The Comprehension Matrix provides teachers with a way of dealing with the overwhelming amount of information available on the teaching of comprehension by helping them organize activities into prereading, during-reading, and postreading categories.

Understanding Comprehension

Factors That Affect Comprehension

Comprehension is complex; it is affected by a variety of factors. Thinking about our own reading experiences, we likely remember instances from our everyday reading in which a variety of factors influenced our understanding. Teachers must also be aware of student differences in their reading abilities. These differences may include reading skills related to decoding and fluency, content knowledge, and reasoning skills. Understanding comprehension and its factors is an important part of teaching students how to read.
experiences can illustrate these factors. For example, when you do comprehend best? When do you have trouble comprehending? When I ask preservice and inservice teachers these questions, they identify a number of factors that affect their comprehension. They say they comprehend well when they are reading books of their choice about topics of interest to them, when they are reading for a specific purpose, and when they are undistracted by worries, unfinished chores, or noise. Texts with illustrations, lots of headings and subheadings, and lots of white space on the page also help them comprehend. The preservice and inservice teachers say they comprehend poorly when reading texts assigned by teachers, when they know very little about the topic, or when the page has dense text with few paragraph breaks or illustrations.

These experiences illustrate three major factors that affect comprehension: the reader, the text, and the situation (Weaver, 2002). Other researchers and theorists have described the three factors in similar ways. Sweet and Snow (2003) identified three factors that affect comprehension: the reader, the text, and the activity, all existing within a sociocultural context, while Irwin (1991) identified the three factors as the reader, the text, and the purpose. Comprehension can be affected by the reader’s interest in and background knowledge of the topic, strategies the reader knows how to use, and even the reader’s physical and emotional state and self-image. Style, layout, and organization of the text; difficulty of the vocabulary used; concept load (how many new concepts are introduced); and even the presence or absence of illustrations, charts, and diagrams can also affect

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**Figure 1**

**The Comprehension Matrix**

<table>
<thead>
<tr>
<th>The reader</th>
<th>The text</th>
<th>The situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ Interest</td>
<td>■ Layout</td>
<td>■ The purpose</td>
</tr>
<tr>
<td>■ Emotional state</td>
<td>■ Style</td>
<td>■ Activities that help students</td>
</tr>
<tr>
<td>■ Physical state</td>
<td>■ Organization</td>
<td>construct/extend their understanding</td>
</tr>
<tr>
<td>■ Strategies known</td>
<td>■ Vocabulary</td>
<td></td>
</tr>
<tr>
<td>■ Background knowledge</td>
<td>■ Concept load</td>
<td></td>
</tr>
<tr>
<td>■ Self-image</td>
<td>■ Illustrations</td>
<td></td>
</tr>
</tbody>
</table>

**Prereading**

- Activities that
  - Get students interested
  - Build and activate background knowledge
  - Model strategies
  - Example: Observing real objects, discussion, list-group-label, graphic organizers

**During reading**

**SILENT READING**
- Occasionally, activities that
  - Help students use strategies
  - Model thinking
  - Example: DRTA, ReQuest, think-aloud

**Postreading**

- Activities that
  - Extend understanding
  - Help students solidify strategies
  - Example activities: news reports

- Activities that
  - Help students understand vocabulary and concepts
  - Example activities: labeled drawings or other graphic organizers

- Activities that
  - Use ideas from the reading
  - Help students construct and extend their understanding
  - Example activities: timelines, graphic organizers

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students’ comprehension. Finally, comprehension can be affected by the situation in which the reading takes place. Good readers adjust their reading in different situations and for different purposes. When readers have specific purposes for the reading, these purposes will guide readers’ choice of strategies and ultimately will affect how well readers comprehend the text. In addition, reading takes place within a sociocultural context. For many of my students (pre-service and inservice teachers), reading takes place within the context of a home in which the reader is also responsible for housekeeping, childcare, and other duties, which can provide distractions. For children, reading takes place within the culture of the school, but reading can also be affected by students’ self-concepts and the social groups to which they belong (Weaver, 2002). Understanding these factors can help teachers design effective lessons that support comprehension.

Comprehension Theories
Teachers also need to understand how comprehension takes place. A teacher’s definition of comprehension can affect how he or she teaches comprehension. My own view of comprehension reflects a sociopsycholinguistic view of reading (Weaver, 2002) and has been influenced by three theories: schema theory, transactional theory, and constructivist theory. Each of these theories helps us understand the importance of readers’ prior knowledge in helping them actively construct their comprehension.

The importance of prior knowledge in reading is well known. In fact, Smith (1975) defined comprehension as “relating new experience to the already known.... Anything [readers] cannot relate to what they know already will not make sense; it will be nonsense” (p. 10). Schema theory (Anderson & Pearson, 1984) describes how readers use their prior knowledge to make sense of new information. Read the following passage:

She dropped them off early. One ran to the playground.
“Push me!” said one.
“Yeah, right,” said the other.
After a while the bell rang and they went inside.

Who are these people? Where are they? Why does one want to be pushed? Why does the other one say, “Yeah, right”? As you read the passage, you probably drew from your own experiences to create meaning. Some readers of this passage tell me that the passage is about two children being dropped off early at school. The younger child wants to be pushed on the swings or merry-go-round; the older child doesn’t want to look uncool by playing on the playground. Yet none of this information is given in the text; readers must supply it from their own experiences. Schema theory tells us that readers must have adequate background knowledge to understand what they read; it also tells us that readers must activate their prior knowledge (Langer, 1984). In other words, you must access the appropriate “mental file” before you can use the information you have. The first time you read the following passage, you may not comprehend it:

Like the Pied Piper, it traveled down the street, luring children from their houses. The children gave offerings of coins hastily dug out of pockets and sofa cushions.

If you did not understand that the passage was about an ice cream truck, read it again. Does it make more sense this time, when you have had a chance to activate your prior knowledge? Pressley (2000) said that “the many active processes of reading—prediction, construction of images during reading, monitoring of comprehension and rereading, summarizing, and interpretation—depend greatly on prior knowledge” (p. 551). Understanding the role of prior knowledge in comprehension helps us realize the importance of prereading activities that build and activate background knowledge.

Transactional theory (Rosenblatt, 1938) says that because each reader brings different experiences to a reading, each reader will take away a different meaning. When my students and I compare our responses to Robert Frost’s poem “Nothing Gold Can Stay,” we see that our responses vary. I think of my nephew as a little boy and how quickly the years passed. Others think of different things, although our responses often have commonalities as well. Understanding that different people will take different things from a reading helps teachers ask questions that allow for a variety of interpretations. Transactional theory also explains that readers will adopt either an efferent or an aesthetic stance as they read (Rosenblatt, 1978). Reading from an efferent stance means reading to take away information, as we do when we read a phone book. Reading from an aesthetic stance means reading for the experience of it. A student’s stance can influence his or her comprehension as well. For example, when
students know they may be quizzed on an assigned reading, they may change to an efferent stance, reading to remember names and other answers to possible quiz questions rather than reading simply to become engaged in the experience.

A constructivist theory of learning suggests that learners actively construct their own knowledge. It suggests that readers construct meaning by making connections between the text and their prior knowledge (Dixon-Krauss, 1996). It also suggests that comprehension improves when we actively construct our own representations or interpretations of the material that we read. Writing, drawing, creating graphic organizers, and other activities can help students build and extend their comprehension.

**Comprehension Is a Process**

Teachers must also understand that comprehension is not something that either does or does not happen after one reads. The process of comprehension begins before we start to “read” and continues even after the “reading” is finished. For example, good readers use prereading strategies like previewing the text and use postreading strategies like summarizing in addition to the many strategies they use to make meaning during the “reading” itself. Dividing instruction into prereading, during reading, and postreading helps teachers design activities for each stage that will improve students’ comprehension (Crafton, 1982) and provides opportunities for teachers to demonstrate strategies that readers can use at each stage.

**Comprehension Strategies**

Much recent work on comprehension has focused on identifying strategies good readers use and training students to use these strategies. Pressley and Afferbach (1995) identified comprehension strategies that were shown to be effectively taught in a number of research studies: activating prior knowledge, generating questions while reading, visualizing the text, summarizing, and analyzing the structure of stories. A variety of sources include similar lists of comprehension strategies that can be taught (see Table 1) and suggest activities for teaching them. Research shows that teachers can effectively teach such strategies and that teaching even one comprehension strategy can improve students’ comprehension (Duke & Pearson, 2002).

**Using the Comprehension Matrix**

The Comprehension Matrix is intended to encourage teachers to apply their knowledge of the various factors that affect comprehension (factors related to the reader, the text, and the activity) to design prereading, during-reading, and postreading activities to help students comprehend and learn to use a variety of comprehension strategies.

**Prereading**

Section A on the Comprehension Matrix reminds teachers that prereading activities should get students interested, build and activate background knowledge, and model strategy use. Prereading activities may also be used to help students notice the structure of the text or to introduce new vocabulary and concepts, as shown in Section B of the Matrix. When students understand the organization of texts, they are better able to set up predictions and to comprehend what they are reading. Students who understand that stories contain plot, character, setting, point of view, and theme and who understand that expository texts often follow structures such as description, sequence, comparison, cause and effect, and problem and solution can better understand what they read (Tompkins, 2003). Comprehension also improves when teachers help students understand important vocabulary and concepts they will encounter in their reading or demonstrate strategies the students can use to figure out unknown words as they read. Finally, Section C reminds teachers that providing students with an authentic purpose for the reading will improve comprehension.

**Example Prereading Activities.** Teachers can get students interested in a topic by asking questions (“How many of you have ever seen a thunderstorm?”), displaying objects related to the story, and leading discussions. These activities can also activate students’ prior knowledge. Graphic organizers such as charts, graphs, or labeled drawings can provide needed conceptual information. One well-known technique that creates interest, builds and activates prior knowledge, and provides a purpose for reading is K-W-L (Ogle, 1986), in which students think about what they know, what they want to know, and (after the reading) what they learned. Organizational walkthroughs (McKenna & Robinson, 1993) allow the teacher to
trusting them to do so. Most comprehension instruction should provide time for students to read silently, but occasional during-reading activities can help students use strategies and can demonstrate the kinds of thinking that take place during reading (Section D), help students use text structures and understand new vocabulary and concepts (Section E), and provide more specific purposes for the reading (Section F).

**Example During-Reading Activities.** Directed Reading–Thinking Activity, or DR–TA (Stauffer, 1969), is a way of demonstrating that readers make predictions as they read. Teachers have students make predictions about a story on the basis of the title and cover and then have students read the text silently one section at a time. At the end of each section, teachers point out major features of the text: chapter headings and subheadings, pictures and captions, review questions, and so forth. Anticipation guides (Head & Readence, 1986) build interest and set purposes for the reading by asking students to agree or disagree with a series of statements related to the information in the text. Teachers can also provide purposes for the reading by making students aware of postreading activities they will be doing.

### During Reading

When students are interested in a topic, have adequate background information, and have a clear purpose for their reading, they are ready to read silently—although teachers sometimes have difficulty

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**Table 1**

**Comprehension Strategies**

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Connecting</td>
<td>Making connections</td>
<td>Making connections</td>
<td>Using and creating schema</td>
</tr>
<tr>
<td>Questioning</td>
<td>Questioning</td>
<td>Asking questions</td>
<td>Asking questions</td>
</tr>
<tr>
<td>Purpose setting</td>
<td></td>
<td></td>
<td>Question generation, question answering</td>
</tr>
<tr>
<td>Visualizing</td>
<td>Visualizing</td>
<td>Creating images</td>
<td>Using sensory and emotional images</td>
</tr>
<tr>
<td>Inferring</td>
<td>Inferring</td>
<td>Drawing inferences</td>
<td>Inferring</td>
</tr>
<tr>
<td>Predicting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retelling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deciding what’s important</td>
<td>Determining importance</td>
<td>Distinguishing importance</td>
<td>Determining importance</td>
</tr>
<tr>
<td>Monitoring</td>
<td>Repairing understanding</td>
<td>Monitoring comprehension</td>
<td>Monitoring meaning</td>
</tr>
<tr>
<td>Evaluating</td>
<td>Synthesizing</td>
<td>Synthesizing</td>
<td>Summarizing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cooperative learning</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Use of graphic and semantic organizers</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Recognizing story structure</td>
</tr>
</tbody>
</table>

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ask students if their predictions were correct and then they make more predictions about the next section.

Reciprocal Questioning Strategy, or ReQuest (Manzo, 1969), is a similar procedure in which the teacher takes turns with the students, asking questions about the section of text they have just read. Teachers could use a similar procedure to demonstrate specific comprehension strategies. Teachers can also use think-alouds (Davey, 1983), in which they read the text aloud, stopping to model for students comprehension strategies such as asking questions, making predictions, making connections, visualizing, and so on.

Another way teachers can provide assistance during reading is by creating pattern guides or reading guides. Reading guides ask students for specific information in an assigned text, highlighting what the teacher thinks are the important points. Pattern guides are similar—they provide students with part of the structure of the text and ask students to fill in the rest.

**Postreading**

Traditional comprehension instruction often had students answering questions about what they read. Postreading activities are not limited to assessing students’ comprehension, however. Good postreading activities can deepen students’ understanding of texts through the reflection provided by discussing, writing, or creating visual representations of the text. Postreading activities also provide purposes for the reading: Students who know in advance what they will do with the information in the text will read with more interest and purpose.

**Example Postreading Activities.** After reading, students can extend their comprehension by using the information they have read to create something new: a timeline, a map, a television newscast, a newspaper report, a letter, a diary, or even a poem. They can extend their conceptual and vocabulary knowledge by creating labeled drawings, Venn diagrams, or other kinds of graphic organizers. Students can also be asked to identify any problems they had during reading and discuss strategies they used as they read.

**Designing Comprehension Instruction**

How can teachers design comprehension instruction? Because each text (and the demands it places on the reader) is different, the teacher’s knowledge—about the students and about comprehension instruction—is paramount. As the teacher previews the text, he or she might ask the following questions:

- What do my students know about this topic?
- What specific terms or concepts do they need to understand before they can understand this passage?
- How can I get my students interested in this topic?
- What purposes can I provide for the reading?
- What activities will help my students engage in this text?
- What strategies do my students need to learn?
- What strategies can I demonstrate with this particular text?
- How can I help my students understand the vocabulary and concepts in the text?

There are no generic worksheets that can provide activities appropriate for each text and group of readers; only informed teachers can create this kind of instruction.

For example, one teacher used the Comprehension Matrix to help her fifth-grade students read an article about the arrival of the Titanic’s survivors in New York. She preread the text with her students in mind. What did her students know about the Titanic? Would they be interested in this topic? Because most of them had seen the movie, they knew a great deal about the ship sinking, but the teacher guessed that few of her students knew about the survivors’ arrival in New York or the immediate aftermath of the sinking. She also thought that her students would already have a great deal of interest in the topic. Further, she knew that many of her students needed instruction in comprehension strategies. As she reviewed the text, she noted that several descriptive passages in the text would lend themselves to a demonstration of the strategy of visualization, and she also found points in the story to stop and ask students to predict what they thought would happen next.

With these goals in mind—to demonstrate the strategies of visualization and predicting—the teacher was ready to plan her lesson. Using the Matrix, she planned prereading, during-reading, and postreading activities. To build and activate students’ background knowledge (Section A of the Matrix), the
teacher asked they students what they already knew about the Titanic and constructed a K-W-L chart. To increase students’ interest and provide purposes for the reading, (Section A and C), she created an anticipation guide, asking students to predict whether the following statements were true or false about the aftermath of the sinking:

1. The survivors of the Titanic were taken to New York on the Carpathia.
2. The world already knew the details of what happened to the Titanic by the time the survivors reached New York.
3. There were more than 40,000 people waiting for the Carpathia to dock.
4. A Senate inquiry into the sinking began a few weeks later.

Now that her students were interested in the topic and wondering what happened as the survivors returned to New York, the teacher used a during-reading activity to demonstrate the use of visualization and predicting. She read aloud the first paragraph, describing the stormy April night in which 40,000 spectators anxiously waited for the Carpathia to arrive with the Titanic’s survivors. She asked students to listen and picture what it must have been like that night and explained that they had just used an important strategy: visualizing what they read. She then asked students what they thought would happen when the survivors got off the ship. After making predictions, the students read the next few paragraphs of the story, and then stopped to discuss whether their predictions were correct and what might happen next. Through DR–TA, the teacher then modeled the kinds of thinking that good readers do (Section D of the Matrix).

After reading the article, the teacher helped students extend their understanding of the article (Section G of the Matrix) by returning to the K-W-L chart and having students fill in the L (What We Learned) section. They also revisited the anticipation guide and discussed what they had learned about each statement. The teacher solidified the students’ strategy use by reviewing the strategies the students had learned and having the students begin a classroom chart listing strategies good comprehenders used. The teacher designed a final postreading activity to further deepen the students’ understanding. She invited students to “remember how we made pictures in our heads to help us understand what that night was like? Let’s take those pictures and write about them. Pretend you are someone waiting at the dock, a survivor, or even Senator Smith. Write a diary entry or a letter telling about your feelings and experiences that night.” In this example, then, the teacher used the Comprehension Matrix as a way to think through the factors that affect comprehension and chose activities best suited to the readers and the particular text. Because this text did not have a heavy concept load or difficult vocabulary, and because it had a clear chronological organization, the teacher did not see a need to include many of the activities listed in the middle column of the Matrix. Other texts, however, might require a great deal more attention to vocabulary and concept development and text structure.

A teacher designing comprehension instruction for a text about whales, for example, decided that the major concept his students needed to understand from the text was the difference between fish and mammals. As part of his plan, he created a pattern guide (see Figure 2) as a during-reading activity to help his students understand the various differences between fish and mammals that were discussed in the text.

Comprehension instruction has become a “hot” topic in reading instruction in recent years (Cassidy & Cassidy, 2005/2006), and more books and articles on teaching comprehension are becoming available. However, teaching comprehension remains a daunting task for many teachers. The Comprehension Matrix provides teachers with a way of dealing with the overwhelming amount of information available on the teaching of comprehension by helping them

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**Figure 2**

**Pattern Guide**

<table>
<thead>
<tr>
<th>Mammals</th>
<th>Fish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breathe air</td>
<td>Lay __________s</td>
</tr>
<tr>
<td>Give birth to live babies</td>
<td></td>
</tr>
<tr>
<td>that nurse on their</td>
<td></td>
</tr>
<tr>
<td>mother’s milk</td>
<td></td>
</tr>
<tr>
<td>Have ______ or ________</td>
<td>Covered with scales</td>
</tr>
<tr>
<td>________-blooded</td>
<td>Cold-blooded</td>
</tr>
<tr>
<td>Examples: _______________</td>
<td>Sharks, goldfish</td>
</tr>
</tbody>
</table>
organize activities into prereading, during-reading, and postreading categories. As teachers learn about new activities, they can think about how these activities fit into this structure. Because it reminds teachers that comprehension depends on a variety of factors within the reader, the text, and the situation, the Matrix can also help teachers select activities that will meet their students’ needs as they consider their students’ background knowledge, interests, and strategies; the vocabulary, concept load, layout, and other features of the text; and the purpose for which students are reading.

References
Cassidy, J., & Cassidy, D. (2005/2006). What’s hot, what’s not for other features of the text; and the purpose for which students are reading.

Onofrey, K., & Theurer, J. (2007). What’s a teacher to do: Suggestions for comprehension strategy instruction. The Reading Teacher, 60(7), 681–684. doi:10.1598/RT.60.7.9

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• Developing Inferential Comprehension Through DL-TA and Discussion Webs
• Using QARs to Develop Comprehension and Reflective Reading Habits