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ABSTRACT

Students must develop self-monitoring abilities if they are to successfully transfer knowledge and strategies they are taught to their own reading. But first, teachers must know just what this knowledge and these strategies are and how they can be presented to students. Akin to model building, reading comprehension involves a variety of behaviors and self-regulating strategies aimed at developing an interpretation that is plausible, complete, interrelated, and coherent. Studies suggest that secondary school students either lack these abilities and awarenesses or fail to use them. Other studies, however, suggest that knowledge and strategies can be successfully taught if teachers consider five things: (1) relevance--the skill or ability is worth teaching; (2) explicitness--students should be informed why, when, where, and how to use specific strategies; (3) student as informant--students should explore strategies for themselves; (4) self-regulation--students must be moved beyond situations where they depend on the teacher; and (5) application--students must be given situations that stimulate the transfer tasks to which they are expected to put these skills, strategies, and awarenesses. (JL)

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LEARNING FROM TEXT

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Learning from Text

A critical question for teachers is: Can students be taught or be made aware of knowledge and strategies which will transfer to their reading of passages when they are reading or studying on their own--without the presence or assistance of the teacher? Based upon what we know about learning and the current state of teaching, we should not assume either that transfer is happening or that it will just happen. The research of Brown, Campione, and Day (1981) suggests that a great deal of thought and effort needs to go into what and how instruction must proceed if it is to have such an impact. The research of Schallert and Tierney (1982) indicated that there is very little effective independent learning from text occurring in most secondary subject matter classrooms. An analysis of secondary students' reading behaviors and text-based difficulties (Tierney, LaZansky, & Schallert, 1982; Schallert & Tierney, 1982) indicated that students are having difficulty with text beyond what might be adjusted simply by text engineering, readability mandates, or modifying instruction. The solution to the problem--deciding what should be taught and how--is not simple.

The development of self-monitoring abilities is fundamental. As Brown, Campione, and Day (1981) suggested:

> What we are advocating is an avoidance of blind training techniques and a serious attempt at informed, self-control training, that is, to provide novice learners with the information necessary for them to design effective plans of their own. The essential aim of training is to make the trainee more aware of the active nature of learning and the importance of employing problem-solving trouble-shooting routines to enhance understanding. If learners can be made aware of (1) basic strategies for reading and remembering,

> (2) simple rules of text construction, (3) differing demands of a variety of tests to which their information may be put, and (4) the importance of activating any background knowledge which they may have, they cannot help but become more effective learners. Such self-awareness is a prerequisite for self-regulation, the ability to orchestrate, monitor and check one's own cognitive activities. (p. 20)

What has yet to be made clear is (1) what this knowledge and these strategies might be, and (2) how this knowledge and these strategies might be presented to students.

What Reading Strategies Might be Developed?

It is helpful for developing strategies to meet the needs of secondary students to regard reading comprehension as akin to model-building. In this light, the reader driven by hypotheses works to develop an interpretation of the information represented by the text. The model-building involves initiating and sustaining simultaneously a variety of behaviors including: activating and refining predictions, maintaining and varying focus, interrelating ideas, self-questioning, attending to important information, dismissing irrelevant information, following topical development, recognizing relationships, evaluating understandings, considering the worth of ideas, deciding what is new information, sensing mood and tone, sometimes visualizing, sometimes adding information, redefining, analogizing, editing, and reshuffling ideas. With respect to self-regulation, it entails knowing and being able to implement strategies for dealing with text, including any difficulties which are incurred. Taken together these behaviors relate to maintaining a flexible balance between reader-based and text-based processing en route to developing an interpretation which

is (1) plausible, in terms of what the reader knows and the information represented within the text itself; and (2) complete, interrelated and coherent.

In many ways, the task of reading comprehension is analogous to a listener's task during a conversation or lecture. In conversation a listener forms a model of what the speaker is trying to say consistent with what the listener perceives the speaker's intentions to be. In reading text, a comprehender tries to form a model of what the author is trying to do. For purposes of self-regulation, a mature reader supervises, monitors, and directs the behaviors for so doing.

But do secondary students have such strategies and, if they do not, will students develop them naturally over time if left to their own devices? Several recent studies suggest that many secondary students either lack these abilities and awarenesses or fail to utilize them. In a recent study (Tierney & Raphael, 1981; Raphael & Tierney, 1981), fifth grade students frequently floundered when confronted with inconsiderate text situations (inconsistencies inserted within texts), especially with passages dealing with unfamiliar versus familiar topics and text written without dialog. Unless informed that the text was inconsiderate, students seemed to assume that the text they were reading was faultless and proceeded to comprehend the text as if the text was autonomous. To further investigate this finding, Tierney, LaZansky, and Schallert (1982) completed an extensive survey of the text difficulties and study habits of secondary students enrolled in social studies and biology classes in Illinois and Texas. Although the data were limited by the self-report

nature of the survey, subsequent analyses and observations conducted in conjunction with this survey provided the following picture.

First, students responded to the general probe: Which of the following study strategies do you use? The strategies students reported that they used in order of frequency were: memorize portions of the chapter (91% reported they did so sometimes, often, or always); complete textbook questions/activities (82%); discuss chapter with others (82%); take notes (77%); ask teacher to explain (76%); read the chapter through once (74%); self-question (72%); ask other students to explain (65%); summarize the chapter (64%); evaluate extent of prior knowledge (62%); reread chapter several times (60%); underline (56%); construct an outline (56%); review headings (56%); read chapter summary (55%); read chapter aloud (47%); read other sources (25.5%).

A second probe to which the students responded was: When you study a chapter in your textbook, how difficult is it for you to . . .? In order of frequency, the study behaviors with which they incurred most difficulty were attempts to do the following: remember what was read a week later (83%); concentrate while reading (74%); identify relationships between ideas (63%); know how well information read will be remembered (63%); summarize the chapter (61%); prepare for exam or quiz (61%); remember what was read a day later (59%); know how well information read is understood (59%); identify important ideas (57%); understand difficult vocabulary (57%); construct an outline (54%); self-question while reading (51%); recall something to relate to what is being read (51%); complete textbook questions/activities (49%); complete teacher questions/activities

(45%); change reading rate to suit purpose (41%); understand diagrams, graphs, etc. (31%); take notes (31%).

What emerges from the first set of data is a picture of students who read with a single disposition (to memorize) for a single purpose (completing class assignments) and who typically restrict themselves to a single reading of a single textbook. From the second set of data one gets the sense that students have a great deal of difficulty accomplishing what they set out to do as well as knowing whether or not they have achieved what they pursued. Their difficulties seem likely compounded by the apparent mismatches across what they do (i.e., read a single text only once), what they are taught or given as tasks (i.e., questions to answer, practice in a restricted array of study (techniques) and what they need (i.e., self-regulatory abilities to cope with a variety of needs).

Students seem to lack the strategies needed to cope with their pursuits in subject matter classrooms. Certainly the text being used may contribute to these problems, but their attitude of reverence to these texts together with the restricted repertoire of strategies available to them seem to be their major stumbling blocks. It is as if students lack both the awareness and abilities by which to self-regulate their own pursuits. With this in mind the logical question to ask is: Can these self-regulating abilities be developed? Several recent studies bear on this issue.

Gordon (1980) looked into the effects of inference training upon the responses of forty-two fifth graders. Specifically, Gordon compared the effects of two intervention strategies directed at improving the readers' ability to engage prior knowledge and utilize text cues. One treatment focused on building prior knowledge for instructional selections along

with an awareness of text structures. The second treatment focused on providing students with strategies for inferring. A control group received a "language-related" curriculum. In general, the results Gordon obtained favored the inference strategy group, especially on the transfer tasks--that is, the delayed posttests. As Gordon rationalized, this treatment group "had the advantage through the use of a metacognitive strategy which showed them when and how to draw on relevant schemata" (p. 220).

Day (1980) studied the effectiveness of summarization training with and without explicit cuing. Specifically, college students were given either: (a) encouragement to summarize and capture main ideas; (b) instructions for modeling certain rules; (c) instructions for modeling certain rules and encouragement; or (d) instructions for modeling certain rules and rules for using these rules. Across pre- and posttest measures, Day found that providing students with rules for summarizing influenced the students' abilities to summarize, detect main ideas, and delete trivial information, but the influence of this training varied with the sophistication of the students. In other words, although all students profited from the training conditions, less sophisticated students (students with writing problems) needed more explicit training (i.e., training in the rules and their application). As Brown, Campione, and Day (1981) reported:

> Training results in greater use of the rules, and improvement is effected with less explicit instruction with more advanced students. For those students with more severe learning problems, training results in less improvement and more explicit training is needed before we can get any effect of training. (p. 16)

Palincsar (1981) worked with four seventh-grade students on their questioning ability. During the study each student experienced two

interventions, corrective feedback and modeling. The corrective feedback was given to students' responses on questions following reading. The modeling occurred in conjunction with the making of predictions and the initiation of a reciprocal questioning technique between student and teacher. Analyses of comprehension measures suggested that while both corrective feedback and strategy training had a positive effect, the modeling accompanying questioning training had more carry over to other class work.

Other studies by Bartlett (1978), Dansereau, Holley, and Collins (1980), and Geva (1980) provided data supporting the value of strategies directed at text-based processes. Bartlett, for example, examined the effects of teaching ninth graders to recognize commonly found rhetorical structures on their ability to identify and use these structures in their own recall protocols and on the amount of information they could remember. The instruction focused on how to identify and use four commonly found top-level structures (patterns of organization) in classroom text. Special aids for identifying the top-level structure were faded out over the week of instruction, while the passages studied became increasingly more complex and students became more and more self-regulatory. Students in the training group and control group read and recalled passages prior to training, one day after the training program, and three weeks after the completion of the program. The instruction resulted in significantly increased use and identification of the top-level structure as well as almost a doubling in the amount of information recalled by the training group on the posttest measures.

Guidelines for an Instructional Agenda

In response to the question, "Can students be taught knowledge or strategies which will transfer to their independent reading?" the findings from all these studies suggest it can be done, provided a great deal of care and thought go into the instruction to be operationalized. It is this issue of operationalization which suggests five guidelines for developing instructional agenda to these ends. They relate to the notions of relevance, explicitness, student as informant, self-regulation, and application. Relevance refers to the extent to which any skill or strategy is legitimate to teach. Explicitness pertains to the how, when, and why of strategy utilization. Student as informant relates to inducing students to offer and explore their own generalizations for coping with texts. Self-regulation refers to the self-orchestration, monitoring, and assessment of one's own behavior and outcomes. Application refers to the provision of opportunities for the extension of these abilities and strategies to "real-world" situations.

Relevance

At issue in the presentation of any skill or strategy is: To what extent is the skill or strategy worth teaching? In particular, in what situations and in what ways might said skill or strategy be beneficial? Consider the situation when students are being directed to deal with the patterns represented by texts. For example, based upon structural analyses of stories and informative texts, suppose some educators offered procedures for teaching students to recognize the patterns associated with text (e.g., compare-contrast, problem-solution, definition, etc.). The question to be

considered is: What is the relevance or legitimacy of teaching such a strategy? To address this issue fully the answers to additional questions need to be considered. First, do students need the strategy? If we examine the research on student responses to complex expository text we find that the ability of students to cope with such texts may be related to their inability to discern text patterns. But this inability varies across texts, purposes for reading, and from one reader to the next. Indeed, teaching certain students this strategy may be redundant given the reader's familiarity with the topic of the text being addressed, the purpose for reading, and other factors.

Even assuming the legitimacy of planning to teach the strategy, the methods for so doing must be carefully conceived. It is easy to forget that the mastery of the strategy should not displace reading for meaning. Teaching the prototypical patterns of different texts would seem inappropriate unless such instruction occurs in conjunction with helping students acquire meaning from texts. Consider the example below. There is no reference to the notion that determining the patterns of texts will help a student comprehend better. The activities bear little relationship to helping students understand the texts. It is as if the mastery of the strategy is "out of context"--the task of finding the text pattern has displaced the purpose for which it is taught.

Teaching Text Patterns

In each of the passages underline the main idea. Then circle a, b, c, or d (the top-level organization of the writer).

1. Martha was worried about her health. The doctor had told Martha that her system was overtaxed. As a result, she tried to rest more and to eat at regular times. She knew her life-style had to change.

   a. description
   b. before--as a result
   c. problem-solution
   d. favored view vs. opposite view

2. Pollution is a problem for our rivers. Polluted rivers are eyesores. They are also health hazards. One solution is to stop the dumping of industrial waste.

   a. description
   b. before--as a result
   c. problem-solution
   d. favored view vs. opposite view

3. Our class reunion was held last year. We saw many old friends there. The business of the meeting was kept to a minimum. We spent most of our time socializing.

   a. description
   b. before--as a result
   c. problem-solution
   d. favored view vs. opposite view

4. Despite the argument that smoking is harmful many claim it is not so. Certainly, smoking has been related to lung cancer, high blood pressure, and loss of appetite. But, for some people smoking may relieve tension.

   a. description
   b. before--as a result
   c. problem-solution
   d. favored view vs. opposite view

In general such activities assume a rote-learning quality unless there is a provision for both students and teachers to discuss the specific relevance of any skill or strategy. That is, in conjunction with applying a strategy across a number of texts read for different purposes students need to consider when a strategy is worth enlisting and when it isn't. It may involve examining the worth of the strategy from a cost/benefit ratio perspective. That is, do the benefits outweigh the efforts necessary to achieve the goals. Students often discount the worth of study procedures, such as outlining and mapping, when such tasks require more effort than they

are persuaded their tasks demand. Sometimes making explicit the when, how, and why of strategy utilization serves this function.

Explicitness

The notion of explicitness is tied to the notion that students should be informed with respect to the why, when, where, and how to use specific strategies. Several of the past research studies and some additional examples give some guidance as to how to be explicit. Day's (1980) students were placed in situations where they expected to summarize texts and were given explicit rules by which they might do so. For example, students were given various colored pencils and shown how to delete redundant information in red, delete trivial information in blue, write in superordinates (major propositions or topics) for any lists, underline topic sentences if provided, and write a topic sentence if needed.

In situations where a self-questioning behavior is being developed, students can be given models of questions as well as information describing the intent of the question. For example, teachers might use a think-aloud strategy to accompany the questions. That is, they might state that they wish the reader to consider how an event (e.g., Stockman's resignation as budget director) relates to a previous event (e.g., a fall on Wall Street) and then ask the question, "How do you think the fall on Wall Street influenced Stockman?" Or, consider the following example for teaching main idea. It offers an explicit explanation as to why and how students might proceed.

Teaching Main Idea

Teacher says: The passage below deals with the topic of lions. Let's read the passage and find out if it does.

Pupils and teacher read the passage.

The teacher explains the passage is about lions. It tells how fierce the lions are. The reason I think this is so is because: (1) I noticed that the first sentence tells how lions attack other animals. (2) The second sentence tells about how angry lions are.

Remember finding the main idea involves deciding what a passage is all about. This involves finding the facts and deciding what they tell about.

The teacher directs the student to the next paragraph. The teacher says: The passage tells more about lions. The teacher and students read and indicate the facts they are given about lions. The teacher says: We are given a number of facts; I believe the main idea is not about how the lions fly; the facts do not tell about where lions live (note discrimination activity). Instead I believe the facts tell about what lions eat. The facts tell about the different foods lions eat.

Remember the main idea tells what a text is all about. In the next example, I want you to find the main idea yourself. Remember determining the main idea involves finding the facts and deciding what they are about. Choose whether the main idea is:

how lions sleep
where lions live
how lions move

Before we check your answer, decide how well you did the following:

Did you find the facts?

Did you decide what these facts were about?

Does your choice of a main idea fit into the facts you found?

Are there any facts which don't?

If so, you should choose another. Now let's check your answer.

While teacher modeling has proven useful for research purposes, the use of teacher models should not be considered more effective than the use of a discovery approach. Indeed, discovery learning may be, for a number of reasons, better in some ways than a modeling approach. Consider the

use of discovery procedures for purposes of having students explore how to summarize. By comparing different summaries of a text students can suggest alternative approaches to summarizing. With some additional direction, they can assess the applicability of alternative guidelines across a variety of different texts. Without much effort, situations can be created or capitalized upon as they occur. These situations can vary from discussing notetaking, determining the main idea, relating what is being read to your own experience, to initiating alternative heuristics (who? what? when? where? why? vs. what is the author trying to get you to think?) to determining how to cope with difficult text.

Student as Informant

Using the student as his or her own informant is based upon the notion that effective learning--at least learning which endures--is induced rather than given. Integral to making learning explicit are situations within which students explore strategies for themselves. Consider the situation when a teacher intends to develop text-coping abilities, such as dealing with an unknown word or an ambiguous idea, or learning techniques such as summarizing. Instead of being given rules for so doing, students should develop their own guidelines. That is, rather than a teaching procedure which provides students with an explicit explanation, students should be given opportunities to explore their own generalizations. Apart from the normal advantages a discovery approach affords, if students become their own informants then they are more apt to learn how to access that strategy as well as use the strategy spontaneously. If strategies can be induced rather than taught directly, students will acquire them more readily, and

access them more frequently with greater flexibility across a greater variety of situations, including transfer situations.

There are other problems which the student-as-informant notion circumvents. First, if we use a student as his or her own informant, the problems of presenting students appropriate rules or exceptions to rules is alleviated. Also, by having students describe strategies in their own words, teachers are no longer burdened by the difficulties which arise due to an inappropriate choice of words for purposes of describing such rules.

A procedure often integral to the notion of the student as informant is the use of analogy for purposes of exploring self-regulatory abilities. On the simplest level, this might entail having the student consider the worth of what is being done in a familiar text with what might be done in an unfamiliar text situation. It might entail having students compare a concrete situation (e.g., how a detective determines the relevance of clues) with the text situation (e.g., how a reader determines the relevance of details). With respect to certain self-regulating abilities, it might entail having the students compare how they monitor themselves during other activities (e.g., horseriding, skateboarding, gymnastics, etc.) with how they might monitor their reading experiences. The notion of analogizing is built upon the tenet that what the student does in one situation can and should be related to other situations. Certainly there exists the possibility that the analogy may "breakdown" and result in mislearnings. For this reason, it might be important to have the students explore how their reading experience differs from the situation to which it is being compared. All things considered, analogies are likely to provide a vehicle

by which complex strategies for use with text can be developed more effectively at the same time as students maintain a sense of ownership of their learning.

Self-Regulation

The fourth guideline relates to the notion of independence in learning. Throughout this discussion, it has been assumed that the task of teaching is to provide students the support and guidance by which they can become self-directing and self-teaching. This entails moving students beyond situations where they depend upon the teacher or an adjunct (e.g., teacher-inserted questions) to self-initiation and student-generated questions.

Unless students are guided to develop self-regulatory abilities, it is questionable whether they will develop these abilities efficiently and effectively. In Day's (1980) study, while the various training regimens had an effect, the treatment group which received awareness training on top of cognitive training exhibited the most significant long-term gains. In Bartlett's (1978) study, the use of detailed explanations of the benefits of the strategy along with checklists (as in the following example) provided the vehicle by which both the explicit explanation and self-regulation of the strategy could be supported.

Checklist for Teaching Text Patterns

1. Did you pick out the organization as problem-solution?
   If so, _____ great!
   If not, _____ did you ask the two questions before reading?
   or,
   _____ did you find the main idea? ("The problem is . . . sugar and starch?")

_____ did you find how this main idea was organized? (one part about a problem, another part about a solution)

2. Did you write the name of the top-level organization at the top of the recall page?
   If so, _____ so far, so good!
   If not, _____ mmmmm!

3. Did you write down the main idea as the first sentence?
   If so, _____ keep it up!
   If not, _____ oh no!

4. Did you have two parts in arranging your sentences?
   If so, _____ not far to go now!
   If not, _____ tut tut!

5. Were the two parts: one for the problem, one for the solution?
   If so, _____ I bet you remembered a lot!
   If not, _____ Oh cripes!

6. Did you check?

   If so, _____ double halo!
   If not, _____ don't be overconfident!

Beyond the use of checklists for purposes of facilitating self-regulation, the displacement of teacher support with student initiative should not be overlooked. This might entail beginning a main idea lesson with a think-aloud illustration provided by a teacher (such as the exercise, Teaching Main Idea, above) which, in turn, is gradually displaced by main idea examples students discuss with and without teacher support. For purposes of developing self-questioning behavior displacement may involve a reciprocal questioning procedure wherein the amount of teacher support provided will vary with the teacher's intuitions of the needs of the students en route to independence. The teacher's task is to provide not only the opportunity for students to work independently, but also sufficient guidance, input, and feedback by which to develop self-regulatory abilities to accompany their efforts.

Application

The acid test of these and other guidelines relates to application. Can the students initiate, self-regulate, and appraise what to do and how to proceed in transfer situations without teacher support? Will the students' expertise transfer to nonschool related situations? Will the students be able to self-regulate for themselves?

If students are never given situations which stimulate the transfer tasks to which they are expected to put these skills, strategies, and awarenesses, it is doubtful that a student's ability to learn from text will have much transfer value. Providing students additional activities and practice of the same type will equip students to do little more than that same type of activity. In contrast, providing students opportunities to discuss and try out strategies in various situations affords transfer possibilities. If, for example, a teacher is preparing a student to cope with a science textbook, the student needs to have direct experience developing and applying strategies in conjunction with using this method. Ideally, students should be guided to induce and test strategies throughout an instructional sequence. This includes initially as well as during and after any sequence of lessons. Integral to helping somebody who is learning to cope with new tasks is the provision of experiences applying such strategies.

Conclusion

The principles of application, self-regulation, student as informant, explicitness, and relevance when considered concurrently are intended to bridge the void between teaching and learning. Certainly there are other

teaching objectives essential to successful schooling, but few seem to be as highlighted by recent research efforts as these five. In essence, these guidelines should suggest that the type of support students need goes beyond what presently exists and what might be reasonably provided by any single textbook.

If the goal is to help students learn from text, there is need for major changes in our expectations for students and instructional support, regardless of the changes or improvements to text. With these notions in mind, our task as educators requires a careful consideration of what we are trying to do as well as how we are planning to accomplish these goals. With respect to what we might teach, we need to reconsider the behaviors students engage in during reading. With respect to how we teach, the notions of relevance, explicitness, student as informant, self-regulation, and application suggest an era of teaching which reflects a commitment to the possibility of learning.

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