evaluated. Six strategies were excluded from this analysis because their reported frequency of use was judged too low (less than 20 percent) to provide a reasonable test of their effect. As a group, the 18 remaining strategies accounted for an additional 10.5 percent of the variance on test performance, F (18, 198) = 1.79, $p < .05$. In evaluating the unique contribution (Type IV sum of squares) of each strategy, the conventional alpha level of .05 was seen as overly restrictive given the large number of predictor variables and exploratory nature of the analysis. Therefore, an alpha level of .10 was used for initial identification of strategies. The analysis was the repeated using only those strategies identified in the initial screening, ordered by the proportion of unique variance accounted for in the preliminary analysis, and applying the customary significance level. Identified in the preliminary analysis were two pre-reading strategies, "skim the passage", F (1, 198) = 7.7, $p < .01$, and "think about how you'll be tested", F (1, 198) = 9.2, $p < .01$; one during reading strategy, "when you don't understand a word, sentence, or paragraph, skim ahead for clarification", F (1, 198) = 2.8, $p = .10$; and one post-reading strategy, "go back and reread the most important parts of the passage", F (1, 198) = 3.18, $p = .08$. When only these four strategies were added to the text variables, 33.0 percent of the variance of test performance was accounted for, compared to 35.4 percent for all 18 strategies, and the unique contribution of each of the strategies except the during reading strategy reached significance, $p < .05$.

Subsequent analyses will focus on the two pre-reading and one post-reading strategies that affected performance. These strategies will be referred to as skimming, anticipating the test, and selective rereading.

Reported Strategy Use

The effect of each of the hypothesized determinants of strategy use from the model illustrated in Figure 1 was examined in a series of regression analyses performed in a stage-wise fashion. At each stage of the analysis except the first, stepwise regression was used to evaluate all of the factors entered in that stage. Only those factors significant at $p < .05$ will be reported. Factors found to be significant from previous stages were included before the new factors were entered. Order of the stages was determined by the causal sequence posited in the model. Instructional context was evaluated first, followed by knowledge of the strategy; personal and strategy attributes; match between personal and strategy attributes; and strategy efficacy.

Separate analyses were conducted for each of the three strategies. Twenty-seven subjects who reported no knowledge of one or more of the strategies were excluded from the analyses.

Instructional Context. Instructional context was evaluated by means of SAS GLM analyses. For each of the three strategies, neither text topic, text level, nor their interaction affected strategy use, $F < 3$, $p > .08$ in all cases.

Knowledge of the Strategy. Reported knowledge of skimming accounted for 8.9 percent of the variance in the use of the strategy, $F(1, 195) = 19.0$, $p < .0001$. Knowledge of the strategy of anticipating the test accounted for 10.9 percent of the variance in its use, $F(1, 195) = 19.7$, p

< .0001. For selective rereading, knowledge accounted for 9.2 percent of the variance, F (1, 195) = 19.7, p <.001. The percentage of subjects reporting strategy use at different levels of reported strategy knowledge may be found in Table 3.

Insert Table 3 about here

Personal and Strategy Attributes. For skimming, the personal attribute industriousness accounted for an additional 2.1 percent of the variance, F (1, 194) = 4.6, $p < .05$. Perceived industry required for anticipating the test accounted for an additional 3.0 percent of the variance in the use of this strategy, F (1, 194) = 7.0, $p < .01$, and the personal effort attribute added 4.1 percent, F (1, 193) = 9.6, $p < .01$. None of the personal or strategy attributes contributed significantly to the reported use of selective rereading.

Match Between Personal and Strategy Attributes. Three models of how the match between personal and strategy attributes (for effort, industry, intelligence, and prior knowledge of the topic) determine strategy use were evaluated. In the first of these models, the match was coded by the absolute value of the difference between personal and strategy attribute ratings. In the second model, the match was coded as the difference of personal minus strategy attribute ratings. The third model, a modification of the second, coded the match as the difference of personal minus strategy attribute ratings, except that all cases in which the personal attribute rating equalled or exceeded the strategy attribute rating were equated. The differences between these models can be illustrated by examining their predictions for the following hypothetical cases: i) student A believes

that the strategy requires a high level of prior knowledge of the topic, and perceives her own level of prior knowledge as high, ii) student B believes that the strategy requires high prior knowledge, but perceives his prior knowledge as low, iii) student C believes the strategy requires little prior knowledge, but feels her prior knowledge is high. The first model predicts that strategy use will be likely for student A, and equally unlikely for students B & C. The second model predicts that strategy use will be most likely for student C, less likely for student A, and least likely for student B. The third model predicts that strategy use will be equally likely for students A and C and least likely for student B.

For the first model, none of the matches affected the use of any of the three strategies, F's < 3, p's $> .1$. For the second model, the match of intelligence attributes accounted for an additional 2.8 percent of the variance in the use of selective rereading, F (1, 194) = 6.1, $p < .05$. No significant effects were observed for the other two strategies, F's < 3, p's $> .1$. For the third model, the match of industry attributions, F (1, 193) = 6.2, $p < .05$, and of effort attributions, F (1, 191) = 4.9, $p < .05$, contributed 2.8 and 2.1 percent variance to the prediction of the use of skimming, respectively. For the remaining strategies, none of the matches added significantly to variance accounted for, F's < 2.5, p's $> .1$. The third model was adopted for subsequent analyses.

Strategy Efficacy. The perceived efficacy of skimming contributed an additional 2.3 percent of the variance to the use of this strategy, F (1, 191) = 5.39, $p < .05$. For anticipating the test, perceived efficacy added 2.9 percent to the variance accounted for, F (1, 192) = 7.3, $p < .01$. Perceived efficacy of selective rereading did not affect its use, $F <$

3, $p > .09$.

The final models for each of the strategies are summarized in Table 4. These models accounted for 18.2%, 21.0%, and 9.2% of the variance in the use of skimming, anticipating the test, and selective rereading, respectively.

Insert Table 4 about here

Reported Frequency of Use

Frequency of use was evaluated on a four-point scale, and thus provided a potentially more sensitive measure than the dichotomous report of strategy use. However, asking students how often they use a strategy on "texts like the one you just read" is neither as situationally specific nor as close in time to the event being querried as asking them whether or not they used the strategy when reading the experimental passage. Therefore, reported frequency of use may be less reliable than reported strategy use (see Ericsson and Simon's (1980) analysis of verbal reports as data).

The model of the determinants of strategy use was evaluated for reported frequency of use following the sequence of stages for entering predictors outlined above. The results of these analyses will be briefly summarized. In the first stage of the analysis, text topic and text level both influenced the reported frequency of selective rereading, as shown in Table 5. Knowledge of the strategy had a powerful effect on reported frequency for all three strategies (see Table 6).

Insert Table 5 and 6 about here

When personal and strategy attributes were added, skimming was influenced by perceived strategy industriousness requirements and appropriateness for easy and somewhat difficult texts. Prior instruction in anticipating the text affected its reported frequency. Perceived prior topic knowledge requirements and appropriateness for texts judged a "little bit" difficult were found to predict frequency of selective rereading. The third model of the match described above was evaluated and the match of prior knowledge was found to influence selective rereading. The final model for each of the three strategies is summarized in Table 7.

Insert Table 7 about here

Discussion

A model of the determinants of study strategy selection and use (Figure 1) was presented and evaluated via a series of regression analyses. With the exception of students' achievement history and task characteristics, represented in the current study by text topic and level, each component of the model made a unique contribution to the prediction of strategy use. It should be noted, however, that the current study did not directly assess students' achievement history nor manipulate test expectation, either of which might have produced an effect for this component. Knowledge of the strategy produced the largest and most consistent effect, accounting for nine to eleven percent of the variance for the three strategies investigated. While other components of the model produced a significant improvement in the account of strategy use, they made smaller contributions that differed between the strategies studied.

The final full models (Table 4) differed for each of the strategies studied. For skimming, general knowledge of the strategy, learner attributes, match between learner and strategy attributes, and strategy efficacy predicted strategy use. Anticipating the test was predicted by knowledge of the strategy, learner attributes, strategy attributes, and strategy efficacy. For selective rereading, strategy knowledge was the sole predictor. The final models accounted for 21, 18, and 9% of the variance in the use of skimming, anticipating the test, and selective rereading, respectively. Parallel analyses of reported frequency of use of the strategies produced models (Table 7) that in most respects replicated the models for strategy use.

The three strategies for which the proposed model was evaluated were selected from the 24 initially surveyed on the basis of their unique contribution to performance on short-answer essay questions. The three strategies added about 8% to the 25% of variance in essay performance accounted for by text topic and level. As a group, the 24 strategies were reportedly widely used by the students in the present study, as only six strategies were reported by fewer than one in five students. Rereading uncomprehended material (during reading) was reported by about four out of five students. While reported strategy use was high, more than 8 strategies per student, several strategies consistent with the current theoretical account of successful studying were among those least frequently used.

The current study represents the most extensive investigation of attributional and metacognitive determinants of strategy use. The results suggest that a model incorporating both attributional and metacognitive constructs can improve our understanding of why a student uses or neglects a potentially facilitative strategy when reading and studying a written

lesson. There are, however, several methodological limitations and concerns that may limit generalization of the findings. Students in the present study were enrolled in a study methods course, most on the recommendation of academic advisors who considered them "at risk" undergraduates. The experimental texts, while representative of a variety of topic areas and both college and professional level discourse, were not part of a normal class assignment, and the strategies reported may not have reflected the strategies normally used by students in their libraries, dorms, and homes. The 24 strategies initially surveyed provided a fairly extensive catalogue of available strategies, but the sheer length of the list may have tested the subjects' willingness or ability to provide accurate information. Each subject was asked to respond to 10 questions for each of the strategies, a total of 240 responses, after reading a passage, taking a test, and answering attributional questions about themselves. The binary measure of strategy use limited sensitivity of this measure, while the four-point scale for reported frequency of use reflected a less specific and immediate probe into the subjects' cognitive activities (see Ericsson and Simon, 1980). Finally, the strategies that facilitated test performance and became the focus of the current study were all internal cognitive strategies that left no external record of their use to corroborate subject reports . It may be noted, however, that in investigations of strategies that leave external records (e.g., Alexander, 1984), high validity of verbal report of strategy use has been found. Most of the limitations of the study probably contributed error variance, increasing the probability of Type II error. With a more sensitive test, the proportion of variance accounted for by the current model might be substantially increased.

The proposed strategy use model contains a variety of mediating components that ultimately affect learners' decisions to use a strategy. Examining the linkages between these components should be a part of this model building activity. In view of the model's complexity and variety of data already reported, the results section of this paper does not report findings from the regressions for each of the links between the components. However, the authors wish to briefly present an overview of these finding in the hope it may be of interest for future research. While there were variations in findings across the three strategies, the following summary represents the gist of the results. Text variables had little impact on any component of the model. Students' personal attributes did not affect perceived strategy efficacy. However students' perception of general strategy knowledge and specific strategy attributes did affect strategy efficacy, as did the match between personal and strategy attributes.

While caution should be exercised in interpreting the results of the current research, several implications may be drawn. The students' perceived general knowledge of the strategy was a consistent and substantial determinant of strategy use. From the present research, it seems unlikely that strategy training will be effective in promoting general and sustained use of a strategy unless it is successful in convincing the trainees that they know enough about the strategy to use it effectively. As discussed above, the final full model of strategy varied for each of the strategies investigated. The complexity of the pattern of results in the current study is congruent with findings of other investigations of the metamemory-memory behavior relationship (see Schneider, in press). This relationship appears to be dependent upon the nature of the learner, the task, and the strategy. The present results suggest that even for a relatively homogeneous group of

students working at a common task, the search for the model of strategy use for all study strategies may prove illusory. Further, while it might be speculated that ideal strategy training would address personal and strategy attributes, the specific attributes to be addressed would appear to vary depending on the strategy being trained.

The present research suggests that investigations of metacognitive and attributional determinants of strategy use may prove a fruitful area for future study strategy research. Future research might seek to provide a more sensitive test of strategy determinants for a smaller number of study strategies. The strategies selected might be those whose reported use can be corroborated by physical evidence and/or cross validated using a standardized study-strategy survey (see Schulte & Weinstein, 1981). Investigations of the determinants of strategy use in naturalistic settings and of the impact of strategy training on perceived general strategy knowledge, specific strategy attributes, and strategy efficacy are also needed. It is hoped that the present study will lay the foundation for such inquiry.

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TABLE 1

Proportion of Subjects Using Strategies

Study Strategies	Prop. of Strat. Use
Pre-Reading Activities	
1. Skim the entire passage.	.36
2. Survey the passage, finding and reading titles, headings, bold faced type, etc.	.35
3. After a brief inspection of the text, formulate questions about the passage.	.13
4. Think about how you will be tested.	.52
5. Think about the purpose or need for reading the material.	.34
During Reading Activities	
1. Underline key ideas or words.	.33
2. Take notes.	.26
3. Form mental images or "pictures in your mind" or concepts of events described in the text.	.50
4. Relate it to what you already know or believe.	.50
5. Think about the implications or effects of what the material is saying.	.35
6. Stop and ask yourself questions to see how well you understand.	.26
7. When you don't understand a word, sentence or paragraph, reread it.	.79
8. When you don't understand a word, sentence or paragraph, go back to the relevant earlier portion of the text and reread it.	.44
9. When you don't understand a word, sentence of paragraph, skim ahead for clarification.	.29
10. When you don't understand a word, sentence or paragraph, consult an outside source (another book, another student, your instructor).	.13

TABLE 1 continued

Post-Reading Activities

1.	List major words or ideas.	.18
2.	Make an oral or written summary of the text.	.08
3.	Attempt to recall or recite key points of the passage without looking back.	.56
4.	Reread the entire passage.	.30
5.	Go back and reread the most important points of the passage.	.59
6.	Try to anticipate the sort of questions you will encounter on a test.	.48
7.	Make an outline of the passage.	.07
8.	Evaluate how well you have understood the passage and return to those sections (if any) about which you do not feel confident.	.38
9.	Formulate plans for retrieving (remembering) the information when asked on a test [e.g., (1) Rhymes: "1492 Columbus sailed the ocean blue," (2) Catchy phrases or slogans: "Pavlov's work is a classic, but Skinner was more of an operator" to remember that Pavlov studied classical conditioning and Skinner operant conditioning, (3) Acronyms: HOMES for the names of the Great Lakes, Huron, Ontario, Michigan, Erie, Superior].	.17

TABLE 2

Test Performance* as a Function of
Text Topic and Level

TEXT LEVEL	TEXT TOPIC			
	Economics	History	Psychology	Sociology
College	4.44 (1.34)	5.37 (1.03)	3.40 (1.23)	3.81 (1.98)
Professional	3.57 (1.62)	4.88 (1.09)	2.83 (1.72)	3.57 (1.78)

* Mean; Standard Deviation in parenthesis.

TABLE 3

Percentage of Subjects Reporting Strategy Use as a Function of Strategy Knowledge

STRATEGIES	STRATEGY KNOWLEDGE		
	Little Knowledge	Some Knowledge	Very knowledgeable
Skimming	16.0	37.5	57.1
Anticipating the Test	27.5	59.1	74.5
Selective Rereading	20.0	54.7	74.0

TABLE 4

Final Models of Strategy Use

Strategy Predictor Added	B Value	Type II Sum of Squares	F	P
Skimming				
Strategy knowledge	0.20	3.66	18.8	.0001
Personal industry	-0.16	1.76	9.1	.003
Effort match	-0.20	0.95	4.9	.03
Industry match	0.25	1.10	5.6	.02
Strategy efficacy	0.11	1.05	5.4	.03
Anticipating the Test				
Strategy knowledge	0.18	3.50	17.5	.0001
Strategy industri-ousness	0.17	2.76	13.8	.0003
Personal effort	0.18	2.18	10.9	.001
Strategy efficacy	0.11	1.46	7.3	.008
Selective Rereading				
Strategy knowledge	0.23	4.29	19.7	.0001

TABLE 5

Reported Frequency* of Selective Rereading
as a Function of Text Topic and Level

TEXT LEVEL	TEXT TOPIC			
	Economics	History	Psychology	Sociology
College	4.04 (0.94)	3.50 (1.22)	3.65 (1.09)	3.46 (0.95)
Professional	3.50 (1.19)	3.20 (0.96)	3.74 (0.92)	2.96 (1.22)

* Mean rating on scale where 0=Never, 5=Always; Standard Deviation in parentheses.

TABLE 6

Reported Frequency of Strategy
Use as a Function of
Strategy Knowledge

Strategy Reported knowledge	Reported Frequency of Use* Mean	 SD
Skimming		
Little knowledge	1.46	1.28
Some knowledge	2.41	1.35
Very knowledgeable	3.24	1.43
Anticipating the test		
Little knowledge	2.31	1.30
Some knowledge	3.39	1.14
Very knowledgeable	3.98	0.99
Selective Rereading		
Little knowledge	3.07	1.21
Some knowledge	3.02	0.99
Very knowledgeable	4.01	0.93

* 0=Never, 5=Always

TABLE 7

Final Models of Reported Strategy Frequency

Strategy Predictor Added	B Value	Type II Sum of Squares	F	P
Skimming (Total r^2=28.2%)				
Strategy knowledge	0.74	48.7	31.4	.0001
Strategy industry	-0.31	11.7	7.5	.007
Appropriateness-Easy Texts	0.51	9.51	6.1	.01
Appropriateness-Somewhat Difficult Texts	0.45	8.17	5.3	.02
Strategy Efficacy	0.50	22.8	14.7	.0002
Anticipating the Test (Total r^2=30.5%)				
Strategy knowledge	0.74	59.3	49.5	.0001
Strategy instruction	0.34	16.7	14.0	.0002
Strategy efficacy	0.25	6.91	5.8	.02
Selective rereading (Total r^2=10.5%)				
Strategy knowledge	0.21	3.23	15.0	.0001

Figure 1

Model of Study Strategy Use