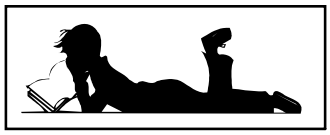

READING COMPREHENSION

Simply put, reading comprehension is the ability to understand what one is reading. However, for many students, reading comprehension is anything but simple. In fact, the NAEP 2007 reported that 70% of our students never attain reading proficiency, a finding that is obtained through reading comprehension testing. Yet a popular notion is that once a child can accurately decode words and read with at least average fluency, comprehension will naturally follow.

Children may have difficulty understanding what they are reading for different reasons. There is no single approach to teaching reading comprehension because there is no single reason why students fail at it. Therefore, it is important to recognize the many language and cognitive processes that come into play when an individual sits down to read.

PROCESSES RELATED TO SKILLS IN ACCURATE DECODING AND FLUENCY

Poor reading at the word level and a halting slow reading rate will interfere with a child's ability to understand what he reads. Anytime the flow of ideas is interrupted by effortful word decoding, comprehension will be compromised. To further complicate things, children with reading disabilities commonly have weaknesses in working memory. In other words, by the time the child comes to the end of the sentence, he may have forgotten about what occurred in the beginning of the sentence. By the time he has read the last sentence of a paragraph he may not recall what had occurred before. Needless to say, if a child is not reading words automatically, the weak decoding may need to be addressed to ensure that it is not contributing to poor comprehension.

PROCESSES THAT ARE RELATED TO LANGUAGE AND COGNITION

Background Knowledge

There is a growing body of evidence supporting the concept that a reader's background knowledge about what he is reading is one of the most critical factors in determining whether a student will understand what he is reading or not (Hirsch,E.D. (2006); Kamhi, A.,(2007). In other words, if you know nothing about a topic, you are likely to have more difficulty understanding what you are reading than if you are very familiar with a topic. Recht, D.R. and Leslie, L. (1988) illustrated this phenomenon very clearly in a study where they compared reading comprehension of students who were technically skilled readers with that of students who were considered to have low technical reading skills. The difference between the groups was **in the amount of knowledge they had about the subject matter**, in this case, baseball. The skilled readers knew very little about baseball whereas the low-skilled readers knew a great deal about baseball. Guess who had better reading comprehension skills? If you predicted that the

low-skilled students had higher scores you would be correct. This of course, demonstrates the importance of prior knowledge on actual reading skill.

Most of us have had a similar experience when we have tried to tackle a complicated tax or insurance form. We may find ourselves rereading a sentence several times, hoping it will eventually become clear to us. But between the foreign vocabulary, the unfamiliar style of the "legalize" that it is written in, and our own vague understanding of the subject matter, we feel as if we are reading something in a foreign language. This feeling is not unlike that which our students experience when they are faced with reading material for which they have very little background knowledge.

Catts and Kamhi (1999) go on to say that the more familiar we are with "scripts" or "schemas" about a topic, the more our working memory is supported since we can simply relegate our attention to new information rather than attend to the entire content with all the new details. Therefore, the familiar story-like structure of narrative stories is easier for students to comprehend, than the unfamiliar text structure of expository materials. Likewise, a child reading about a *surprise birthday party* is far more likely to be familiar with the vocabulary and events described than if he were reading about the *Civil War*. In his book *The Knowledge Deficit* (2006), E.D. Hirsch, Jr. explains all the information and background knowledge that a student would need to know in order to understand the passage from his book *What Your Second Grader Needs to Know:*

> *In 1861, the Civil War started. It lasted until 1865. It was American against American, North against South.*

In order to understand just the phrase *North against South,* the students would need to understand that *north* and *south* are compass directions, that in this case it refers to geography of the United States, that it further refers to the people of those regions, and that these people were organized into separate armies. This is why teachers who are familiar with comprehension difficulties first activate children's prior knowledge about a topic and review the vocabulary and the general subject matter prior to launching into the reading assignment.

It is also important to note that reading comprehension is very domain-specific. A student may get one score when reading a science passage and quite another when reading a literature or geography passage. Much of the student's success is predicated on his knowledge of the topic and the associated vocabulary.

If content knowledge is indeed the number one predictor of reading comprehension, then it is more content that students need, rather than more reading strategies, according to Hirsch. Unfortunately, what we know to be true of children with learning disabilities is that they are frequently taken out of content classes in order to receive therapies for reading, language and academics. Subsequently, the very thing they need in order to better understand what they hear and read about in the classroom (content) is the thing that is most likely to be compromised in an effort to "remediate" the child with learning challenges.

Vocabulary

Here is the 'Catch 22' with vocabulary; a student's vocabulary knowledge is highly correlated with his ability to comprehend (Daneman, M.,1991), yet most acquisition of new vocabulary in the upper elementary years and beyond is gained from reading. McKenna (2004) sums it up neatly, "They need to learn more words to read well, but they need to read well to learn more words."

Yet vocabulary knowledge is essential for comprehension to take place. Most researchers estimate that a child or an adult must be able to understand around 90 percent of the words in a passage in order to figure out what the other 10 percent of the words mean. And of course, the more familiar the child is with the context, the easier it is for him to guess the meanings of new words. However, many students with language-learning difficulties have weak phonological processing and weak verbal working memory **which can make vocabulary development more difficult**. We know that they have more difficulty inferring meanings of words from context and more difficulty than their peers learning vocabulary through direct instruction.

One can clearly see the powerful affect that vocabulary knowledge, or lack of, has on general reading comprehension skills of children. If they have decoding problems or if they have weak vocabulary skills, they will have more difficulty understanding what they read. If they have difficulty understanding what they read, they will avoid reading. If they don't read often, they will fail to learn new vocabulary words, and the cycle continues. Naturally, from a diagnostic standpoint, it is important to obtain a measure of a child's basic vocabulary fund to determine if a weakness here is contributing to his reading comprehension difficulties.

Sentence Comprehension

Many students have comprehension problems because they have difficulty interpreting the meaning in sentences. One reason they might have difficulty is because they are unfamiliar with the complex sentence structures that occur in written language that do not occur in oral language. Some refer to book language as *formal literate language*.

Students with weak verbal memory may also have difficulties interpreting sentences because they are not able to hold the words in mind long enough to process their meaning. This is particularly true of long, complex sentences, sentences with many clauses, or sentences where the subject is separated from the predicate by clauses.

Lastly, there are certain sentence structures that are notoriously more difficult for children to comprehend. These include passive voice constructions (*The dog was chased by the cat.*), double negatives (*None of them had ever not worn the uniform at one time or another*.), sentences with small words that change meaning with word order (*The man gave the only dog a bone. The only man gave the dog a bone. The man only gave the dog a bone.),* sentences with prepositions that require a student to have comprehension of space (*He went to summer camp after he took archery lessons*.), sentences with conjunctions that represent logical relationships (even though, although, since, if…then, unless) and sentences with ambiguous figurative language (How did the sod houses *hold up?*) (Carlisle & Rice, 2002, Moats, 2005).

Language testing that evaluates a student's ability to correctly interpret meanings in sentences will give information on whether or not a child may be having reading comprehension problems because of difficulties with sentence comprehension.

Working Memory

As discussed above, problems with weak working memory can affect vocabulary learning and syntax processing. But working memory also allows readers to hold information in their mind while they actively connect new information with what they already know about the world, and with what has just been read before.

Expository text, or text that gives information rather than text that tells a story, can make great demands on working memory because it typically calls *for bottom-up* thinking, or builds meaning from individual facts. This is particularly difficult for students with dyslexia and learning disabilities as they tend to be *top-down* processors, that is, they learn best when they can first see the big picture and then add details as they go.

Metacognitive Skills/Attention/Motivation

Reading comprehension is an active process. When an individual sits down to read, he must allocate his attention to the task, know when his attention is wandering, expect to understand and do something when he doesn't (i.e. reread the sentence or paragraph), differentiate the important information from the less important, all while he is thinking and reasoning about what he reads. These abilities are referred to as metacognitive skills and are essential to text comprehension.

Students with weak attention controls may approach a reading task very passively. They may not expect to understand, may fail to read with a purpose, not understand the reader's intent (to persuade, define, entertain, etc.) and may completely fail to recognize when they are not generating meaning from what they have read. Furthermore, while good readers will tell you they have a "motion picture" going on in their mind as they read, students with weak attention and self-monitoring skills will tell you they either have very vague or absent images as they read.

Motivation also plays an important role in how successful we are in understanding what we read. Certainly it takes much more effort to sustain our attention to something we lack interest in than when reading something we truly enjoy.

An experienced diagnostician will not only evaluate the linguistic and cognitive processes that contribute to reading comprehension but will also make important observations about child's metacognitive skills. Does he understand the purpose of the reading assignment? Does he focus on the important ideas and ignore the trivia? Does he monitor his own comprehension, note when it doesn't make sense to him, and then have strategies to fix the problem when comprehension fails?

Knowledge about Text Structure

The more knowledge a student has about how his reading material is organized, the better he will be able to predict what is to come, pay attention to what is important, and dismiss what is nonessential. For instance, knowledge about *narrative structure* greatly supports a child's understanding of stories. For example, when students understand that all stories have certain basic elements such as *characters, settings, beginning events, problems, character actions and consequences,* the more they can place new information into reliable slots as they read. In this way, the structure of the narrative also supports working memory.

Knowledge of specific *expository* genre (*definition, cause-effect, compare-contrast, problem-solution, persuasion, sequence, information*) helps a student know how the information will be organized and how the key words will lead him to important information. For instance, if a student is reading a *persuasive* article, he knows to look for the arguments for and against the particular issue. If he understands that *compare-contrast* paragraphs compare two things, he can cognitively tick off the similarities and differences that are certain be there. In the case of *comparison/contrast* text, he will look for key words such as *alike, similar, although, however, yet*, and *on the other hand*. Similarly, if he is reading a *cause/effect* paragraph, key words and phrases that will direct him to important ideas would include *since, because, therefore, effects, results, consequently, so, in order*, etc.

Text structure knowledge also allows a student to focus in on other text features such as *topic sentences* that narrow the scope of the information, *transition words* (first, next, additionally, also, subsequently) that serve to draw the reader's attention to specific points the author wants to make, and helps the student to understand how the author uses *bold letters, titles, subtitles, summary sentences, pictures* and *graphs*, and *questions* to reinforce important information.

I'VE HEARD ABOUT THE *4TH GRADE SLUMP*. WHAT'S GOING ON?

For a long time now, researchers have reported a decline in reading scores that occurs right around 4th grade which has become known as *the 4th grade slump.* Up until now, the child who has entered his first years of school has seemingly sailed along without struggle or concerns. Somewhere around 4th grade, scores begin to plummet, leaving parents and teachers anxiously speculating over what has occurred to cause this.

In fact, what has occurred has nothing to do with a change in the child, but a change in the curriculum. For one thing, in addition to the fact that reading up until this point has mostly focused on teaching the child decoding skills, the topics, vocabulary and syntax of his reading materials have mostly been simple and familiar. Children are predominantly reading short narrative stories in the early grades. The sentences are short and simple and the vocabulary is familiar to all.

In the 4th grade, the curriculum changes. The child is no longer receiving lessons in learning to read; instead, he is reading to learn new content. The topics are now unfamiliar to him, along with new vocabulary. The linguistic sills have become more demanding. Sentences are longer and more complex, requiring him to analyze and interpret them for meaning. New burdens are now placed on working memory. Soon, the child who was once keeping up fine with his peers now begins to lose confidence

and a new underlying anxiety takes its place. Slowly, the once eager student begins to show signs of dreading school. The most vulnerable children are those who may have weaknesses in language, reading decoding skills, attention and working memory. For these children, 4th grade merely became the tipping point.

How do I know which factors are causing my child to struggle with reading comprehension?

A thorough evaluation of a student's language and cognitive abilities will help determine why your child is struggling to understand what he reads. Weaknesses in linguistic processes, vocabulary, syntax, working memory and attention as well as weaknesses in decoding or word recognition will be identified by an experienced evaluator. Observations about the child's metacognitive skills; how he approaches the task, monitors himself along the way and repairs the problems will provide the clinician with additional information that is essential for text comprehension. But just as often, a complete picture of the student's underlying difficulties may not become apparent until the remediation process begins.

What can be done to help the student with reading comprehension problems?

That depends on what a student's specific weaknesses are. I started off saying there is no one-size-fits - all therapy approach that could or should be used with any student. Yet, many times a parent comes to the clinic wanting a specific program that they have heard is designed to solve reading comprehension problems. But with a deeper understanding of a particular child's learning profile, a different approach or combination of approaches may be recommended.

Naturally if a student is struggling with syntax, targeted practice interpreting and constructing complex sentence structures will be helpful. If a student has adequate language and vocabulary, but lacks attentional controls or meta-cognitive skills, strategies that encourage him to read more actively, make pictures in his mind, or take more ownership of the reading process may be beneficial. Students of all ages benefit from learning to summarize information and discern main ideas from trivia. Teaching narrative structure and genre specific text structure can be very powerful. Learning to use thinking frames or graphics assists students with making abstract concepts and ideas more visual. Teaching students to more predictably tackle novel vocabulary in context can be helpful. Sometimes, teaching students to write important information on sticky notes and affix them to their text books or novels, assists them in making inferences across the text. Other strategies that have proven to be helpful are teaching the student to make predictions, to ask teacher-like questions, and to do oral retells of information read.

And certainly, one of the most powerful ways of more deeply connecting with text, is to write about what you read. Students are typically required to demonstrate their knowledge of content material by writing short answers on tests. If a student is unable to organize his thoughts and write what he knows clearly and cohesively, it is assumed he does not know the material. Instruction that begins by having the student write short answers to critical thinking questions and progressing to longer paragraphs provides the student with targeted practice linking comprehension with expression.

WHAT CAN BE DONE ABOUT STUDENTS WHO LACK BACKGROUND KNOWLEDGE AND VOCABULARY NECESSARY FOR UNDERSTANDING?

Since we know that the amount of independent reading that a child does outside the classroom is the best predictor of reading achievement and vocabulary growth, it comes as no surprise that I continue to nag parents to keep their students reading. See my article, *Keep Students on Track this Summer with Reading* for tips. For students who lack the necessary reading skills in decoding and fluency, I recommend reading to students on a regular basis or hook them into Recorded Books where they can independently listen to books read to them (www.recordedbooks.com; www.rfbd.org; or inquire at your local library). The general rule of thumb is to have your child read books at his personal reading level if he is reading independently, or if he is being read to, choose books that are slightly above his reading level to expose him to the rich syntax and vocabulary he may not get in his typical spoken communications.

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