

What every teacher needs to know about comprehension

Once teachers understand what is involved in comprehending and how the factors of reader, text, and context interact to create meaning, they can more easily teach their students to be effective comprehenders.

Comprehension is a complex process that has been understood and explained in a number of ways. The RAND Reading Study Group (2002) stated that comprehension is “the process of simultaneously extracting and constructing meaning through interaction and involvement with written language” (p. 11). Duke (2003) added “navigation” and “critique” to her definition because she believed that readers actually move through the text, finding their way, evaluating the accuracy of the text to see if it fits their personal agenda, and finally arriving at a self-selected location. A common definition for teachers might be that comprehension is a process in which readers construct meaning by interacting with text through the combination of prior knowledge and previous experience, information in the text, and the stance the reader takes in relationship to the text. As these different definitions demonstrate, there are many interpretations of what it means to comprehend text. This article synthesizes the research on comprehension and makes connections to classroom practice. I begin by introducing a visual model of comprehension.

How comprehension works

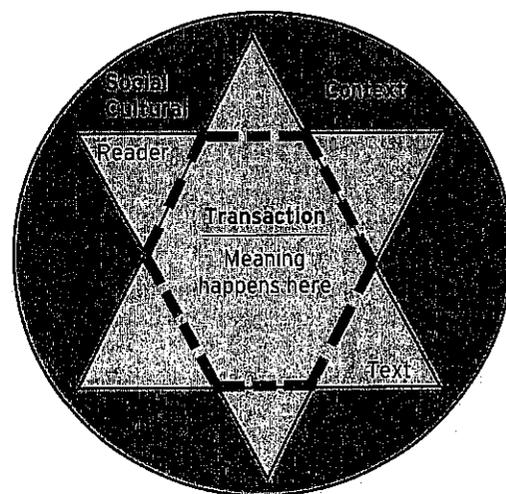
Comprehension occurs in the transaction between the reader and the text (Kucer, 2001; Rosenblatt, 1978). The reader brings many things

to the literacy event, the text has certain features, and yet meaning emerges only from the engagement of that reader with that text at that particular moment in time. Figure 1 below presents a visual model of this process. Each of the elements in the model (reader, text, context, and transaction) is described in more detail later in this article, along with specific suggestions for how teachers can interact with the model to help children become strong comprehenders, beginning in kindergarten.

The reader

Any literacy event is made up of a reader engaging with some form of text. Each reader is unique in that he or she possesses certain traits or

FIGURE 1
Model of comprehension



characteristics that are distinctly applied with each text and situation (Butcher & Kintsch, 2003; Fletcher, 1994; Narvaez, 2002). The most important of these characteristics is likely the reader's world knowledge (Fletcher, 1994). The more background knowledge a reader has that connects with the text being read, the more likely the reader will be able to make sense of what is being read (Butcher & Kintsch, 2003; Schallert & Martin, 2003). The process of connecting known information to new information takes place through a series of networkable connections known as schema (Anderson & Pearson, 1984; Narvaez, 2002). In schema theory, individuals organize their world knowledge into categories and systems that make retrieval easier. When a key word or concept is encountered, readers are able to access this information system, pulling forth the ideas that will help them make connections with the text so they can create meaning. Schema theory involves the storage of various kinds of information in long-term memory. Because long-term memory appears to have infinite capacity (Pressley, 2003), it is likely that readers have many ideas stored in long-term memory. When a key word or concept is presented to the reader (through a title, heading, or someone who has recommended the text), some of this stored information is brought forward and temporarily placed into short-term memory so that the reader can return to it quickly as he or she reads. Short-term memory has limited capacity, and often the information pulled from long-term memory prior to or during reading is only available for a short time and then is placed back in long-term memory. Short-term memory shifts and juggles information, using what is immediately pertinent and allowing less pertinent information to slip back into long-term memory (Schallert & Martin, 2003).

The amount and depth of a reader's world knowledge vary as do other individual characteristics. Readers vary in the skills, knowledge, cognitive development, culture, and purpose they bring to a text (Narvaez, 2002). Skills include such things as basic language ability, decoding skills, and higher level thinking skills. Knowledge includes background knowledge about content and text and relates to the available schema a reader has for a particular text. A reader's cognitive development causes that reader to evaluate text in different ways—for example, to make moral judgments.

Comprehension is affected by a reader's culture, based on the degree to which it matches with the writer's culture or the culture espoused in the text. Readers also read in particular ways depending on the purpose for reading. Another individual difference that exists in readers is motivation. Motivation can influence the interest, purpose, emotion, or persistence with which a reader engages with text (Butcher & Kintsch, 2003; Schallert & Martin, 2003). More motivated readers are likely to apply more strategies and work harder at building meaning. Less motivated readers are not as likely to work as hard, and the meaning they create will not be as powerful as if they were highly motivated.

Teachers support readers

If readers have all these individual differences, how do teachers best support elementary-age readers to become competent comprehenders? They teach decoding skills, help students build fluency, build and activate background knowledge, teach vocabulary words, motivate students, and engage them in personal responses to text.

Teach decoding skills. In order to comprehend, readers must be able to read the words. Some level of automatic decoding must be present so that short-term memory can work on comprehending, not on decoding, words. Teachers help students get to this level of automatic decoding by providing instruction in phonemic awareness and phonics at all grade levels. If students put too much mental energy into sounding out the words, they will have less mental energy left to think about the meaning. While teachers in the primary grades work with phonemic awareness and phonics, teachers in the intermediate grades support students' continued development of automatic decoding through spelling, vocabulary, and high-frequency word activities.

Help students build fluency. As word reading becomes automatic, students become fluent and can focus on comprehension (Rasinski, 2003). Teachers help students become more fluent by engaging them in repeated readings for real purposes (like performances and Readers Theatre). Teachers also model fluent reading by reading aloud to students daily so that they realize what fluent reading sounds like.

Some research indicates that reading aloud to students is the single most effective way to increase comprehension (see Morrow & Gambrell, 2000, for a review of this literature).

Build and activate prior knowledge. Background knowledge is an important factor for creating meaning, and teachers should help students activate prior knowledge before reading so that information connected with concepts or topics in the text is more easily accessible during reading (Keene & Zimmermann, 1997; Miller, 2002). If students do not have adequate background knowledge, teachers can help students build the appropriate knowledge. Duke (2003) suggested that one way to add to world knowledge is to use informational books with all students, particularly very young students. By using information books, students build world knowledge so that they will have the appropriate information to activate at a later time. Teachers also support students' acquisition of world knowledge by establishing and maintaining a rich, literate environment, full of texts that provide students with numerous opportunities to learn content in a wide variety of topics.

Another way teachers help students build background knowledge is to create visual or graphic organizers that help students to see not only new concepts but also how previously known concepts are related and connected to the new ones (Keene & Zimmermann, 1997; Miller, 2002). Teachers teach students how to make text-to-text, text-to-self, and text-to-world connections so that readers can more easily comprehend the texts they read.

Reading aloud and teacher modeling show students how to activate schema and make connections. For example, a first-grade teacher read aloud from *Ira Says Goodbye* (Waber, 1991). She began the lesson by thinking aloud about the title and cover of the book. "Oh I see that the author is Bernard Waber and the title is *Ira Says Goodbye*. I think this book is about the same Ira as in *Ira Sleeps Over* (Waber, 1973). I can activate my schema from that book. I am making a text-to-text connection. I remember that...." She continued modeling for her students how to activate schema and make connections that helped her make meaning from this text. As she read the book to her students, she stopped occasionally to model and think aloud how she activated her own schema to make connections.

Teach vocabulary words. If there are too many words that a reader does not know, he or she will have to spend too much mental energy figuring out the unknown word(s) and will not be able to understand the passage as a whole. Teachers help students learn important vocabulary words prior to reading difficult or unfamiliar texts. When teaching vocabulary words, teachers make sure that the selected words are necessary for making meaning with the text students will be reading and that they help students connect the new words to something they already know. Simply using the word lists supplied in textbooks does not necessarily accomplish this task (Blachowicz & Fisher, 2000). Many teachers consider the backgrounds and knowledge levels of their students and the text the students will be engaging in and then select a small number of words or ideas that are important for understanding the text. Once teachers have decided on the appropriate vocabulary words to use, students must actively engage with the words—use them in written and spoken language—in order for the words to become a part of the students' reading and writing vocabularies. For example, asking students to create graphic organizers that show relationships among new words and common and known words helps them assimilate new vocabulary. Asking students to look up long lists of unrelated, unknown words is unlikely to help students access the text more appropriately or to increase personal vocabularies.

Motivate students. Many individual reader factors (e.g., cognitive development, culture) are not within a teacher's control. However, teachers can motivate students by providing them with interesting texts, allowing them choices in reading and writing, and helping students set authentic purposes for reading (e.g., generating reports, writing letters, demonstrating some new ability or skill; Pressley & Hilden, 2002). Many teachers actively seek out students' interests so that they can select texts, topics, themes, and units that will more likely engage students. Teachers also provide and promote authentic purposes for engaging in reading and writing. Authentic literacy events are those that replicate or reflect reading and writing purposes and texts that occur in the world outside of schools. Some teachers do this by providing pen pals, using students' authentic questions for in-depth study,

responding to community needs, or having students solve problems.

Engage students in personal responses to text.

Teachers encourage students to read both efferently and aesthetically (Rosenblatt, 1978). Researchers (McMahon, Raphael, Goatley, & Pardo, 1997) building on the ideas of Rosenblatt developed a literature-based approach to teaching reading comprehension through the Book Club program. In this instructional approach students read authentic literature; write personal, critical, and creative responses; and talk about books with their classmates (Pardo, 2002). Teachers help students learn and apply comprehension strategies while reading, through writing, and during student-led discussion groups called Book Clubs, where students explore the individual meanings that have emerged as they engage with the text over a period of time. While this program initially focused on the intermediate grades, many teachers have found that students in first and second grades are successful comprehenders when they read and engage in Book Clubs (Grattan, 1997; Raphael, Florio-Ruane, & George, 2001; Salna, 2001).

The text

Understanding the reader is one important piece of the comprehension puzzle, but features of the text also influence the transaction where comprehension happens. The structure of the text—its genre, vocabulary, language, even the specific word choices—works to make each text unique. Some would even argue that it is at the word or micro-structure level that meaning begins (Butcher & Kintsch, 2003). How well the text is written, whether it follows the conventions of its genre or structure, and the language or dialect it is written in are all factors of the text. The content of a specific text, the difficulty or readability of it, and even the type font and size are factors of a text that can influence a reader's interaction. These features collectively are referred to as "surface features," and studies have shown that the quality of the text at the surface level is important for readers to be able to make meaning effectively (Tracey & Morrow, 2002).

The author's intent in writing the text can influence how a reader interacts with that text, particularly if this intent is made known through a foreword, back-cover biography, or knowledgeable other (as in the case of teachers in schools). Some texts are promoted as carrying a certain message or theme by those who have encountered the book previously (Rosenblatt, 1978). The inherent message that some texts carry with them, often related to the author's intent, is referred to as *gist* and has been defined as "what people remember... the main ideas in the text" (Pressley, 1998, p. 46). Gist is frequently assessed through basal workbooks and standardized reading tests; therefore, the author's intent is a key feature of text.

Teachers support texts

Because certain features make some texts more easily comprehensible, teachers help young readers understand those features so they can comprehend effectively. Teachers teach text structures, model appropriate text selection, and provide regular independent reading time.

Teach text structures. Because features of the text are beyond a teacher's control, teachers select texts that have an obvious structure. They teach a variety of narrative genres and some expository text structures. With narrative works teachers help students understand basic story grammar, including the literary elements that are common across narrative pieces, such as plot, characters, and setting. They teach specific elements that make each genre unique (e.g., talking animals in folk tales). By doing this, students will be able to access a schema for a certain narrative genre when they begin to read a new text and can begin to make text-to-text connections for a particular story genre, which will help them more easily make meaning. Likewise, teachers share some common expository text structures with students, such as sequence, description, comparison, and cause and effect. Teachers discuss the idea of "inconsiderate texts" (Armbruster, 1984) with students and show them how to use cues when reading nonfiction (such as reading tables, charts, graphs, and the captions under pictures; using bold print and italics to determine big or important ideas). Inconsiderate texts do not

adhere strictly to one structure, but might be a combination of several structures. Many textbooks have a varied and mixed set of structures, and teachers can address specific features and demands of informational text so that students are more likely to engage in informational text with a repertoire of strategies and schema to help them construct meaning (Duke, 2003).

Model appropriate text selection. Teachers teach students how to select appropriate texts by showing them what features to consider. Some teachers use the Goldilocks approach (Tompkins, 2003), while others suggest that teachers level books and tell students which level books they may select (Fountas & Pinnell, 1996). In the Goldilocks approach, readers look for books that are not too hard or too easy, but just right. Just-right books are those that look interesting, have mostly decodable words, have been read aloud previously, are written by a familiar author, or will be read with a support person nearby (Tompkins, 2003). Teachers have a wide variety of genres and levels of books available for students to select for independent reading, and they support students throughout the year with appropriate book selection.

Provide regular independent reading time. Teachers can make sure they provide students with time to read independently every day. Reading becomes better with practice, and comprehending becomes better with more reading practice (Pressley, 2003). Many teachers use programs such as DEAR (Drop Everything And Read) or SSR (Sustained Silent Reading) to ensure that students read independently every day.

Teachers create and support a sociocultural context

Reading takes place somewhere between a specific reader and a specific text. A sociocultural influence likely permeates any reading activity (Kucer, 2001; Schallert & Martin, 2003). Depending on the place, the situation, and the purpose for reading, the reader and the text interact in ways that are unique for that specific context. The same reading at another time or in a different place might result in a different meaning. The context

also involves the activity that occurs around the transaction. If a teacher assigns his or her students to read a certain text for a specific reason, the transaction that occurs will be based on this context. If students are asked to discuss a text, generate questions from it, or come up with a big idea, these kinds of activities form a context within which the reader and text interact for a specific reason, one that is unlikely to occur in exactly the same manner ever again. Teachers create contexts and learning opportunities that will support the construction of meaning. Environments that value reading and writing, that contain a wide variety of texts, that allow students to take risks, and that find time for reading aloud and reading independently are contexts that effectively promote the construction of meaning (Keene & Zimmermann, 1997; Miller, 2002; Pardo, 2002).

The transaction

As we consider the reader's individual and unique differences, the characteristics of the context, and the features of the text, we are left to wonder exactly what happens when these three come together. At the most basic level microstructures (words, propositions) are being decoded and represented by mental images (Butcher & Kintsch, 2003). This is most likely happening quickly, automatically, and in short-term memory. These mental images are calling forth ideas and information stored in long-term memory to assist the reader in building a series of connections between representations (van den Broek, 1994). These connections occur between the reader and the text and between different parts of the text. This representation is fine-tuned by the reader as more information is encountered in the text and more connections are made. Readers exit the transaction maintaining a mental representation or gist of the text.

How do these connections lead to mental representations? One way is through making inferences. A reader is quite intentional as he or she engages with the text, asking, "What is it I'm looking at here?" Readers are searching for coherence and for a chain of related events that can lead them to infer or make meaning. As readers continue moving through the text, they continue to build inferences, drawing from long-term memory specific

ideas that seem to create coherence and answer the question posed earlier, "What is it I'm looking at here?" As this answer emerges, meaning is realized. Inferencing is most likely done automatically and is one of the most important processes that occur during comprehension (Butcher & Kintsch, 2003; van den Broek, 1994).

The mental representation needs to make sense to the reader as it emerges; therefore, readers monitor the emerging meaning as they read, using metacognitive and fix-up strategies, sometimes discarding ideas in the text if they do not add to the coherence that the reader is trying to build (Pressley & Afflerbach, 1995). If the reader's background knowledge or personal experiences agree with the text, the reader assimilates this new information and creates new meaning. If, however, the reader's background knowledge and personal experiences do not agree with the new information presented in the text, readers either adjust the information to make it fit (accommodation), or they reject that information and maintain their previous understanding (Kucer, 2001). Readers apply a variety of strategies throughout this process to support their construction of meaning such as summarizing, clarifying, questioning, visualizing, predicting, and organizing. It is through the application of these strategies at various moments throughout the interaction that meaning emerges.

Teachers support transaction

At this point, it seems fairly obvious that comprehension occurs in the transaction between a reader and a text within a sociocultural context. That makes the transaction crucial to comprehension and the teacher's role within this transaction very important. Teachers provide explicit instruction of useful comprehension strategies, teach students to monitor and repair, use multiple strategy approaches, scaffold support, and make reading and writing connections visible to students.

Provide explicit instruction of useful comprehension strategies. Good readers use strategies to support their understanding of text. Teachers help students become good readers by teaching them how to use the strategies of monitoring, predicting, inferring, questioning, connecting, summarizing, visu-

alizing, and organizing (Keene & Zimmermann, 1997; Miller, 2002; Pardo, 2002). Teachers are explicit and direct in explaining what these strategies are and why good readers use them (Duffy, 2002; Pressley & McCormick, 1995). They model the strategies (often by thinking aloud) for the students and provide them with numerous opportunities to practice and apply the strategies. In order for strategies to transfer so that students use them on their own or in assessment situations, contexts need to remain similar. Therefore, teachers use texts and classroom structures that are easily maintained for teaching, practicing and applying independently, and assessing. Teachers help students think metacognitively about strategies, considering when and where to apply each strategy, how to use it, and the impact it can have. In addition, teachers occasionally provide students with difficult text. If students encounter only texts that they can read easily, there will be no reason to practice and apply strategies. It is when readers encounter challenging texts that they put strategies to use (Kucer, 2001).

Teach students to monitor and repair. Knowing what is understood and not understood while reading and then applying the appropriate strategy to repair meaning are vital for comprehension to occur. Good readers monitor while reading to see if things make sense, and they use strategies to repair the meaning when things stop making sense (Duke, 2003; Pressley & Hilden, 2002). While some studies support that monitoring is important (Baker, 2002; Pressley & Afflerbach, 1995), other studies indicate that readers often mismonitor (Baker, 1989; Baker & Brown, 1984; Kinnunen, Vauras, & Niemi, 1998). Readers have been found to both over- and underestimate their comprehension of text. So, while monitoring is important and good readers seem to monitor successfully, effective teachers realize that mismonitoring can affect meaning for less able students, and they provide additional support as needed so that all readers comprehend text successfully.

Use multiple strategy approaches. Researchers have found that teaching multiple strategies simultaneously may be particularly powerful (Trabasso & Bouchard, 2002; National Institute of Child Health and Human Development, 2000; Pressley, 2000).

There is very strong empirical, scientific evidence that the instruction of more than one strategy in a natural context leads to the acquisition and use of reading comprehension strategies and transfer to standardized comprehension tests. Multiple strategy instruction facilitates comprehension as evidenced by performance on tasks that involve memory, summarizing, and identification of main ideas. (Trabasso & Bouchard, 2002, p. 184)

Perhaps the most frequently used multiple strategies approach is transactional strategy instruction (TSI), created and studied by Pressley and colleagues (Brown, Pressley, Van Meter, & Schuder, 1996; Gaskins, Anderson, Pressley, Cunicelli, & Satlow, 1993). TSI teachers encourage readers to make sense of text by using strategies that allow them to make connections between text content and prior knowledge. Teachers and students work in small reading groups to collaboratively make meaning using several teacher-identified strategies. Teachers model and explain the strategies, coach students in their use, and help students use them flexibly. Throughout the instruction, students are taught to think about the usefulness of each strategy and to become metacognitive about their own reading processes.

Scaffold support. When teaching strategies to elementary-age students, teachers gradually release responsibility for comprehending to students. An effective model that has been used by some teachers is the Gradual Release of Responsibility model (Pearson & Gallagher, 1983). In this model, teachers take all the responsibility for applying a newly introduced strategy by modeling, thinking aloud, demonstrating, and creating meaning. As time passes and students have more exposure to and practice with using the strategy, teachers scaffold students by creating activities within students' Zone of Proximal Development (Vygotsky, 1978) and slowly withdrawing more and more responsibility. Teachers work collaboratively with the students and the strategy, giving and taking as much as necessary to create meaning. Eventually, students take on more and more responsibility as they become more confident, knowledgeable, and capable. Finally, students are able to work independently. Teachers and students do not always progress in a linear way, but often slip back and forth between more and less responsibility depending on the task,

the text, and the strategy. While adaptations may be made with students of different ages, teachers use this model with students in all elementary grades.

Make reading/writing connections visible. Teachers help students see that reading and writing are parallel processes and that becoming good writers can help them become good readers (Kucer, 2001). Composing a text can be thought of as writing something that people will understand. Writing can bring understanding about a certain topic to the writer, who will have to be clear about the topic he or she is writing about. Meaning matters in comprehending, and becoming a clear writer is all about how the reader will make meaning of the text that is being created. Recalling the earlier discussion of authentic purposes is important here as well; students will likely become engaged with the task of writing if asked to write for authentic and important purposes.

Closing comments

Comprehending is a complicated process, as we have discovered and explored in this article. Yet it is one of the most important skills for students to develop if they are to become successful and productive adults. Comprehension instruction in schools, beginning in kindergarten, is therefore crucial. Teachers use their knowledge and understandings of how one learns to comprehend to inform classroom practices so they can most effectively help readers develop the abilities to comprehend text. It is hoped that the discussion in this article can open a dialogue with teachers and teacher educators toward this end.

Pardo is a doctoral candidate in Teaching, Curriculum, & Educational Policy at Michigan State University (118 #36 Erickson Hall, East Lansing, MI 48824, USA). E-mail pardolau@msu.edu.

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