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Understanding ideas, drawing inferences, and recognizing the author's organization and purpose are teachable comprehension skills. Prereading discussions can stimulate students to think before reading, to survey the material, and to raise questions which focus attention while reading. A study guide can develop comprehension through careful questioning which causes students to reason and to draw inferences, and post-reading discussions will allow students to develop thought processes as they verbalize their own thinking. Finally, practice in analyzing the learning process, work in oral reading, use of the cloze procedure, and time and practice help teachers to develop students' comprehension skills. (RT)

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Teaching Comprehension Skills in Secondary School

"Can you really teach comprehension?" a veteran teacher asked recently, and then retracted the question, fearing either a flood of platitudes or a negation of the teaching act. But surely the question demands the most careful examination, for it is neither cynical nor capricious. The answer hinges on what is meant by "comprehension" and what is meant by "teach." If by comprehension we mean "reasoning in reading," which Davis[1] describes as a "combination of weaving ideas together and drawing inferences from them," then it is no more reasonable for a teacher to assume that he "teaches" comprehension than that singlehandedly he accomplished the grand goal of teaching students how to think. But the conscientious teacher who raised the question would have quit long ago had he truly doubted his ability to help most, if not all, of his students to understand the major ideas presented in the textbooks of his course. What the questioner doubted was whether he, or any teacher, could teach a method of comprehending which students could then apply on their own to a wide variety of content.

Before exploring this reasonable doubt, we should examine briefly the nature of comprehension. What makes it possible for a reader to understand what the author says? Basically, the reader must know the meanings of the words the author uses, or be able to infer the meanings of unknown words from the context. But to know the meanings of individual words is a bare beginning;

1. Frederick B. Davis, "Research in Comprehension in Reading," Reading Research Quarterly, 1968, 3:4, p. 499-545.

the reader must see the relationships of words to each other, that is, "weave ideas together," and he must draw inferences from them. Drawing inferences requires bringing meanings to the text that are not explicitly stated there. "Weaving ideas together" implies that the reader identifies the author's intent and sees how that intent governs his organization of ideas whether in single sentences or paragraphs, or whole essays, chapters, and books.

These components of comprehension are skills that can be taught: word meanings, recognizing structure, inferring the author's intent. Additional components are just as necessary but less teachable: the reader's motivation or purpose and his background knowledge. Yet the teacher who would insure comprehension of his reading assignments must be as concerned with the student's purpose and background as he is with the more teachable skills. Of course, when we talk of "teachable comprehension skills" we mean teachable within the limits of the student's capacity to learn. When we speak of "background knowledge" and "experience," we recognize that these are also reflections, to some extent, of capacity as well as opportunity to learn. Background knowledge is the effect of previous successful learning, most often through reading.

Insuring that students understand specific ideas as the result of reading specific content is not the same as teaching comprehension skills applicable to a wide variety of content. Insuring comprehension puts subject matter first; it is the least that a conscientious teacher would demand of himself. If in the process of acquiring subject-matter concepts, his students also strengthen their powers of comprehension, if they "learn how to learn," then the teacher rejoices that the larger aims of education are being approached. Unfortunately, it is harder to detect students' tiny steps toward the larger aims than it is to measure the more immediate goals of grasping particular subject-matter concepts. Of course, students do strengthen their powers of

comprehension through successful mastery of subject matter, since this achievement enlarges the background they can bring to future reading. And every success improves the will to learn through reading. So "insuring comprehension" -- a phrase that is synonymous with good teaching -- is worth the utmost effort.

The first and best opportunity to insure comprehension comes at the time of selecting materials to be read. The foresighted teacher makes this selection after surveying the area of knowledge to be approached through reading, after deciding on the essential concepts to be learned, after evaluating the sources of information for their coverage, authenticity, style and readability; and only after coming to know the reading abilities, background knowledge, interests, and aspirations of the particular students who are to use the materials. But how many teachers can exercise this kind of foresight? By the time that students arrive in the classroom, decisions on course content, textbooks, and even supplementary sources have already been made, perhaps not irrevocably but with a certain firmness. Accordingly, the teacher's task is narrowed to finding out how well the already selected materials fit the students' abilities and background.

Once he knows the range of reading achievement in his group and has some idea of what they already know about the subject or related topics, he can analyze the difficulties of the selected texts and decide how much preparation students will need before they can read them successfully. In extreme cases, this analysis of printed materials and student abilities may suggest that the original selections should be abandoned entirely for some students or that their use be modified in drastic ways. If restricted to a single textbook that is inaccessible to the poorest readers, the teacher may have to resort to tape-recording parts of the text, rewriting sections of it, or relying wholly on his own lectures and demonstrations as the medium. These extreme measures may help the poorest students to assimilate concepts but they will do very little to

develop reading comprehension. And for a great many areas of learning they are less satisfactory sources of knowledge than books, which, in spite of the electronics revolution, are still the most economical means of learning, provided, of course, that the reader's skills are equal to the task. Moreover changing the medium from print to aural and graphic symbols still leaves the learner with the larger tasks of comprehension, that is, with "weaving together ideas," drawing inferences, and making applications.

Fortunately, most high school students are able to use reading as a means of learning. They have the potential to do so, if they have acquired basic word analysis skills, and most of them have, and if the words they can decode have any meaning for them. This is not to say that the basic skills represented by a fourth grade reading level (or even a seventh grade) are sufficient for independent learning of ideas presented in technical language and textbook prose. But most high school students can learn from textbooks and supplementary sources if they have a teacher to help them. (Surely, teacher-assisted textbooks are as powerful tools of learning as computer-assisted instruction.)

The assistance students need in order to learn through reading is related to the components of comprehension described earlier: motivation or purpose, experience, knowledge of word meanings, ability to grasp relationships and draw inferences. To each of these components, then, the teacher directs attention, in accordance with his students' needs, before making an assignment, during the reading, and in the follow-up. While attention during and after reading helps to secure comprehension of essential concepts, the teacher's assistance before reading does more than anything else to determine the quality of his students' comprehension.

We might illustrate the teacher's role in insuring comprehension with an assignment covering a short reading selection, a textbook chapter, or a unit

of study involving multiple sources and taking several days or weeks. In each case, the steps would be the same. As a brief example which might be relative to science or history or literature, let's reconstruct a lesson for a tenth grade class based on a chapter on the Sargasso Sea in Rachel Carson's The Sea Around Us. For a class whose reading abilities range from, say, sixth grade to twelfth, this selection presents a challenge in its adult vocabulary and sentence structure and its metaphoric as well as scientific language, even though Carson's style may be superior in clarity and organization to most textbook prose. Moreover, the selection demands of the reader acquaintance with such concepts as balance of nature, survival of the fittest, vegetative propagation, adaptation, protective coloration, and the development of scientific theories.

Since the primary aim of this lesson is content understandings rather than skills development, we know the selection is related to previous study; it is not an isolated selection. This relatedness facilitates the development of purpose and background. The teacher realizes that, among his students, some have rather well-developed knowledge germane to the selection while others can bring to the reading only partially learned concepts or inaccurate notions. While those who know the most will be the most eager to learn more, others will have flagging interest and inchoate purposes. So the teacher's first move is to kindle what sparks of interest are there and at the same time push to the forefront whatever pertinent information lies in the recesses of his students' minds. He asks who has heard of the Sargasso Sea and notes on the chalkboard what is known, including misconceptions, and what is to be found out, eliciting their questions. He stirs up information that he guesses is dormant, teasing out what they remember of Columbus' voyages across the Atlantic and of ancient tales of ships snared in seaweed. Turning to the text, they examine illustrations and maps, and as the teacher reads aloud the

first paragraph, a student traces the perimeters of the Sargasso. This oral reading by the teacher serves another important function: acquainting students with the rhythms of the author's style, illustrating the right emphasis and phrasing, making comprehension possible and thereby building confidence.

More needs to be done. The initial questions raised by the students and the information given by the teacher are superficial, having to do mainly with what, where, and why. Now the teacher introduces basic concepts, reminding students of what they already know about the balance of nature, for example, and vegetative reproduction, letting the more knowledgeable help to inform the others. He then sets specific purposes: read to find the author's illustrations of these concepts; be able to explain the theories of the origins of the Sargasso Sea. During the preliminary discussion, the students have surveyed the chapter for its organization so that they have an idea where these points will occur. Knowing their purposes for reading and acquainted now with the author's style, the students can decide that close reading and rereading will be necessary.

For able students this introduction is sufficient. With a study guide that recapitulates the questions raised, and adds questions to stimulate interpretation and use of the ideas to be gained, these students are ready to learn from reading. They are capable of attacking new scientific terms, learning from context, using footnotes and glossary; they can follow the author's organization and apprehend her conclusions.

But what of the below-level readers? For them, the vocabulary load is still too heavy even after the preliminary discussion of concepts during which the teacher introduced many words from the selection. While the better readers go ahead with the assignment, the teacher may work with the poor readers, showing them how to attack additional words from the selection, telling them the meanings of essential terms, reminding them to use the

footnotes. If time is limited, he may instead give the poorer students a glossary of the difficult terms. This is part of their study guide, which is more detailed than the one prepared for better students, more closely keyed to the text, giving paragraphs and lines where answers are to be found, maybe even paraphrasing the more difficult passages.

As students read to answer questions in the study guides, they are applying essential comprehension skills: grasping cause-effect relationships, recognizing main ideas which are both stated and implied, deriving word meanings from context. Discussion after the reading is based on these guides and is accomplished in groups of four or five so that everyone has a chance to reinforce his recall of important information by talking about it. The teacher may join one or two of these discussion groups; later he will bring the class together for a whole-group summary.

Although the objective of this lesson was content, the teacher was also developing comprehension skills. Through the pre-reading discussion, students were learning to think before reading (what do you know already about the topic at hand?), to see the author's structure in a rapid skimming or survey before close reading, to raise questions which help to focus attention while reading. The study guides developed comprehension through careful questioning which caused the students to reason, to weave ideas together, to draw inferences. In the discussion that followed, students further developed their thought processes as they verbalized their own thinking and built upon the ideas of their classmates.

A word about study guides. They are a less satisfactory way to develop comprehension than to have a skillful teacher raise questions which grow out of a student's responses (in the Socratic manner). The questioning on a study guide has to be fixed; it cannot allow for the students' "intuitive leaps" or discoveries; it cannot shape the next question from the answer to

a preceding one. But the Socratic method seldom works in a whole-class discussion anyway because so many students are left out of the dialogue; and a teacher rarely has the chance to lead small groups in the "discovery method." So study guides are an alternative to an unattainable ideal. They permit more students to think independently, first by writing answers, then by discussing these answers with a few classmates; they allow for different levels of questioning to suit different stages of development. Obviously, they are only as effective as the teacher who composes them, but because they are pre-planned, teachers can pool their talents in designing them. Teams of teachers should work on common guides, selecting from textbook study aids where appropriate but matching questions to levels of ability in ways that textbook editors cannot. Study guides are no better than workbook exercises when all students answer the same questions, or when they are assigned as homework with no provision for small-group reaction.

Teaching Comprehension Skills

The preceding discussion has been concerned with "insuring comprehension" of subject-matter learnings. It has implied that comprehension can be developed by skillful questioning and has assumed that students may learn from well-made teacher questions the pattern of interior dialogue that they should engage in while reading. Indeed, many secondary school reading consultants would say that excellent teaching of subject matter incorporates the teaching of reading and makes unnecessary any additional reading or study courses. While maintaining this belief, however, they admit that excellent teaching is not yet the norm; until it is, they would advocate direct teaching of comprehension skills as a supplement to what, if anything, is being done to teach reading in subject-matter courses.

However, it is not poor teaching in subject-matter courses which alone necessitates the direct teaching of comprehension skills in "extra" classes

or units. As a matter of fact, it is the development of better instructional methods such as guided independent study and unit methods employing multiple texts and references that will make increasingly rare the kind of teacher-directed reading from a single source that we described in the preceding section. Although this teacher-assisted-textbook instruction will not disappear even when all high schools are non-graded, it will surely decline, and the independent study that will take its place will intensify the need for courses in how to read and study. So we cannot consider the teaching of comprehension without examining what is taking place in such courses.

Until fairly recently, to judge from the reading textbooks, workbooks, films, rate accelerators, and boxes of exercises which have been produced for high school reading instruction, the most thoroughly implemented theory is that students develop comprehension skills from taking tests. Instruction usually takes the form of assigning practice in reading short selections and answering questions, usually multiple-choice or other objective types that can be easily corrected. This is true whether the student reads from a film, a pacer, a card, a workbook, a reading textbook, or the duplicated exercises prepared by teachers from various sources such as magazines, newspapers, pamphlets, trade books -- and workbooks! The need for independent skills practice cannot be denied, but at the same time we must recognize the drawbacks. When everyone works on different materials, self-correcting exercises are mandated, discussion is impossible, and guidance by the teacher or help from peers is limited. Consequently, the emphasis is on the right answer, instead of understanding why an answer is right or wrong. Moreover, objective-type questions seldom force the reader to use higher thought processes; the nearest they come is to require him to agree or disagree with someone else's generalizations or inferences, leaving the real job of interpretation with the testmakers.

Since we ought to use more, rather than fewer, differentiated materials in reading classes, we cannot get rid of practice exercises with objective-type questions. But the proportion of practice to instruction must be balanced. Teaching comprehension, as contrasted with testing it, involves teachers and students in analyzing what takes place in the reader's mind when he grasps an author's idea or creates for himself a structure of relationships among ideas which came partly from the author and partly from his own experience.

Conscious awareness of the learning process should be the aim of high school reading courses, not so that students can parrot pedagogical jargon, but so that they can use the process more efficiently. How do teachers develop this conscious awareness? They demonstrate and analyze the process through close reading, engaging students in finding the linkages, for example, between main ideas which state effects and details that reveal causes. They have students trace a writer's progress towards a conclusion, and then evaluate the logic of his argument. In short, they put the reading and writing process under a magnifying glass to show how thought in language works. A minor example: one teacher magnifying the process of drawing inferences writes two sentences on the board --"Mackenzie did not waste his time during the cold weather. By spring he had a valuable cargo of furs to send back to Grand Portage."-- and asks what must have come between. Students compare their suggestions with the sentences which had been omitted from the text. Another example: after students have skimmed an essay to identify its structure, they anticipate how the author will develop his main arguments, then read to compare his treatment with theirs.

Teachers develop awareness of the process in many informal ways. They have students describe how they studied a textbook assignment or located information in a reference. In the discussion of reading exercises, they

analyze questions instead of answers: what skill does this question tap? what makes these distractors wrong? how relevant is this question to the purpose of the article? They spend much time on helping students to frame relevant questions before and as they read, since talking back to the writer (the interior dialogue) is essential to interpretive and critical reading.

Teachers focusing on process spend time with oral reading. Through listening to a good reader interpret difficult passages -- poetry, mathematics problems, directions, closely reasoned argument, intricate sentence patterns in any discursive mode -- students learn how much comprehension depends on giving each word its proper weight and inflection. Much of the work on oral reading should be done with tape recorders and headsets, thus allowing for differentiated practice. Students should listen to effective oral reading of complex passages, then record their own reading of comparable material. This should be followed by self-analysis and consultation with the teacher. One reason that oral reading as a technique for improving fell into disrepute is that it was done so badly, killing time, interest, and meaning. But oral interpretation, well taught and fully practiced, must enhance comprehension. Of course, care must be taken. To make sure that students listen to themselves during oral reading sessions with the tape recorder, teachers add this assignment: record in your own words the gist of the passage you have read aloud.

Teachers who aim at helping students understand the process of reading look for materials that do more than merely test comprehension. Books for high school and college students that discuss and demonstrate the process of reading were available thirty or forty years. I think, for example, of How We Learn by Walter B. Pitkin,[2] published in 1931, which presented serious discussions

2. Walter B. Pitkin, How We Learn, New York: McGraw-Hill Book Company, 1931.

of the learning process. But very much of what has been published in workbooks, texts, kits, and films during the past decade or two has been practice material only. Teachers examining new materials should look for balance: how much is practice exercise, how much is clear instruction in how to read. Among new publications which offer this balance is Success in Reading by Shafer and others[3], a series for average or below-average readers in high school.

Complicating the problems of designing or selecting materials for teaching comprehension is the conviction shared by many teachers that the best materials for developing skills are the subject-matter textbooks that students must learn to comprehend if they are to achieve academic success. Reading instruction is futile unless students transfer their skills to the reading tasks required in all their courses. Accordingly, many reading teachers use their students' subject textbooks as the basis for lessons in SQ3R, reading for main ideas, following directions, analyzing syntax, drawing inferences, summarizing, and related skills. Although this practice involves the reading teacher in what is properly the subject specialist's job, it is probably the best way for the student to transfer skills and apply his understanding of process. Moreover, in becoming acquainted with subject textbooks, the reading teacher develops a more realistic understanding of what the student needs. Transfer may be a problem chiefly because the practice exercises in reading workbooks are quite unlike the reading tasks imposed by biology, physics, and mathematics textbooks.

A relatively new idea that holds promise for improving comprehension skills is cloze, the technique which requires students to restore words omitted

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3. Robert E. Shafer and others, Success in Reading, Books 1, 2, 3 and 4, Morristown, New Jersey: Silver Burdett Co., 1967.

at regular intervals from a reading passage. This technique has been researched chiefly as a readability measure, but a few studies have experimented with its effect on comprehension.[4] Since the technique forces students' attention to word meaning and syntax, it seems logical to expect improved comprehension to result -- in time. To restore regularly omitted words -- every fifth or seventh word, for instance -- requires active participation in "weaving ideas together," in seeing how words are related. Probably the real learning comes, however, when students compare their restorations with the writer's choices and consider the effect of alternatives and synonyms on the writer's intended meaning. If used consistently for an extended period, and if used intelligently so that students understand its purpose, the cloze technique would seem to be a useful addition to the array of exercises that probably increase a student's facility with language. Obvious materials to use for cloze exercises are the students' subject-matter textbooks.

Everyone agrees that comprehension, like thinking, is hard to teach. Yet teaching comprehension skills would be immeasurably easier if we admitted that two factors are essential: time and practice. It takes time to develop the experience and insights that make comprehension possible. It takes time to become adept in using background knowledge and reading skills to gain new knowledge. Teachers who understand "developmental process" should not expect to teach reading for main ideas once and for all. And students who understand the process of reading should know why practice is necessary. Neither students nor teachers should expect any set of exercises to teach an infallible method of comprehending. Skills are important and techniques for teaching skills are essential, but it is a wise teacher who remembers that we "apprehend only what we already half know," as Thoreau said.

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4. Andrew J. Heitzman and Richard H. Bloomer, "The Effect of Non-overt Reinforced Cloze Procedure upon Reading Comprehension," Journal of Reading, 1967, 11:3, p. 213-223.