

Matching Interventions to Reading Needs: A Case for Differentiation

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In this article, the authors address how classroom teachers and literacy specialists can differentiate reading interventions to effectively target students' most critical needs and accelerate reading growth.

Ensuring reading proficiency for all students is not only an individual classroom or school concern but a national one. Currently, almost one third of fourth-grade students are reading below the fourth-grade benchmark, according to the National Assessment of Educational Progress (National Center for Education Statistics, 2015). This sizeable percentage of struggling readers has received much attention, with large-scale efforts such as Response to Intervention (RTI) put in place (Gersten et al., 2008) and hundreds of research studies conducted to better understand how we can most effectively deliver reading interventions (see O'Connor & Vadasy, 2011).

Although the number of struggling students has garnered significant research attention, problems persist. Some have questioned the effectiveness of RTI (Balu et al., 2015), and others in the field wonder if we have adopted too many “quick-fix” interventions that simply are ineffective (see Compton, Miller, Elleman, & Steacy, 2014). Reading interventions are expensive, both in terms of the teacher's time and the actual cost of materials (Amendum, Amendum, & Almond, 2013), but despite accumulating evidence that children struggle with reading for different reasons (e.g., Buly & Valencia, 2002; Compton et al., 2014; Spear-Swerling, 2016), most schools continue to group struggling readers together for intervention services.

In this article, we argue for a differentiated approach. Based on data suggesting that not all struggling readers need help in all areas of reading, we promote brief, systematic interventions targeting the students' most pressing need. We are motivated by a belief that too many interventions are inefficient and fail to accelerate readers' progress.

Background

In our own work (Conradi, Amendum, & Walkowiak, 2014), we examined reading data for more than 6,000 third-grade students who failed a high-stakes state reading comprehension test. Using a statistical procedure called latent profile analysis, we established five distinct profiles of readers (see Table 1). Although all students in our study failed the standardized comprehension test, their scores on other measures (targeting aspects of fluency and comprehension) varied considerably. Unlike previous research, which established a subtype of readers who could comprehend text despite weak fluency skills (see Buly & Valencia, 2002), our findings did not suggest this possibility. We suspect this is because our study only used grade-level texts for the assessments, whereas Buly and Valencia's study used texts at participants' “instructional” levels.

Our analyses yielded five distinct profiles with three particular areas of need. A small group of students (8.1%) in two profiles struggled to decode grade-level texts with appropriate accuracy. A larger group of students (28.5%) could decode with fair accuracy but lacked automaticity. Finally, the largest group of

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Table 1
Reading Profiles

Profile With Description	Percentage of Students	Primary Need
<i>Severely inadequate decoders:</i> Could not access grade-level text at all; read with 38.0% accuracy and rate of 7 words per minute	1.6	Word recognition
<i>Poor decoders:</i> Read grade-level text, on average, with 78.4% accuracy and rate of 32 words per minute	6.5	
<i>Nonautomatic decoders:</i> Read grade-level text with 91.9% accuracy but slow rate of 56 words per minute	28.5	Reading rate
<i>Adequate decoders:</i> Read grade-level text with 96.0% accuracy and rate of 82 words per minute; did well on some comprehension measures	48.5	Comprehension
<i>Unexplained poor comprehenders:</i> Read grade-level text with excellent accuracy of 97.8% and rate of 120 words per minute; did well on some comprehension measures	14.8	

Note. All students failed to meet comprehension expectations on a state reading test administered in the fall.

students (63.3%) in the remaining two profiles read with accuracy and rates ranging from proficient to excellent but still struggled with comprehension. Motivated to develop quick interventions highlighting students' most pressing needs, we determined the three areas of need: decoding words accurately, reading texts with automaticity, and actively making meaning while reading.

This research stands counter to what occurs in many interventions. The majority of students in our study do not need support with decoding, suggesting that "balanced" interventions—which incorporate elements of word study, fluency practice, and attention to comprehension—might be a waste of their time. Only the small group of students still struggling with accuracy needs specific decoding intervention work, and it is quite possible that after receiving instruction in this area, some students will not need additional support.

We acknowledge from the onset a possible danger in our framework. In promoting brief interventions focusing on certain targeted skills, we do not mean to deny the complexity of reading. The underlying reasons for students' struggle with reading can be multifaceted and complex. Factors such as vocabulary (Goodwin & Perkins, 2015), motivation to read (Jang, Conradi, McKenna, &

Jones, 2015), and the ability to strategize while reading (Boulware-Gooden, Carreker, Thornhill, & Joshi, 2007) all influence students' abilities to successfully read texts. Our choice to target three selected areas was informed by assessments readily available to teachers and by evidence yielded in previous studies.

How Do I Identify the Fundamental Need?

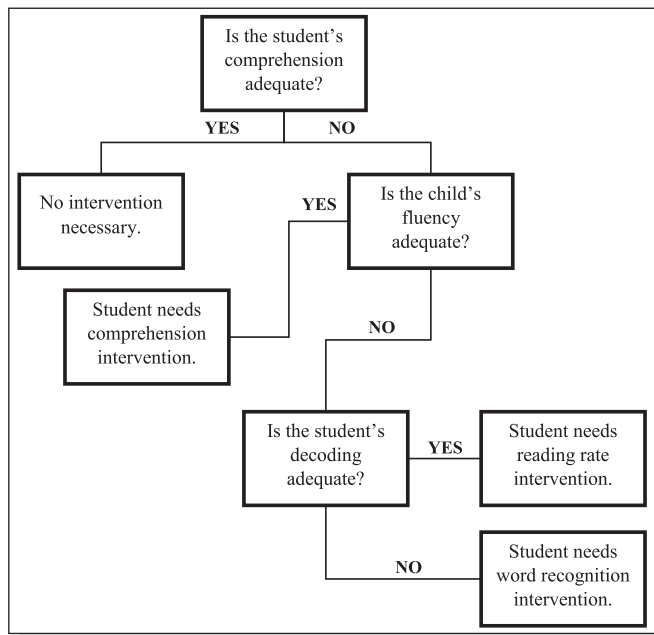
In supporting students who struggle with independent text comprehension, we want to consider what might be preventing them from being successful. The issue may be automaticity. If students are still struggling to decode with accuracy or automaticity, they might lack the cognitive resources necessary to comprehend the text (LaBerge & Samuels, 1974). However, although rate is necessary for comprehension, it is hardly sufficient. Students who struggle with comprehension despite having adequate fluency need scaffolded opportunities to strategize.

To determine what struggling readers most need, teachers and specialists should consider readily available data such as DIBELS (Good & Kaminski, 2002) or curriculum-based measures (e.g., Hosp, Hosp, & Howell, 2007). We recommend adopting a model based on an updated version (McKenna &

PAUSE AND PONDER

- Look at your student data. What are your struggling readers' chief needs?
- Which intervention activities would best match your students' chief needs?
- Beyond the activities presented in this article, what are some instructional strategies and activities you think would be helpful?

Figure 1
Flowchart to Determine a Student's Primary Need for Literacy Intervention



Stahl, 2015) of S.A. Stahl, Kuhn, and Pickle's (1999) cognitive model of reading assessment. As shown in Figure 1, one works backward to consider whether students can successfully comprehend grade-level text. If so, no intervention is needed. If not, the next step is to determine whether students read with adequate rate (see grade-level expectations in Hasbrouck & Tindal, 2006). If rate is adequate, then students need support with comprehension only. If rate is inadequate, the final step is to determine whether students need support to actually decode words or just to read them with more automaticity.

After determining the fundamental area of need, we suggest teaching targeted reading skills in small-group or individual interventions. These intervention lessons should be brief and systematic. In Table 2, we present possible lesson formats. Of note: Although each lesson does include some time in connected text, it is hardly enough—so we underscore the need for a larger classroom context where extended reading occurs daily (e.g., Hiebert, 2015).

What Can I Do for Students With Decoding Needs?

Of the three reading needs determined, the most fundamental is decoding. A student's inability to recognize words accurately compromises comprehension

(Catts, 2009). In our study, only a small percentage of students (8.1%) exhibited significant difficulty decoding words in text.

Determining Word Recognition Needs

Students struggle with word recognition for different reasons. Some might struggle to blend three- and four-sound words (CVC, CVCC, CCVC words; e.g., *rug*, *fish*, *plop*), whereas others might struggle with multisyllabic words (e.g., *sandwich*, *revolution*). To ascertain specific needs, we recommend administering a decoding inventory (e.g., McKenna, Walpole, & Jang, 2016). Students who have trouble decoding need explicit word-level instruction (Spear-Swerling, 2016); in this section, we provide some possible instructional activities.

Blending

To build word recognition, teachers should model how to blend words. For example, for students having difficulty with *r*-controlled vowels using the order of *ar*, *or*, *ir*, *er*, *ur*, teachers or specialists should model the sounds and how to blend them in words such as *dark*, *fort*, and *third* (Walpole & McKenna, 2009). Then, opportunities to practice reading individual words and text containing words with these patterns should be provided.

Morphology

The majority of students who have difficulty with decoding later in elementary school struggle to read multisyllabic words accurately (Bhattacharya & Ehri, 2004). Morphology instruction should help students with needs in this area. Morphemes are the smallest meaning-bearing parts of words and commonly include the prefix, the root, and the suffix (P.M. Cunningham, 1998). This practice moves beyond simply supporting students' decoding and leads to better vocabulary and comprehension (Goodwin & Perkins, 2015). A recommended instructional approach is DISSECT (Lenz & Hughes, 1990), an acronym for a morphological analysis strategy: **d**iscover the context of the word in the sentence, **i**solate the prefix, **s**eparate the suffix, **s**ay the stem of the word, **e**xamine the stem, **c**heck with someone, and **t**ry the dictionary. These steps should be explicitly modeled, and students should receive feedback.

A related approach involves teaching complex word families. Different from a typical word family (e.g., *bake*, *cake*, *take*), complex word families are derivatives of a root word (Hiebert, 2013). Hiebert suggested that there are 2,500 core complex morphological

Table 2
Example Lesson Plans

Focus	Activity	Time Frame
<i>Example decoding lesson on multisyllabic words</i>		
Model new word pattern	Teacher models how to break a word into different syllable parts. For example, teacher breaks the word <i>section</i> into <i>sec-tion</i> and models how to say each part and blend the parts into the whole word.	2 minutes
Guided practice	Teacher and students practice dividing additional words into parts (e.g., <i>happen</i> , <i>tablet</i> , <i>ladder</i> , <i>napkin</i> , <i>ponder</i>).	3 minutes
Independent practice	Students each receive a set of word cards with two-syllable words. Then, students read the words individually. Teacher records whether students segment the words and read the whole words correctly or whether they need more support.	5 minutes
Text application	Students read a passage with both one-syllable and two-syllable words. Students read individually while teacher listens to offer support and observes strategies being used. Then, teacher asks students to share two-syllable words in the text and how they figured out the words.	5 minutes
<i>Example reading rate lesson</i>		
Model reading fluently	Teacher explains that students need to read the way they talk—not too fast or too slow. Teacher models different ways of reading and asks the students to reflect on the rates.	5 minutes
Guided practice	Teacher sets initial comprehension focus for passage to be read (e.g., “Now we will read about snakes. As you read, pay attention to new things you learn about snakes”). Students then chorally read the text so the teacher can lead the reading at an appropriate rate. Teacher then says, for example, “Let’s read it one more time with a partner. This time, pay special attention to what you learn about how a snake’s anatomy serves it well.” Students reread the text with a partner (one or two times).	5 minutes
Comprehension	Teacher asks students to discuss the text. This is important to help students understand that the overall purpose for reading at an efficient rate is to help them comprehend the meaning of the text.	5 minutes
<i>Example comprehension lesson</i>		
Introducing text/activating background knowledge	Teacher should review text from the prior day.	1–2 minutes
Review comprehension strategy	Having previewed the text already, teacher should point out a comprehension strategy that students might need for the specific text and remind them to use it (e.g., “In this section, we will learn about the main character’s house. It’s helpful to visualize as you read by making a picture in your mind”).	2 minutes
Provide focus and vocabulary instruction (for nonfiction text)	Teacher should set a focus for reading (e.g., “Today, as you read about the main character’s house, be thinking about those details. The setting is going to play a pivotal role in this book. As you read, put a sticky note next to important details and be ready to discuss them afterward”). If text is nonfiction, key technical vocabulary should be explicitly defined in child-friendly terms (e.g., “In today’s text, we will read about the water cycle. You will see three words that you might not have seen before: <i>evaporation</i> , <i>condensation</i> , and <i>precipitation</i> . I have three pictures here to help us. Look at the picture as I define each term...”).	2 minutes
Reading	Students read silently or in pairs.	10 minutes
Discussion	Teacher should present some questions for students to discuss in pairs. Additionally, if text is fiction, explicit discussion of vocabulary could be included. If nonfiction, vocabulary should be reviewed again.	4 minutes

word families that students should know. Teaching students a root word and its derivatives builds students' word knowledge and understanding of relationships between words. Students can create word webs with the root word in the center and derivations around the root (Hiebert, 2013). For example, derivations of the word *hope* can be introduced, such as *hopes*, *hoping*, *hoped*, *hopeful*, and *hopeless*. The recognition of smaller parts of words (e.g., prefixes, suffixes, and roots) should assist students with future encounters of these components.

What Can I Do for Students Who Need to Improve Reading Rate?

Fluency encompasses several different components, including accuracy, automaticity, prosody, and stamina (Hiebert, 2015; Young & Rasinski, 2009). More than one quarter of students in our study (28.5%) were able to decode fairly proficiently but without automaticity. Because the ultimate goal of reading is making meaning, we caution against an overemphasis on reading rate; however, a lack of automaticity might contribute to struggles with comprehension (e.g., LaBerge & Samuels, 1974). Although intervention for reading rate is necessary for some students, the underlying message should not be that rate is central. Instead, rate should be improved to ensure that students can devote attention to thinking while reading (H.A.E. Mesmer, Mesmer, & Jones, 2014; Walpole & McKenna, 2007). Consequently, we caution against reading for one-minute time periods and suggest the use of extended passages and texts instead.

Repeated Readings

Students need practice reading connected text to improve their reading rates. One activity involves repeated readings (Kuhn, 2005; Samuels, 1979). This instructional intervention consists of reading the same text three or four times while the number of words read per minute is measured and charted on a graph to track progress. Although repeated readings lead to increased reading rate (Kuhn, 2005), two important components need to be considered. The first consideration is the type of text used. Some have recommended narrative texts (H.A.E. Mesmer et al., 2014), whereas others have suggested informational texts because they also build content knowledge (Hiebert, 2000). Second, students need to receive corrective feedback prior to rereading the passage. The teacher should identify difficult phrases, model correct phrasing, and ask students to repeat the correct phrases (Begeny, 2011).

Another way to accomplish repeated readings of a text is to have students engage in Readers Theatre (Young & Rasinski, 2009). In preparing to perform the meaning of a text for an audience, students repeatedly read their parts of a script, leading to an increase in both accuracy and automaticity. In addition, engaging in Readers Theatre can lead to increased motivation (Young & Rasinski, 2009).

Echo and Choral Reading

Echo and choral reading practices also build students' accuracy and reading rate (Samuels, 1979). In echo reading, the teacher reads a selection of text while students follow along. Students then read the same text with the rate and expression modeled by the teacher. This process continues until the entire selection of text has been read (Walpole, McKenna, & Philippakos, 2011). In choral reading, the teacher does not read the text in advance. Instead, the teacher and students read the text simultaneously, or the students work together in groups to read the text at the same time (Walpole et al., 2011).

What Can I Do for Students Who Have Trouble Comprehending?

The ultimate goal of reading is to make meaning from a text. Although all of the students in our study struggled with comprehension, more than half of the students (63.3%) had great difficulty with comprehension despite appearing proficient in other areas. This finding was consistent with many of our own experiences in the classroom. As former elementary teachers, we are familiar with students who can decode almost any text but who struggle to make sense of what they read. Some refer to students in this category as word callers, suggesting that students call out the words but do not engage in the real thinking necessary to adequately comprehend (Cartwright, 2010). Others propose that these students might be victims of a testing era that has all too often overemphasized the importance of speed at the cost of minimizing comprehension (Deeney, 2010; Samuels, 2007).

Instead of intervention time spent on foundational fluency skills, students in this group need significant time in text. Perfetti acknowledged the importance of moving beyond fluency alone when he defined reading as "thinking guided by print" (as cited by Vaughn et al., 2013). For students who already have adequate decoding skills and automaticity but struggle with comprehension, cultivating text-based thinking should be the focus of intervention.

Unlike tools to improve word recognition and rate, we lack fine-tuned comprehension measures to help pinpoint students' exact comprehension needs. In fact, research has consistently demonstrated difficulties with materials attempting to measure these needs (Duke, 2005; Schell & Hanna, 1981). Unfortunately, this means that we have little data to inform comprehension-focused interventions. The practices that we provide in this section, although general, should contribute to improved text comprehension.

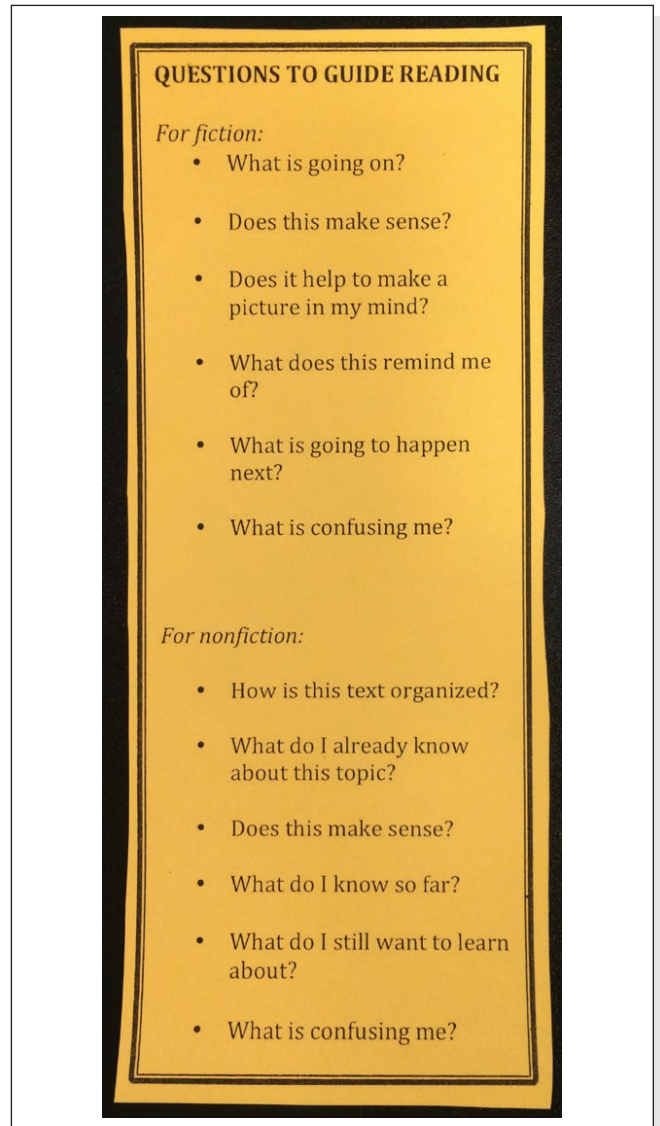
Questioning to Build Metacognition

Expert readers think and reason while reading. To help build metacognitive skills, we strongly recommend moving away from decontextualized comprehension strategy instruction. Although expert readers are strategic, current practices for teaching strategies too often move students away from the text's content, with teachers often overteaching strategies when students only need to be reminded to use them (Willingham, 2006). Researchers in one study directly compared the benefits of strategy instruction with a simpler approach of questioning the text (McKeown, Beck, & Blake, 2009). At various points, teachers using the strategies approach stopped, used a strategy, and reminded students how to apply that strategy. In contrast, teachers using the content approach stopped and asked a general, open-ended question such as "What is going on here?" or "How does all this connect with what we read earlier?" (p. 223). Students in this latter group significantly outperformed students in the strategies group.

We suggest following a similar approach by keeping the focus on the text and providing students with ample time to monitor comprehension. This approach starts with the interventionist modeling the process, which Duffy (2014) called explaining "the secrets" (p. 41) of reading. This modeling should be intentional and focused on parts of the text that the teacher suspects might prove difficult for students. In addition, this modeling of strategic thinking must be brief to avoid distracting students from the real purpose of making sense of the text. For example, the group might whisper read or silently read a section, and the teacher could stop and say, "Hmm, it's helpful for me if I stop and review what's going on here. So far, I've learned that the character, Peter, is shy and nervous about starting school. I know this because...."

After successive modeling, the teacher can shift to questioning, using prompts such as "What do we know so far?" and "How does this make sense?" and "Is this consistent with what we know about the

Figure 2
Comprehension Question Bookmark

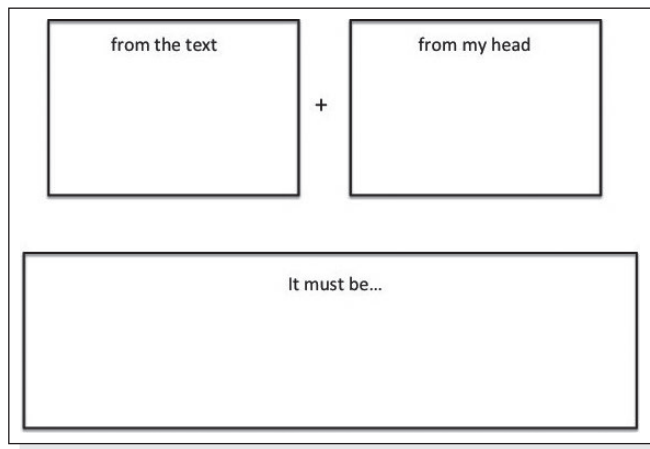


character so far?" By providing students with questions—and eventually moving to where students ask the questions themselves—we promote their metacognitive skills and build their independence as readers (Afflerbach, Cho, Kim, Crassas, & Doyle, 2013). To help students learn to question, we recommend providing questions on laminated bookmarks (see Figure 2).

Using Graphic Organizers to Build Inference Skills

Many students who are fluent but struggle with comprehension have difficulty with a specific aspect of comprehension: making inferences (Cain & Oakhill,

Figure 3
Sentence Frames to Connect Information in the Text



Note. Adapted from *Understanding and Teaching Reading Comprehension: A Handbook* (p. 51), by J. Oakhill, K. Cain, and C. Elbro, 2015, New York, NY: Routledge. Copyright 2015 by J. Oakhill, K. Cain, and C. Elbro.

1999). The ability to generate inferences is difficult because it requires a reader to either think across text (or texts) or connect something in the text with expected background knowledge (Oakhill, Cain, & Elbro, 2015).

To help students with inferencing, we adapted Oakhill and colleagues' (2015) graphic organizer, which can be used with a variety of texts (see Figure 3). The sentence frames remind students that reading often requires connecting pieces of information, whether those pieces are provided exclusively in the text or we have to use knowledge from previous experiences or other texts to help us understand. As with questioning, this practice should occur within the context of the specific text being read.

Frontloading Necessary Background Knowledge

We acknowledge that there are instances where a student could be a strategic, fluent reader but still struggle with comprehension. One reason could be that the background knowledge the student brings to the text might be inconsistent with the author's expectations. We prefer to move away from language that promotes the idea that some students have "low" background knowledge and instead favor the idea that the type of knowledge valued in school is not always consistent with the wealth of knowledge that students bring (Moll, Amanti, Neff, & Gonzalez, 1992).

In these situations, it is likely that questioning the text will not help. The author has assumed the

reader knew something, and without that knowledge, the reader has too many gaps to fill to make sense of the text (Neuman, Kaefer, & Pinkham, 2014). The best way to prevent this from occurring is for students to read frequently and widely and for teachers in early grades to provide more time for content area instruction (Willingham, 2006).

If, within an intervention setting, the concern is a lack of sufficient school-valued background knowledge, the teacher might consider using more content-rich nonfiction texts. The teacher should also consider what types of knowledge would be most valuable for making sense of that specific text. For example, if students are about to read a passage that includes several references to an urban setting, the teacher might anticipate frontloading information about cities for students to adequately visualize and infer while reading. The trick is to provide necessary information without taking time from students' reading of the text. We encourage borrowing some strategies and activities from SIOP recommendations (Echevarría, Vogt, & Short, 2013) such as employing multimedia or images (Neuman et al., 2014).

What Can I Do at the Whole-Class Level?

The intervention ideas discussed up to this point will only be effective if students are also engaged in classrooms that provide rich literacy instruction. In this section, we share some key instructional practices for Tier 1 literacy instruction (E.M. Mesmer & Mesmer, 2008).

Classroom Practices for Word Recognition

Whole-class reading instruction should include systematic word study instruction. This type of word study instruction should mirror students' development (see, e.g., Ehri, 2005) and build students' knowledge of words from understanding phonemic, then orthographic, and finally morphemic word structures (Bear, Invernizzi, Templeton, & Johnston, 2012). For example, in one framework, students progress from emergent and early reading stages to final stages based on derivational relations of Greek and Latin root words (Bear et al., 2012). Such a framework meets the needs of students at varied levels of reading development and is systematic in the presentation of skills to be acquired—a hallmark of effective word study programs (National Reading Panel, 2000).

Classroom Practices for Building Fluency

Shared reading of high-quality text can be used to build fluency across the grade-level span in elementary schools. Although many primary-grade teachers are familiar with shared reading to build beginning literacy skills (Parkes, 2000), this model can also be used to support the reading of challenging texts (see, e.g., K.A.D. Stahl, 2012). In shared reading, the teacher and students typically read chorally, with students first reading a text in a supportive environment while gaining confidence (Tierney & Readence, 2005). This type of reading can also link fluency instruction and comprehension development; teacher-led modeling of fluency (prosody, rate, and accuracy) can positively affect comprehension (Benjamin & Schwanenflugel, 2010).

Classroom Practices for Building Comprehension

One effective classroom practice for building students' comprehension is the use of daily, high-quality read-alouds of challenging texts. Read-alouds afford students a variety of contexts where comprehension strategies can be modeled as well as exposure to new vocabulary and new content. Texts for daily read-alouds should be carefully chosen; the goal is to use text that is above students' grade-level readability but still conceptually accessible. A.E. Cunningham (2005) suggested using texts two to three grade levels above students' reading level.

We have often seen teachers capitalize on comprehension strategy instruction during read-alouds. Although it is important to model strategy use, we caution against spending too much time on this. Quick modeling during reading yields better outcomes than prolonged modeling and discussion (see McKeown et al., 2009, for more information). When choosing strategies, we recommend limiting choices to key evidence-based strategies (inference making, comprehension monitoring, and understanding text structure) that are central to understanding the text (Cain & Oakhill, 2009).

Putting It All Together

Too many students in U.S. schools continue to struggle with reading. Research has already established that students struggle with reading for different reasons. To best meet students' needs and capitalize on intervention time, classroom teachers and literacy specialists should develop targeted interventions closely matched to students' reading needs. In this

TAKE ACTION!

1. Choose a student and analyze his or her reading assessment data to determine strengths and weaknesses.
2. Determine the student's most foundational reading skill need.
3. Select an intervention matched to the foundational skill and design an appropriate lesson.
4. After implementing the intervention for at least three weeks, reflect on its effectiveness. Is the student making progress?
5. Think about your whole class. Which instructional practices can be implemented to address your students' needs?

article, we presented five different profiles aligned to three specific foundational needs. Matched intervention ideas targeting word recognition, reading rate, and comprehension were presented. We maintain the need for differentiated, efficient, and focused interventions to expedite reading progress. Beyond interventions, effective whole-class literacy instructional practices were also recommended. Our hope is that teachers and specialists can use this information to meet students' specific needs and that this, in turn, will lead to accelerated reading progress and opportunities for all of our readers to engage successfully with interesting, challenging, and rigorous texts.

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- Find additional student activities for decoding, fluency, and comprehension on the Florida Center for Reading Research website: www.fcrr.org/for-educators/sca.asp.
- Explore links and modules for building instructional capacity on the Comprehensive Reading Solutions website: comprehensivereadingsolutions.com/category/grades-k-5/.
- Find useful classroom reading materials on the TextProject website: textproject.org/classroom-materials/.

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