Using Research on Reading

Teachers sensitive to the subtle relation between background knowledge and text information can instruct for better student comprehension.

During the last 15 years, researchers from a variety of disciplines, particularly cognitive psychology, have contributed greatly to the study of reading. We now recognize reading comprehension as a complex process comprising a number of interacting subprocesses. We also have a better understanding of how a reader's capabilities in such components as decoding accuracy and fluency, vocabulary knowledge, and background knowledge affect comprehension.

In many cases, what reading research has provided is a deeper and richer understanding of notions that were previously acknowledged at a general and intuitive level. An appreciation of the importance of these subtle research findings can produce exemplary teaching of reading and unparalleled results in student achievement. But in order for the research to enhance practice, teachers must appreciate how the concepts work and understand why certain conditions produce certain outcomes. This is true of the numerous issues related to reading comprehension. However, only one is addressed here: background knowledge.

The discussion of background knowledge is intended to serve two purposes. The first is to illustrate through example the progress that has been made in understanding how the various subprocesses of reading work. The second purpose is to show how a group of teachers gained the kind of appreciation of the nuances of the research findings that could result in exemplary teaching.

How Background Knowledge Affects Comprehension

The relationship between background knowledge and reading comprehension has long been recognized. But the extent of the influence of background knowledge on comprehension and its specific effects were not known, nor was inadequate background knowledge typically targeted as a major cause of reading failure. Recent research has resulted in the emergence of the concept that reading is a constructive process. That is, readers construct the meaning of the text through text information and information existing in memory. Thus, background knowledge is now believed to have much stronger implications for comprehension than was previously assumed partly because research has been able to show how knowledge affects comprehension.

A Practical Example

A sequence of events in a master's level course that I taught illustrates how understanding the subtleties of research can positively influence instruction. First, my students applied their intuitive understanding to the role of background knowledge in an instructional task. Next, they encountered a set of experiences that appeared to deepen their understanding of the role of background knowledge. Finally, they repeated the original task using their new, deeper understanding. The difference in the quality of their instruction was marked.

The sequence of events began early in the course with a discussion of background knowledge and its effect on comprehension. My students were familiar with the topic. At that time they were all teaching and using basal reading programs, which have institutionalized the notion of providing background information before reading. The students affirmed the importance of presenting background content before introducing a reading selection.
After our brief discussion, I asked the students to read a 3rd grade basal story, *The Donkey Egg*, an old Turkish tale about a gullible character called the Hodja. A sly friend, Ali, gives the Hodja and his wife Fatima a pumpkin and tells them it is a donkey egg and that if they sit on it, a donkey will hatch. Weeks later, the “egg” softens, begins to smell, and the Hodja decides he must get rid of it. He takes the egg to a hill and releases it. The egg rolls down, hits a tree, bursts open, and startles a sleeping rabbit. As the long-eared rabbit runs off, the Hodja mistakes it for a baby donkey and is horrified over his loss.

After they read the story, I asked the students to identify the story concepts they thought were particularly significant for “typical” 3rd graders’ comprehension and most likely to be unfamiliar to them. The students identified two areas that needed attention. The first involved the setting. Everyone thought that 3rd graders would have little if any understanding of ancient Turkey and that “establishing some context would help.” The other knowledge issue a few students raised was that some attention should be given to the fact that there is no such thing as a donkey egg. The students who raised the issue were challenged by others who were sure that 3rd graders knew that donkeys do not hatch from pumpkins.

During the next several classes I arranged a situation in which students could observe the effects on their comprehension when denied the use of background knowledge. That is, they were subjects in a quick and dirty version of the passage. The other knowledge issue a few students raised was that some attention should be given to the fact that there is no such thing as a donkey egg. The students who raised the issue were challenged by others who were sure that 3rd graders knew that donkeys did not hatch from pumpkins.

During the next several classes I arranged a situation in which students could observe the effects on their comprehension when denied the use of background knowledge. That is, they were subjects in a quick and dirty version of the classic experiment. I gave them a passage, intentionally written to be ambiguous, that describes a common procedure. The first part reads:

> The procedure is quite simple. First you arrange things into different groups. Of course, one pile may be sufficiently dependent on how much there is to do. If you have to go somewhere else due to a lack of facilities, that is the next step. Otherwise, you are pretty well set. It is important not to overdo things (Bransford and Johnson 1972, p. 722).

When this passage is presented with the title “Washing Clothes,” comprehension as measured by recall is quite reasonable. However, when it is presented without its title, comprehension is impaired because subjects are unable to bring their background knowledge about washing clothes to the task.

After the students read the untitled version, I asked them to recall in writing everything they could. Their quizzical expressions during the exercise showed their confusion. Later, in reading their unsigned recalls, I found several good examples of poor recall. Into the pile I slipped an “edited” recall, which had been written earlier by a subject who had read the *title* version of the passage. The edited version simply replaced identifying words such as *clothes* and *laundromat* with *things* and *place* because subjects who know the passage is about washing clothes tend to use the appropriate words in their recalls.

When I read aloud the poor recalls, the students shrugged their shoulders. But when I read the informed subject’s recall, the comments flowed: “Who remembered so much?” “I forgot that part!” “I don’t remember that part; let me see the passage again.” Of course, I let them in on the secret, and the point was strongly made and used to lead into a discussion of schemata.

The major view of how knowledge affects reading comprehension involves the theory of schemata, structures of abstract knowledge that provide frameworks for related concepts. A schema brought to bear on a reading task can be thought of as a framework containing slots to be filled by incom-
original two remained—there is no such thing as a donkey egg and the setting in Turkey—but they added the notion of practical jokes, gullibility, and the similarity between donkey ears and rabbit ears. These issues match fairly closely the issues my colleagues and I had identified as concepts important for comprehending the story. My students were delighted to learn that our study data showed that children who had discussed these concepts comprehended the story more fully than children whose prereading discussion had included only the concepts specified in the teacher’s manual.

Excerpts from the students’ discussion of why they had selected certain concepts demonstrate the kind of understanding of background knowledge that may influence instruction. For example, in the discussion of whether to include “the no such thing as a donkey egg” issue, one student summed up the majority position by saying, “If you don’t know or keep in mind the fact that donkeys don’t hatch from pumpkins, the whole point of the story can get lost.” Or consider one student’s defense of why she would emphasize the similarity between rabbit and donkey ears: “Most kids have never thought about this similarity. If I ever teach this story, I’m going to get it across. It will help the kids understand one reason why the Hodja might have thought the rabbit was a donkey.” Another said, “Understanding that the Hodja is a gullible person would also help.”

As I noted earlier, a deep understanding of the reasons why certain conditions produce certain outcomes may contribute to how well teachers implement research findings. In their discussion of reading comprehension, my students showed their appreciation of the concept of background knowledge by being able to reason why they should present particular issues. They came to understand firsthand the relationship between prior information and comprehension. The most important issue for them as teachers, however, is translating into classroom practice their appreciation for background knowledge.

Classroom Application

The following scenario illustrates how teachers might use an appreciation and deep understanding of background knowledge in the classroom. First, the teachers’ understanding permeates their day-to-day interactions with their students. It is as though a “slot” exists in their decision-making frameworks that contains their understanding of background knowledge. When a child exhibits difficulty with comprehension, teachers alert to the importance of background knowledge will consider it as one possible source of the child’s problem.

More to the point, these teachers will consider their students’ need for background knowledge before they present a selection. Thus, they may prepare a more thoughtful prereading component, which considers aspects of the selection in relation to the background knowledge base of the children in the class. The prereading component could alert the children to the possibility that their inadequate background knowledge may make comprehension difficult. Such preparation, of course, should not neglect the need for children to develop the ability to fill in their own background knowledge. For example, a teacher might say, “This author assumes that you know a lot about mountain climbing. If you don’t know about mountain climbing, it could cause you some trouble when you read. How can you find out more about mountain climbing?” This approach lets children in on the background knowledge secret, and, just as teachers have developed a slot for background knowledge in their own teaching repertoire, the students will develop a comparable slot in their reading skill repertoire.

Teachers whose understanding of background knowledge has been enhanced look at the teacher’s manual with a critical eye. Analyses of several basal teacher’s manuals show instances of problems in the prereading component. Some manuals suggest that teachers focus on tangential concepts that are irrelevant to the upcoming selection; sometimes the suggestions for presenting the concepts would encourage far-ranging discussions that could distract the children from what is important. Even under the best conditions, the teacher’s manual may suggest concepts inappropriate for a specific group of children.

Teachers who understand the subtle relation between background knowledge and comprehension, however, can alter the basal prereading component when necessary and present one which is more helpful to their class.

Teachers who integrate research concepts with practical insights into how children comprehend their reading have the potential to enhance classroom instruction. At this level, the research serves as a filter through which teachers observe children’s interactions with text and evaluate and modify instructional materials accordingly. Just as the extent and quality of background knowledge affects children’s comprehension, so too does the extent and quality of teachers’ understanding of research issues affect their ability to apply them to their teaching.

Reference


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