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ABSTRACT

A study examined primary grade children's comprehension processes while reading a particular story in which specific areas likely to pose reading difficulty had been identified. Based on the children's readings and on their answers to questions concerning the text, five problem areas were identified: (1) poor decoding or word attack skills (2) conscious decoding or poor reading fluency, (3) unfamiliar syntactic structures, (4) insufficient vocabularies, and (5) insufficient background knowledge. The study concludes that an interaction of reader and text characteristics may cause a young reader's processing system to become overloaded and that comprehension failure will result. It recommends a two strand system of reading instruction: a daily reading assignment of an interesting but conceptually easy selection, and regular presentation of conceptually more difficult selections grouped around similar knowledge domains. (HTH)

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# LEARNING RESEARCH AND DEVELOPMENT CENTER

## FIVE PROBLEMS WITH CHILDREN'S COMPREHENSION IN THE PRIMARY GRADES

1985/4

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U.S. DEPARTMENT OF EDUCATION
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# Five Problems with Children's Comprehension in the Primary Grades

*Isabel L. Beck*

Virtually all people who study reading would agree that reading comprehension is not a simple process. Rather, it is a complex process composed of a number of interacting subprocesses and abilities: decoding accuracy, decoding fluency, vocabulary knowledge, and previous background in the topics in a given text.

To take a deeper look at notions about what it takes to comprehend a piece of text, consider the beginning of a story (Clymer, 1976) from the third-grade reader of a widely used basal program:

The Donkey Egg

The Hodja lived in a small village with his wife, Fatima. They had one little donkey, and how they wished for one more donkey!

The Hodja had a friend, Ali. At times they had quarrels. Then they were not such good friends for a while. One day Ali brought a strange gift to the Hodja. From the folds of his loose coat, he brought it forth. It was large and smooth and round.

He offered the gift to the Hodja and Fatima. "A donkey egg," Ali said. "You must sit on this egg for three weeks."

There is little question that, as a skilled reader, you could recall much of this story and correctly answer questions about it. What needs to be pointed out is that, in comprehending this text, you performed a variety of processes at an unconscious level and applied a good deal of knowledge. In contrast, some third graders are not able to do some of the things you did, and other third graders would have difficulty doing them.

This excerpt is part of an approximately 800-word story that my colleagues and I have worked with in several experiments (Beck, Omanson, & McKeown, 1982). For this story, we have identified more than eighty "difficulty candidates," which fall into two groups: (1) linguistic features in the text and (2) knowledge that must be brought to the text. We have hypothesized that some requisite knowledge is unknown to some third graders and hence negatively affects their

processing of the text and their construction of its meaning. Our difficulty candidates are not necessarily instances of low-quality sentences. Rather, they are linguistic and conceptual features of the story that might be difficult for children reading the story.

We have identified three difficulty candidates in the first sentence. First, there are the foreign names, *Hodja* and *Fatima;* although it is probably not important that Hodja and Fatima are pronounced correctly, it is important that they be recognized as names. Even if you had never seen those names before, your experience with foreign names would allow you to tag the words as "names of people," but some children do not have much experience with foreign names. The problem of recognizing the words as names of people may be heightened by our second difficulty candidate, the use of the definite article *the* in *the Hodja.* As an adult reader, you processed *the Hodja* as a title (even if you did not know that *the Hodja* means "the teacher"), so it probably did not disturb you that one character carries a title (the Hodja) and the other a name (Fatima). The third difficulty candidate concerns the separation of the characters. *The Hodja* appears at the beginning of the sentence, and *Fatima* is found at the end of sentence. The separation of the characters perhaps requires reprocessing of the clause; that is, after establishing that *the Hodja* lives in a village, the reader encounters "with his wife, Fatima" and may need to reprocess the sentence to establish that in fact it is *the Hodja* and his wife *Fatima* who live in a village.

We identified two difficulty candidates in the second sentence: "They had one little donkey, and how they wished for one more donkey!" One candidate concerns the motivation for wishing for another donkey. The clause "They had one little donkey" is simply a statement of possession. To relate the possession clause to wishing for another donkey, the reader probably needs to infer from the statement of possession a statement of lack—that is, "They *only* had one little donkey." This inference provides a motivation for wishing. The other difficulty candidate concerns the use of the oral language idiom, *and how.* We suspect that some students have difficulty understanding *and how* because that idiom is unfamiliar in print. Not understanding *and how* may be particularly disrupting to this story, because the expression is used to introduce new information about the wishes of the characters.

Another difficulty candidate occurs in the third sentence: "The Hodja had a friend, Ali." "Ali" is a restrictive clause with an implied verb. The sentence needs to be understood as "The Hodja had a friend *named* (or called) Ali." Because Ali may be unfamiliar as a name, and because there is not a verb to help identify it as a name, we identified this part of the sentence as a difficulty candidate.

What evidence do we have that these difficulty candidates cause problems? The evidence comes from theory, data, children's oral readings, and their recalls. Consider the separation of the characters *the Hodja* and *Fatima* in the first sentence. Much research shows that when two related but noncontiguous concepts need to be integrated to be comprehended, reading time is increased (Carpenter &

Just, 1981; Frederiksen, 1981; Lesgold, Roth, & Curtis, 1979; Perfetti & Roth, 1981). Interruptions can be disruptive to the thread of a text, because the extra time needed to process the connection between concepts takes away from the construction of meaning (Collins & Smith, in press). Indeed, Lesgold and Perfetti (1978) have suggested that in "the non-ideal world of everyday reading, that which takes a long time may not get done."

Do the difficulty candidates prevent children from comprehending effectively? Excerpts from audio tapes of youngsters reading "The Donkey Egg" present evidence that they had problems with certain sentences in the story. Let us look at evidence for difficulty with the foreign names, *Hodja, Fatima,* and *Ali.* (It should be noted that the children were given an opportunity to warm up for oral reading. They read the entire text silently, recalled it, and answered thirty-five questions before reading orally.)

Here is how one student, Tamika, read the first sentence. After reading the title, "The Donkey Eggs," she paused, pointed to *Hodja,* and said, "What's this? . . . I forgot this word again." The examiner said, "Hodja." Tamika read "The . . . uh . . . The Hodja lived in a small village with his wife, Fatima. She stopped, pointed to *Fatima* and asked, "What's this word?" The examiner told her, "It's Fatima, you're right."

Although this child pronounced *Fatima* correctly, our conjecture is that the word did not have any specific meaning for her and that she was not able to tag it as a name. She did a kind of double take and then asked about it.

Another child read *Fatima* as *Phantom;* we wonder if this child has knowledge of the word *phantom* and, if so, if he attaches that knowlege to Fatima. Another child's recall suggests that Ali and Fatima have combined into one character she calls *Aliama.* Most of the children were not so overt with their confusions. From the number of pauses and repetitions in their oral reading, however, it is not unreasonable to conclude that some children do mental "huh's" when they get to unfamiliar names.

Tamika's oral reading also provides evidence that she responds to the definite article *the* in *the Hodja.* (When a reader encodes *the,* he or she needs a referent for it. The referent can come from the text or from general knowledge. Since *the Hodja* are the first two words in the text, the referent must come from general knowledge.) Let us consider what Tamika did. First, she asked for a pronunciation of *Hodja.* Then she read "The" (paused and said "uh"), and then she read "The Hodja." It is not unreasonable to suggest that her pause was related to some difficulty connecting *the* with *Hodja.* Had it been *the President,* she probably would not have read "The (uh) The President."

An additional example of oral reading evidence of processing difficulty is related to the sentences, "The Hodja had a friend, Ali. At times they had quarrels." Jamal's reading of this sentence provides strong evidence that he has a problem with the lack of a verb and the unfamiliarity of the name in the first sentence. Jamal read, "The Hodja had a friend (pause) all, all (ignoring the period)

at times they . . . " Jamal probably could have handled the sentence, "The Hodja had a friend *called* Ali." Also, he probably would have been able to handle the inferred verb if the sentence were "Tom had a friend, Bob."

The processing requirements for comprehending text are complex, regardless of how obvious and straightforward the text appears to a competent adult reader. The complexity of the comprehension process is magnified for third graders in that few of them have the decoding capabilities of adult readers. Many of the children in our study could be described as accurate but not fluent readers. Even with sentences in which the children pronounced the words correctly and did not get tangled in syntactic structures, they read slowly, haltingly, and nonfluently. While listening to them read, one got a real feeling for how much mental capacity they were using just to get through the words. As Samuels points out in chapter 16 of this volume, the problem is that if a great deal of the children's mental resources are used to get through the words, there might not be sufficient resources left for the children to give comprehension the attention it requires.

Reading comprehension is not a matter of merely extracting meaning from print. Rather, it is an active process in which the reader constructs meaning through a multitude of interactions with a text.

## Five Problems in Reading

In an attempt to analyze some problematic interactions, the rest of this chapter is organized around five problems identified from the children's readings and recalls of the Hodja text and their answers to questions about it: word attack, fluency, syntactic structures, word meanings, and background knowledge. In the discussion of the problems, I will relate proposed solutions to what theory and research suggests, and I will then make instructional recommendations for remedies.

### *Word Attack*

Some of the children had obvious word-attack problems; either the examiner had to supply words or the children mispronounced words or sometimes they sounded them out. Teachers often describe such children by saying: "They guess at the pronunciation of words," "They can't remember their sight words," or "They don't know their vowel sounds." In instructional terms, these children have not learned their decoding skills, or they have word attack problems. The children in our study, however, were in the third grade and had had three years of instruction from basal reading programs. Virtually all basal reading programs include instruction in many, if not most, of the English sound-symbol relationships. In the small inner-city school district in which we worked, one-fifth of the 150 third graders who were given a test of decoding, the Wide Range Achievement Test, scored below grade level. To obtain a 3.0 grade-level equivalent score, a child needs to

Anderson (Note 3) has distinguished two types of background knowledge problems: one has to do with a reader's lack of specific knowledge; the other has to do with a reader not bringing to bear knowledge that is in his or her repertoire. Various children reading "The Donkey Egg" exhibited one or both of these knowledge problems. Before proceeding to a discussion of some of the apparent sources of knowlege difficulties encountered by the children reading "The Donkey Egg," I will summarize the rest of the story: Ali, the antagonist, has given the Hodja, a gullible character, a pumpkin, and has told him it is a donkey egg that will hatch a donkey if he sits on it. Weeks later, the pumpkin softens and smells, and the Hodja decides he must get rid of it. Still thinking it's a donkey egg, but a rotten one that won't hatch, the Hodja takes it to a hill to dispose of it. It rolls down a hillside, hits a tree, and bursts open, startling a rabbit. As the long-eared rabbit runs off, the Hodja mistakes it for a baby donkey and is horrified over the loss.

Several knowledge domains and specific facts needed for comprehension of this story were either not available or not used by a number of our third-grade children. Some kind of understanding of a practical joke (perhaps of tricks people play on one another) would help children understand the antagonist's plans and goal. Even better would be an understanding that the gullibility of a recipient, combined with fortunate coincidence, can contribute toward the success of a practical joke. The story takes place in old-time Turkey and includes many references to that period; thus, the children would benefit from knowing some Turkish customs or at least from understanding that people living in different cultures and times did some things differently than we do today. Such understanding might reduce potential interference from numerous text references to unfamiliar events, such as the Hodja thanking Ali by kissing his hand and pressing it to his forehead and the marking of time by visits to the public bath house and coffeehouse.

One fact that needs to be understood by readers of the Hodja story is that there is a similarity between rabbit and donkey ears. A very important point in the story is when, because the Hodja mistakes the rabbit for a donkey, he thinks the pumpkin hatched a donkey; yet only six of twenty-four children who read this story got the point. Three children said that the Hodja thought the rabbit had come out of the pumpkin but did not relate that to the Hodja thinking the rabbit was a baby donkey. Two children said that a donkey came out of the pumpkin and was lost to the Hodja. And eleven children simply said that the rabbit came out of the pumpkin.

To discuss why so many children did not construct the appropriate ending to the story, it is important to present the final page of the story (Clymer, 1976):

> At the top of the hill he stopped. He put the pumpkin on the ground. To the Hodja, the pumpkin was still a donkey egg. It started rolling down the hillside.
>
> It rolled over rocks and around bushes. It rolled against a tree. It hit a stone and cracked open.

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*Fluency*

Most of the children read haltingly, in a monotone, and with many hesitations. Correct but halting reading can be an indication (indeed, I believe it is a good indication) of nonautomated decoding. The word *automatic* is used to describe a skill that can be carried out without overt attention. Automaticity is best understood in the context of the notion that human information-processing capacity is limited; that is, people simply cannot actively attend to too many things at once. The implication for reading is that some of the subprocesses, such as decoding, need to be developed to the point where they are done without direct attention on the part of the reader. If this is not the case, there will not be enough processing capacity for the reader to attend to some of the higher-level processes involved in comprehension (see Samuels, chapter 16 of this volume).

There is empirical evidence that comprehension is weak when texts are read too slowly. Work by LaBerge and Samuels (1974) and Perfetti and Hogaboam (1975) indicates that slow word recognition is related to poor sentence processing and that fast word recognition is correlated with better comprehension. These correlational data have been supplemented by Lesgold and Resnick's (in press) major finding that the causal links between automaticity and comprehension are stronger than those between accuracy and comprehension. These investigators conclude that early weakness in speed seems to be a more serious indicator of later comprehension difficulty than traditional indicators, such as poor achievement test scores. The few intervention studies that have been directed toward the development of decoding automaticity have not yielded completely convincing results, yet the notion that decoding automaticity is needed for efficient reading comprehension is compelling. The theoretical foundation for the notion of automaticity is so well developed that further experiments building on what has been learned can be undertaken with confidence.

Further investigations of decoding automaticity should also provide evidence that direct intervention is helpful (and in some cases required), if automaticity is to develop. The practices that will contribute most effectively to the development of automaticity need to be specified, and practices that work against the development of automaticity should be eliminated. Teachers should stop moving children through reading materials at a constant pace, for example, regardless of the children's ease and fluency in reading. As the selections get harder, the students are confronted with a word pool that is constantly increasing in size and difficulty. There is often little opportunity for rapid word recognition to develop. Children need to have repeated encounters with a set of words. More research could show whether repeated encounters are best accomplished by frequent repetitions of a subset of words that occur in texts written entirely around a limited set of words or by supplemental techniques, such as repeated readings or timed, gamelike activities.

*Syntactic Structures*

The third reading problem concerns the difficulty many children had with certain syntactic structures. For a long time, there has been a belief that children are linguistically mature by the time they get to school. This belief probably originates from statements by linguists about the extraordinary language accomplishments of very young children (McNeill, 1970; Sloben, 1971). It must be pointed out, however, that although children's accomplishments are extraordinary, they are not complete. Indeed, there is evidence that children's ability to understand syntactic structures continues to increase until at least age 13 (Palermo & Molfese, 1972).

Problems with syntactic structures can arise in two ways. First, children's ability to understand syntactic structures when they are spoken does not guarantee that these same structures will be understood when they are read. This is because print does not have the tone, stress patterns, and other prosodic cues provided by a speaker, nor does print have the support of the real-world context that is present in conversation. Some of the pauses, hesitations, false starts, and rereading heard on our oral reading tapes provide evidence that children use up processing resources to recover the syntactic structure of printed sentences—sentences that would be readily processed as spoken sentences. Second, some syntactic structures are more frequent in speech than in print and are unfamiliar when encountered in print. Such structures may be very treacherous for some young children when they are encountered in print without the cues available in speech.

How should teachers help their students deal with syntactic structures? Teachers can provide direct experience with the structures by reading sentences or passages aloud, with the tone, stress, and pauses that will unravel the meaning of any unfamiliar structures. The children can then imitate the teacher's model by reading the sentences or passages. Next the teacher and children can create new sentences that follow the same structures. Consider the very difficult construction, "From the folds of his loose coat, he brought it forth." After the teacher reads the sentence (perhaps with some theatrical gestures), and the children read what the teacher has modeled, the teacher can then offer sentences more in touch with the child's environment—for example, "From the bottom of his lunch bag, Tom took out a tiny pencil" and then "From the bottom of his lunch bag, Tom brought a tiny pencil forth."

Oral reading is a prevalent part of primary-grade reading instruction, but it is questionable whether the benefits that can be derived from it are always used to advantage. Teachers typically use the oral reading of their children to gather information about word recognition, but they probably do not use oral reading for evaluating and then directly teaching syntactic processing. Children are frequently asked, for example, to read a passage in a way that emphasizes a character's excitement, or sadness, or whatever In my student-teaching days, the manual I was using frequently suggested that children be told to read with "expression." I fol-

lowed the suggestion, but the children did not read with expression. I soon realized that the children did not know what *expression* meant and that models of reading with a particular expression (for example, in a way that shows that Henry was frightened or that Louise was happy) were helpful. I also found that children liked to imitate models. Imitation can be playful and fun; it does not have to imply a rigid "read the way I tell you to" approach.

### *Word Meaning*

Many children had difficulty with the meaning of some words. Beginning reading materials include words that are likely to be a part of most young children's speaking and listening vocabularies. This is sensible because, in the course of learning to decode and construct meaning from print, it would be highly inappropriate for children to encounter more than an occasional unknown word. As children progress to the intermediate grades, however, the number and difficulty of words increase. The vocabulary becomes more sophisticated, and word meaning becomes more of a problem.

In the teacher's manuals, words that might cause decoding or meaning difficulties are indicated, and suggestions are made for presenting these words prior to reading. An analysis of the instructional strategies for teaching the meanings of unknown words specified in manuals suggests, however, that these strategies are far from adequate (Beck, McKeown, McCaslin, & Burkes, Note 2). Consider, for example, the strategies provided for teaching some words prior to reading "The Donkey Egg." The teacher is instructed to put a list of potentially troublesome words on the board, including *quarrels, heavens, offered, reply.* Then the teacher reads a sentence—for example, "Arguments are sometimes called _____"—and the children are to choose *quarrels* to fill in the blank. Another sentence is, "If an accident happens, help should be _____" (*offered*). I believe that for children who do not know what *quarrels* or *offered* mean, these fleeting encounters are of very little use. There is little likelihood that the words will be learned, given the lack of power in the context sentences and the single encounter with the words.

The kind of vocabulary control found in the older basal programs is not in evidence in the newer programs. By about the third grade, and certainly by the fourth grade, most of the selections in the newer programs are drawn from independently written materials. Most selections are not created by a publisher for inclusion in a series. Instead, the newer basal readers are virtual anthologies. Authors of the selections are professional writers using the best words available to them to communicate their ideas. They do not draw from an established word pool, nor is the word pool reused from selection to selection. The sophisticated vocabulary found in the selections has both positive and negative potential. The positive is obvious—children can add words to their vocabulary pool. The negative is also obvious—too many unfamiliar words will cause comprehension problems. In addition, the brief encounters with the vocabulary instruction are not likely to increase the vocabulary pool of children with limited vocabularies.

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A major finding from my own vocabulary research (Beck, Perfetti, & McKeown, 1982) is that it takes an extended series of fairly intense exposures before one "owns a word"—that is, before a word can be quickly accessed and applied in appropriate contexts. The words that are likely to cause comprehension problems for children in the intermediate grades are not frequently heard in everyday conversation and thus not easily reinforced. Therefore, an effective instructional program must arrange conditions so that words to be learned are reinforced, maintained, and enriched in exciting and playful ways.

In our instructional experiments, fourth-grade children were taught 104 words over a 5-month period. The instruction provided a variety of instances of word concepts and encouraged much discussion of word meanings. The children in our experiment were required to make connections between word meanings, to explore denotations and connotations, to respond to words affectively as well as cognitively, and to elaborate semantic networks. There is evidence that the instructed children were able to apply what they had learned about the instructed words to comprehension tasks. There was also a hint of transfer to other words; that is, the children seemed to learn more untaught words than a comparable control group. This work suggests that reading comprehension may be enhanced by instituting deep and rich vocabulary programs.

The results of our study suggest that it may be better to teach 100 new words well than to present 400 superficially. This brings up a general instructional principle that I think is very important. The schools do fairly well in teaching a little about a lot. Although I do not suggest that this practice be stopped, I do suggest that there also should be times when a lot is taught about a little.

### *Background Knowledge*

Many children did not know what they needed to know to understand the text. In addition, they often did not relate what they clearly knew to what they read.

Recently, there has been a veritable explosion of research about the background knowledge a reader brings to text and its effect on comprehension. The relationship between knowledge and reading comprehension was realized long ago, but the new research has greatly increased our understanding of how background knowledge functions in the reading process. This research has introduced the theoretical notion of schemata—the abstract knowledge structures 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 incoming text information. If a reader reads a text about going on vacation, there is likely to be a slot in the vacation schema for packing a suitcase. Statements in the story about folding clothes or carrying bags could then fill the slot and be interpreted as part of packing for a vacation. If a reader did not have a vacation schema with a suitcase-packing slot, the information about clothes and bags in the story might not be so readily understood.

obtain fifty-one points. Twenty-six points are given for writing one's name and finding some letters in the alphabet, and all third graders in the study received those points. Hence, the children needed to read twenty-five words correctly. The child is exited from the test when he or she misses ten consecutive words. To provide a sense of the level of word pronunciation required, the first thirty words on the test are as follows: *cat, see, red, to, big, work, book, eat, was, him, how, then, open, letter, jar, deep, even, spell, awake, block, size, weather, should, lip, finger, tray, felt, stalk, cliff, lame.*

After 22 months of reading instruction, why were thirty students unable to read correctly a list of twenty-five words—all of which are probably in their speaking and listening vocabularies? There are several possible answers to this question: perhaps a child was not ready to learn to read when formal instruction was initiated; perhaps a child encountered stories that were trivial, so that he got turned off to reading; perhaps a child had too much phonics; perhaps a child did not have enough phonics; perhaps a child had the wrong kind of phonics; and so forth.

Depending on their orientation, various reading experts would select different reasons from the foregoing list. From my interpretation of theory, experimental data (Bishop, 1964; Jeffrey & Samuels, 1967), and evaluative research (Guthrie, Samuels, Martuza, Seifert, Tyler, & Edwall, 1976; Stebbins, St. Pierre, Proper, Anderson, & Cerva, 1977), my own analysis of various instructional strategies used to teach decoding (Beck & McCaslin, Note 1), and my clinical experience, I would point to the wrong kind of phonics instruction as the most likely cause of word-attack difficulties. (*Phonics* is here defined as the instructional strategies used to teach sound-symbol relationships and word synthesis.)

The wrong kind of phonics instruction may be characterized as follows:

1. It is too abstract, requiring sophisticated prerequisite abilities; for example, children are expected to extract the /i/ sound by hearing the teacher say, "It is the vowel sound heard in *fish*."
2. It spends time on tasks that do not contribute to reading; for example, children identify pictures of items whose names contain a target phoneme, rather than looking at the phoneme and responding with its sound (Bateman, 1979).
3. It omits components needed for successful decoding; for example, children are not directly taught to blend sounds together.

In contrast, the right kind of phonics instruction contains three elements: (1) direct letter-sound correspondence instruction, which explicitly tells the children what the sound-symbol relationship is; (2) an explicit blending strategy, which teaches children how to synthesize sounds into words; and (3) repeated opportunities to apply learned correspondences and blending to the reading of words in connected text, so that students will learn to read fluently.

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Under that tree a long-eared rabbit was sleeping. When the pumpkin burst open, the rabbit jumped up. He hopped off down the hill and out of sight.

It was a beautiful long-eared rabbit. The Hodja saw him. "Oh," he groaned. "The baby donkey at last! The donkey egg was just ready to hatch. May heaven help us all," he shouted. "Now it has hatched and our baby donkey is lost forever!"

As written, the text is far from explicit. A number of text-connecting inferences and slot-filling inferences must be made if a reader is to comprehend the Hodja's confusion of rabbit ears and donkey ears. To better understand what makes these inferences difficult for children, consider the two youngsters who told us that a baby donkey came out of the pumpkin. Most children probably know that donkeys do not hatch from pumpkins. (In fact, as directed in the teacher's manual, the teacher told these children before they read the story that donkeys do not hatch from pumpkins.) Despite this information, two children either misread the text or ignored the text and told us that a donkey came out of the egg. The question is why this happened.

A reasonable hypothesis is that, in the course of reading, the children had to give direct attention to too many things, and their reading system was overloaded. Let us assume that, in this passage, the two children were expending a great deal of effort on decoding, recovering the syntactic structure of a sentence here or there, attaching meaning to a word here or there, and figuring out some of the references to foreign customs. When these children encountered the sentence in which the Hodja shouted, "Now it has hatched and our baby donkey is lost forever!" they processed only a literal interpretation of the sentence. Perhaps they had used up their resources in decoding and determining the literal meaning of the passage and did not have resources left to infer that the last sentence is about what the Hodja thought, not what actually happened. These children did not bring their knowledge that donkeys do not hatch from pumpkins to the text. To do so, they would have had to reject the literal meaning of the sentence, make a text-connecting inference, and bring some knowledge to the text. That is a lot of work after already having done a lot of work.

A number of things could be done to help the children construct the correct ending to the story. First, the text could be more explicit—for example, "From the top of the hill, the Hodja saw the long-eared rabbit and thought it was a baby donkey." During the prereading preparation, the teacher could set up a framework to help the children interpret incoming information and discriminate important from unimportant information. A mistaken identity framework would facilitate construction of an appropriate conclusion to the story. Let us consider mistaken identity as a schema. An important slot in a mistaken identity schema is the similar features of objects whose identity is switched. The information given about the similar features of a rabbit and a donkey is not stated very explicitly in the story. The text simply describes the rabbit as "long-eared." Apparently, this

was sufficient for at least four of the six children who constructed the appropriate ending for the story. One would guess that their background knowledge allowed them to relate rabbit ears to donkey ears.

A well-developed mistaken identity schema probably contains a slot that has to do with the proximity of an observer to an object and the amount of time spent observing. If one catches only a glimpse of an object and is at a distance from it, the probability of mistaken identity might increase. There is some weak information in this regard in the story; the Hodja puts the pumpkin down at the top of a hill, it rolls down over rocks and around bushes, then gets to the tree where the rabbit was sleeping. The recalls of two of the children who got the point of the story indicated that they were aware that the Hodja was at a distance from the rabbit and that the rabbit hopped away fast.

A sophisticated mistaken identity schema might also include an understanding of the power of perception over reality—that what one believes can override what is. The text is quite explicit: "To the Hodja, the pumpkin was still a donkey egg." No child's recall indicated that the Hodja's perception was used; however, this does not mean that the children ignored it. If the children had read the last episode with a well-formed mistaken identity schema, some of the text's weak information might have received more attention; or, if the text information had been stronger, a mistaken identity schema might have come into play more easily. For many of the children, the absence of a well-formed schema and strong text information, combined with lower-level processing inefficiency, made for great difficulties in understanding the end of the story.

Texts in which the subject matter is too difficult for many children are easy to spot (for example, a second-grade text about the temperature in the Arctic and the desert, in both Fahrenheit and centigrade; a fourth-grade story that relies on knowledge of the interdependence of animals in nature). The influence of knowledge on reading, however, cannot be limited to having or not having certain knowledge. The examples from "The Donkey Egg" show that even if a child has some story-appropriate knowledge, that knowledge may not be used. Reasons why knowledge is not used include (1) weak reader knowledge, (2) weak textual information, and (3) weak lower-level processes. Reading instruction must strive to prevent all three conditions from occurring simultaneously. What are children learning about reading if they frequently leave their reading lessons without really comprehending the meaning of the story? For such children, reading is probably dull, unrewarding, or frustrating.

Many third graders do not have efficient word-processing skills. Therefore, either the text information in the stories should be explicit and strong or the prereading discussion should activate existing knowledge and provide frameworks for helping readers select important text information. A combination of both approaches would be advantageous. That is not all, however. Assume that the text of "The Donkey Egg" stays the same and that a mistaken identity framework is provided in the prereading discussion. The teacher should also discuss clues that tell how the Hodja concluded that the rabbit was a donkey.

For comprehension instruction to be truly effective, teachers must help students with the specific aspects of reading that are likely to be most difficult. By working through these difficulties with teachers who are able to demonstrate explicitly the steps in the comprehension process, children will begin to learn how to do the thinking themselves.

## Conclusion

In this chapter, I have proposed that an interaction of reader and text characteristics may cause a young reader's processing system to become overloaded and that comprehension failure will result. I recommend that primary reading instruction provide practice with lower-level skills for reading fluency, start children thinking in ways that will help them understand what they read, and add to the children's knowledge of the world around them. These seem to be conflicting recommendations; that is, to practice lower-level skills, textual material should be kept conceptually easy and should be about things most children know about. Texts that give children opportunities to think in interesting ways and add to their store of general knowledge are clearly also important. I suggest a two-strand system of reading instruction: (1) a daily reading assignment of an interesting but conceptually easy selection and (2) a regular presentation of conceptually more difficult selections grouped around similar knowledge domains (Beck, 1981). The lower conceptual load of the easy selections would allow children to build reading fluency, and the more difficult selections, with a greater conceptual load, would help build students' knowledge structures. Grouping stories around similar knowledge domains (for example, mistaken identity, nautical life) would help children learn to read more demanding text. Such groupings do not exist in most basal reading programs. Rather, in their attempts to be everything to everyone, publishers have developed series that are a smorgasbord of content. One day children may read a fanciful Turkish tale, the next day a realistic narrative about fishing off the coast of Maine, and the next day a text about the temperature in the Arctic and the desert. Each of the selections requires different background knowledge, but the time to develop this knowledge fully is not available on a daily basis—hence, the strong recommendation for grouping texts around similar domains. There would not be a frequent need, then, to develop new knowledge. Each successive story would reinforce the children's previous knowledge of a topic and then proceed to build on that knowledge base.

Reading instruction in the primary grades has to satisfy many goals: decoding accuracy and fluency, increased word knowledge, experience with various linguistic structures, knowledge of the world, and experience in thinking about texts. Teachers do not always recognize that all these factors influence comprehension; and when there is such recognition, they sometimes attempt to do too much at one time. Unless different lessons and different textual materials are provided by basal series publishers to support different aspects of reading instruction, the

instructional and practice time students and teachers invest may not result in the intended skills and abilities.

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