

**REVIEW**

# Unpacking automaticity: Scaffolded texts and comprehension

Elfrieda H. Hiebert 

## INTRODUCTION

On the 2022 National Assessment of Educational Progress (NAEP; National Center for Educational Statistics, 2022a), 31% of U.S. eighth graders achieved the proficient level and 39% achieved the basic level. The remaining 30% achieved the below-basic level. Overall, the percentages of students in the proficient and basic groups had dropped relative to pre-COVID-19 pandemic levels, but not significantly. Even so, NAEP data are often cited as evidence of the lack of decoding prowess among American students (Hanford, 2019). In a study that considered possible reasons for students' lack of proficiency as they moved to middle school, investigators concluded that most below-basic students had problems with fluency, word reading, and phonological decoding and that many students, as they entered middle school, could benefit from support in these areas (White et al., 2021). A flurry of legislative mandates has ensued to address below-basic performances, including in middle and high schools. In Virginia, for example, a legislative bill (Virginia Senate Bill 1175, 2023) extended mandates that literacy instruction be aligned with science-based reading research from primary grades to grades 4 through 8.

For Black, Indigenous, and Hispanic students, those learning English as a second or third language, and those eligible for the National School Lunch Program (NSLP), performing at basic or below-basic levels on the NAEP is more common compared to White or Asian students who are not English learners and are ineligible for the NSLP (Zhang et al., 2020). Students at basic and below-basic levels are likely to be assigned to foundational skill interventions. However, despite available research on how to improve older readers' decoding and fluency, the methods used are often adapted from elementary school strategies. For example, the National Reading Panel (NRP, 2000) recommended repeated oral reading for high-school students struggling

with reading, but this recommendation was based on limited studies with secondary students, especially those who were linguistically or culturally diverse. To help students become engaged readers, educators need clear, effective strategies. These strategies need to have been proven effective with adolescent readers from linguistically and culturally diverse backgrounds.

## STRENGTHS AND NEEDS OF ADOLESCENTS WHO SCORE AT BASIC AND BELOW-BASIC LEVELS ON STATE AND NATIONAL ASSESSMENTS

An asset-based exploration of the capabilities of students, especially those from culturally and linguistically diverse communities, can reveal their engagement and agency as literacy learners (López, 2024). Such a view requires an understanding of the content of assessments that influence media reports and public perceptions of students' reading capacity. On the typical task of NAEP Reading at grades 8 and 12, students silently read at least one passage of 700 or more words and answer comprehension questions over a specified period (usually 30 min). Most of the passages are informational, and questions are of three types: locate and recall main ideas or specific elements of a text, integrate and interpret text content, and critique and evaluate content from numerous perspectives. Seventy percent of the responses are in a multiple-choice format, and the remainder require students to write down their responses.

Students' performances are reported on a unidimensional scale, where a committee of educators and citizens has designated three achievement levels (NAEP, 2022b): (a) Advanced: Superior performance, (b) Proficient: Competency over challenging material, and (c) Basic: Partial mastery of prerequisite

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knowledge and skills. Students who fail to attain the basic level are described as below basic. These definitions of proficiency levels are sufficiently vague that a congressional commission has described the standard-setting process as “fundamentally flawed” and difficult for educators, legislators, and citizens to interpret (Pellegrino et al., 1999, p. 7). Despite this note of caution and a similar statement from a subsequent commission (National Academies of Science, Engineering, & Medicine, 2017), the reporting system has remained unchanged over the past 25 years.

Both commissions identified a major issue with the current reporting system: it lacks detailed information on what below-basic students can do and how their skills relate to real-world literacy tasks. The NAEP has only partially addressed the proficiency of students in the below-basic group through three studies on fourth graders' oral reading accuracy and rate (Danne et al., 2005; Pinnell et al., 1995; White et al., 2021). In these studies, researchers concluded that students in the below-basic group read aloud slowly. However, they did not investigate either students' vocabulary, which is crucial for reading fluency and comprehension (Spichtig et al., 2022), or behaviors during silent reading, such as a tendency for students in the below-basic group to read superficially, if at all, in this mode (Hiebert & Daniel, 2019).

The only detailed study of performances beyond oral reading fluency (ORF) of students categorized as below basic on a state assessment similar to the NAEP revealed significant differences within this group (Buly & Valencia, 2002). Using various measures, including word accuracy, oral reading rate, comprehension, and vocabulary, Buly and Valencia identified four subgroups among the 35% in the below-basic category:

- Stronger in word identification and fluency than in comprehension (12%).
- Strong word recognition skills but slow reading rates (15%).
- Able to sustain reading but with insufficient word recognition for comprehension (6%).
- Poor word recognition that hinders meaningful comprehension (3%).

Eighth-grade norms for accuracy and rate on DIBELS, a widely used ORF measure (University of Oregon, Center for Teaching, & Learning, 2022), support Buly and Valencia's (2002) finding that most students in the below-basic group can accurately recognize words. Table 1 shows that, although students in the bottom 5% struggle with word recognition, other eighth graders in the bottom third can identify 93% to 98% of words in grade-level texts. However, most below-basic students' reading rates are too slow to allow them to focus fully on comprehension. These

**TABLE 1** Reading rates and accuracy of eighth graders in the bottom triad on an oral reading fluency assessment<sup>a</sup>.

Performance level	Percentile	WCPM	Accuracy (%)
Below basic: High	36	119	98
	30	114	98
Below basic: Middle	24	107	97
	18	98	96
Below basic: Low	12	88	95
	6	78	93
	1	36	83

<sup>a</sup>Based on University of Oregon, Center on Teaching and Learning (2022).

reading rates suggest that many students in the below-basic group lack *automaticity*. That is, readers need to pause and decode a word before they can establish its meaning. When too many words in a text require readers' attention to decoding or when the meanings of decoded words are unknown, comprehension is compromised. When this occurs, readers' ability to infer and reflect on text is jeopardized.

In the rest of this article, I will cover three topics:

1. The background of the automaticity concept, including its application in current reading practices and policies.
2. Review of evidence to support how different texts influence automaticity.
3. Actions educators can take to improve their students' automaticity and reading volume, leading to improved comprehension and critical thinking skills.

## THE TYPICAL PERSPECTIVE ON INSTRUCTION OF FLUENCY

Huey (1908) was one of the first to describe how automatic word recognition influences comprehension, but it was LaBerge and Samuels (1974) who highlighted this concept in models of proficient reading. They explained that comprehension depends on readers recognizing words quickly enough to construct meaning. When readers pause to decode words and retrieve meaning, their cognitive resources shift to that task, possibly compromising their understanding of the text. Sustaining understanding of a text is further jeopardized when students have insufficient decoding proficiencies or when decoded words are not within their oral language.

In the educational literature, the automaticity concept is known as *fluency*, which measures how many words can be read accurately in a given time. *Prosody*, which includes intonation and stress, is also part of oral reading assessments. Although prosody in oral reading correlates moderately with silent reading comprehension (Gross et al., 2014), no studies have shown that improving

prosody in oral reading leads to higher proficiency in either oral or silent reading. Researchers are exploring whether explicitly marking stress in written English could enhance the silent reading abilities of struggling readers and English learners by Gross et al. (2014) and Gross et al. (2018). For culturally and linguistically diverse students whose oral language patterns may differ from those in academic texts, incorporating prosodic cues could be beneficial for both oral and silent reading. However, because evidence about prosody's impact on silent reading is not yet conclusive, this article focuses on word recognition and comprehension as essential components of automaticity in silent reading.

The emphasis in LaBerge and Samuels' (1974) original description of automaticity was on silent, not oral, reading. However, when an early study showed a stronger correlation between ORF and reading comprehension than silent reading (Fuchs et al., 1988), oral reading became the dominant means for supporting fluency. Later studies with broader adolescent samples than the Fuchs et al. (1988) study would report more moderate correlations for ORF, with the silent reading rate predicting comprehension similarly to ORF (Denton et al., 2011). However, the die had been cast and ORF became the means for operationalizing fluent reading. The presence of a simple measure for assessing ORF—the number of words read in a minute (Deno & Mirkin, 1977)—at a time when measures of silent reading rate were rare and untested solidified ORF's domination. When assessments indicated poor fluency, the response was to engage students in repeated oral reading of texts, even when validation studies for the number of repetitions of texts had not been conducted.

Over the past 50 years, ORF assessments have become central to elementary school testing programs, and repeated oral reading is widely used to address low fluency scores. Although secondary schools have not adopted repeated oral reading as extensively, this may change with growing awareness of below-basic students' proficiency levels. National documents promoting evidence-based practices, such as those from the What Works Clearinghouse (Vaughn et al., 2022), have cited repeated oral reading as a remedy for poor silent reading comprehension among secondary students. The reference for this recommendation is NRP's (2000) meta-analysis, which included a single study with secondary students, none of whom were linguistically or culturally diverse.

In subsequent studies of repeated oral reading with middle and high school students, the practice of repeated reading to improve comprehension has not been validated. Wexler et al. (2008) reviewed studies from 1980 to 2005, whereas Steinle et al. (2022) extended the review with studies from 2006 to 2019. Both reviews concluded that repeated reading interventions were associated with increased reading fluency but not

strongly associated with improvements in comprehension. As Steinle et al. (2022) concluded, "If any recommendation can be made, it is to proceed with caution in overreliance on RR [repeated reading], which may not be properly efficacious for this population" (p. 17).

Wexler et al. (2008) offered preliminary findings for an alternative form of intervention for secondary students aimed at increasing automaticity: nonrepetitive or wide reading. In it, students read several texts during a session rather than repetitively reading a single text. Steinle et al. (2022) found only one study that compared wide reading and repeated reading with secondary students: Wexler et al. (2010). Even though that study observed no significant statistical differences between the wide reading and repeated reading groups of students in grades 9–12 with severe reading disabilities, the results were interpreted to be positive because of NRP's (2000) identification of repeated reading as evidence based. Zimmerman et al. (2021) identified a second study of nonrepetitive reading with secondary students, a dissertation (Coward, 2015), which showed a small advantage on a standardized comprehension measure for the experimental group, which read self-selected texts. However, the control group had an advantage in reading fluency.

A crucial element in nonrepetitive reading studies is the extent to which words overlap across different texts. For instance, Reed et al. (2019) found that middle-school students who read three different texts with 85% overlapping words showed a modest but positive improvement compared to those who read a single text repeatedly. However, research has yet to explore whether reading texts with a high proportion of vocabulary that is very frequent can more effectively enhance automaticity and comprehension. The critical word zone (CWZ) perspective specifically addresses this by emphasizing that the most effective texts for intervention are those that feature vocabulary frequently used across a wide range of texts, not just within isolated practice materials.

## AN ALTERNATIVE PERSPECTIVE ON TEXTS AND AUTOMATICITY: THE ROLE OF CWZs

In national documents advocating repeated oral reading to improve poor silent reading comprehension, the role of texts is rarely, if ever, discussed (NRP, 2000; Vaughn et al., 2022). Nevertheless, when Hiebert and Fisher (2005) analyzed texts that had been used in the NRP analysis, they found that 75% of studies with positive effects in the meta-analysis came from programs where texts had a lower percentage of low-frequency and rare words and a higher percentage of high- and medium-frequency words.

This finding suggests that to create interventions for students who are not sufficiently automatic in reading

words in grade-level texts, the distributions of words in texts require consideration. For students from diverse cultural and linguistic backgrounds, such attention may be especially crucial. Words that appear frequently in language often have multiple meanings, including idiomatic and metaphorical meanings. Take the word “break,” for example. In the news, you might hear about “breaking news,” a “breakdown” in power lines, an athlete “breaking” a world record, or a start-up “breaking even.” Research shows that exposing students to words in various contexts—known as semantic diversity—helps them understand and use vocabulary more effectively (Hoffman et al., 2013). By reading extensively, readers encounter words in the CWZ in a range of contexts that aid in developing automaticity.

## Word zones in typical school texts

Of the 280000 unique words in the English dictionary, approximately 171500 are actively used in writing and conversation (Stevenson, 2010). Teaching even a small fraction of these words over students' academic careers is challenging. However, an examination of word occurrences in texts shows that only a small portion of the dictionary accounts for most of the words in texts. Furthermore, when words are grouped into morphological families (e.g., *help*, *helpful*, *helpless*, *unhelpful*), the number of consistently appearing words becomes more manageable (Nagy & Anderson, 1984).

As Table 2 shows, words in school texts from grades K through 12 can be grouped into four word zones: (a) high-frequency words, which account for the biggest percentage of words in texts; (b) medium-frequency words, which contain many of the general academic words critical to school texts (Nagy & Townsend, 2012); (c) low-frequency words, which include many members of word families in the high- and medium-frequency groups; and (d) rare words.

The low-frequency and rare zones are by far the largest, especially the latter group. Just because a word is rare, however, does not mean that students cannot decode it (e.g., *wag*, *yawn*). However, many of the words in the rare zone are ones that require even skilled readers to pause to establish meaning (e.g., *chromatids*, *epithelium*).

The best available research has indicated that recognizing 95%–98% of the words in text automatically leaves sufficient cognitive bandwidth to decode them (Schmitt et al., 2011). High- and medium-frequency words make up the bulk of this percentage. Readers who are automatic with these two groups of words can attend to low-frequency and rare words. Automaticity is most needed with the first two word zones. I will describe them as the CWZs.

To illustrate the CWZ's role in texts, consider the excerpts in Table 3 from the four NAEP (2022a) assessments in civics, mathematics, science, and reading. High-frequency words are connecting words needed for grammatically appropriate sentences and, in some cases, content words such as *temperature* and *United States*. However, the words that convey much of the meaning in the texts come from the medium-frequency zone, such as *declaration* and *independence* in civics and *breathing* and *oxygen* in science.

Of note is the high percentage of low-frequency and rare words in the reading assessment's narrative text. As Table 3 shows, topic-critical words are typically repeated in expository texts but not in narrative texts (Hiebert & Cervetti, 2012). A writer of a story about a hungry boy uses words from a semantically related network, often words of low- or rare-frequency (e.g., *scrawny*, *famished*), rather than repeating *hungry*. A writer of an expository text about the grievances of colonists against the British repeats words such as *grievances*. The percentage of words from the low-frequency and rare zones may be similar in narrative and expository texts, but the number of unique words that make up these two word zones in narrative texts typically exceeds that in expository texts. This feature of narrative texts and the opportunities that expository texts provide for building background knowledge make expository texts ideal sources for automaticity development.

## Research on students' comprehension as a function of word zones

Evidence of automaticity with words within CWZs for comprehension comes from descriptive studies as well as experimental studies, where texts have been designed around CWZs.

TABLE 2 Total and unique words and morphological families: Four word zones.

	Unique words (#) <sup>a</sup>	Word families (#) <sup>b</sup>	Predicted appearances per million words of texts	Total words in texts (%)
High-frequency	930	621	100+	78
Medium-frequency	4655	1830	99–10	16
Low-frequency	13881	3040	9–1	4
Rare	124405+		<1	2

<sup>a</sup>Unique words are derived from Zeno et al. (1995).

<sup>b</sup>High- and medium-frequency families are based on Hiebert et al. (2018); low-frequency families are based on Hiebert (2024).

TABLE 3 Excerpts from NAEP assessments<sup>a,b,c</sup>.

Civics	Mathematics	Reading	Science
<p>The Declaration of Independence identified several problems with the <b>governance</b> of the American colonies by Great Britain. When the <b>design</b> for the new government of the United States was being planned, the framers of the Constitution included solutions to the problems listed in the Declaration of Independence. Match the <b>grievance</b> from the Declaration of Independence to the <b>corresponding</b> sections of the United States Constitution where those <b>grievances</b> are addressed.</p>	<p>During one week, a store asks all of its <b>customers</b> what town they live in. Town: Clay, Hope, Rome, <b>Taylor</b>; Number of Customers. A circle (pie chart) that will show the <b>data</b> in the table has been started. Based on the table, label each <b>sector</b> with a town name. Drag town names to the circle graph to show your answer. Customers' town: Clay, Hope, Rome, <b>Taylor</b>. How much greater is the percent of customers from Clay than the percent of customers from <b>Taylor</b>?</p>	<p>The <b>famished</b> lad gratefully <b>gobbled</b> every morsel. Then, repeating his promise to pay back the <b>innkeeper</b>, he journeyed on. <b>Revived</b> by his five egg breakfast, the boy soon reached a <b>bustling</b> seaport. <b>Intent</b> on finding his fortune, he set sail on the first ship that was leaving the harbor. Years passed, and the <b>lad</b> prospered. As a sea merchant, he sailed far, stopping in many <b>exotic</b> ports. However, he never forgot his <b>humble</b> beginnings or the money he <b>owed</b> the <b>innkeeper</b>.</p>	<p>Goldfish take in oxygen (breathe) by moving water across their <b>gills</b> when they open and close their mouths. The <b>breathing</b> rate is <b>determined</b> by how often the goldfish opens and closes its mouth. A class set up an investigation to study how temperature <b>affects</b> the <b>breathing</b> rates of goldfish. The students put fish in three <b>beakers</b>: Water temperature kept at 15°C, 20°C, 25°C. After the students observed each goldfish for 30 s, the teacher <b>instructed</b> them to record the <b>data</b> in a table.</p>

<sup>a</sup>Excerpts for civics, mathematics, and science come from released items from NAEP 2022 assessments: <https://www.nationsreportcard.gov/nqt/searchquestions>. Released content for NAEP 2022 Reading was an informational text. To illustrate nature of narrative text, excerpt was taken from the NAEP 2017.

<sup>b</sup>Fonts used for word zones: High-frequency: Gray. Medium-frequency: Black. Low-frequency: Black, bolded. Rare: Black, bolded, italicized.

<sup>c</sup>Assignment of words to zones is based on Zeno et al. (1995).

## Relationship of critical words to students' comprehension

Spichtig et al. (2022) demonstrated that recognizing the meaning of words from the CWZ significantly affects comprehension from grades K to 12. In that study, the team established the vocabulary proficiency level of 300,000 students on a 12-level assessment that moved progressively through the CWZ. Spichtig et al. reported that students' vocabulary had a more significant effect on their reading rates and comprehension than their age or grade level. This finding applied equally across grades, from elementary to high school. Although demographic data were insufficient to draw conclusions specific to cultural or linguistic groups, the large and comprehensive sample (students from 49 states and the District of Columbia) suggests that vocabulary knowledge is a significant factor in understanding culturally and linguistically diverse students' comprehension.

Like Spichtig et al. (2022), Masrai (2019) considered students' comprehension as a function of their performance on a vocabulary assessment of their critical word vocabulary. The study differed somewhat from that of Spichtig et al. (2022) in that the students were young adults learning English as a second language (ESL). Half of them were progressing well in their English classes, and the other half were not. The vocabulary was parsed into three primary zones that paralleled the CWZ in the Spichtig et al. study. For students in the bottom half of the sample, recognition of high-frequency

vocabulary was reading comprehension's only predictor. For students in the top half of the sample, vocabulary from both the high- and medium-frequency word zones significantly contributed to reading comprehension, though medium-frequency vocabulary explained the largest variance.

Additionally, with a sample of young adults learning ESL, Tozcu and Coady (2004) showed that practice with words from the CWZ can result in increased comprehension. Students in the experimental group practiced words in the high- and medium-frequency zones, whereas students in the comparison group spent the same amount of time reading texts. Although both groups showed increases in vocabulary gain and reading comprehension, the experimental group showed significantly greater gains compared to the control group students on a standardized comprehension test.

## Effects from reading texts designed around word zones

Two groups of studies have examined the effects of texts selected or designed around word zones on students' automaticity and comprehension.

### *Graded texts in ESL*

The ESL field has long based instruction and assessment on the progression of words from high to low frequency (Schmitt et al., 2011). Students in these programs are typically young adults pursuing English

literacy and oracy for professional or educational pursuits and attending programs in English-speaking countries or in schools or classes offered in their native countries.

The texts in these programs, described as graded (Albay, 2017), are based on word groups similar to the CWZ and follow a comparable progression to the program summarized in Table 4. In other words, early levels have high percentages of words from the CWZ and low percentages of words from the low-frequency and rare zones.

The term *extensive reading* is used frequently in ESL instruction because researchers recognize that the amount that students read fosters automaticity in reading. Textbooks and texts of interest are included in extensive reading in addition to graded texts but many of the texts available in ESL programs have been selected around the frequency bands. Jeon and Day (2016) and Nakanishi (2015) conducted meta-analyses of extensive reading with a priority on texts with critical word bands, both showing relatively high effect sizes for reading comprehension. Unlike many of the comparisons of the nonrepetitive or repetitive reading techniques with children and adolescents learning to read in English, the mode of reading in these studies has been almost exclusively silent.

### Scaffolded texts

The review in NRP (Hiebert & Fisher, 2005) showing that texts with many frequent words boosted fluency inspired the design of texts based on the CWZ model. I set out to generate texts for middle- and high-school students, which are now available in an open-access format (<https://textproject.org/teachers/free-texts/>). I use the term *scaffolded* for these texts because, like a scaffold in construction, the texts are intended to support students until they have gained sufficient automaticity to be proficient with the words in the CWZ. Table 4 depicts the progression of an open-access program of texts based on the CWZ model. The texts are intended as neither a permanent or primary part of students' text diets nor a way to address every challenge students face as readers. Reading is a complex process involving many kinds of texts and tasks.

In addition to supporting automaticity, a particular consideration in designing scaffolded texts pertains to the activation and building of background knowledge.

**TABLE 4** Distributions of words in three levels of a program of scaffolded texts<sup>a</sup>.

	High frequency	Medium frequency	Low frequency	Very rare
Level B	81	18	1	0.3
Level D	78	19	2	1
Level F	75	20	4	1

<sup>a</sup>Texts can be found at: <https://textproject.org/teachers/free-texts/>.

In Guthrie et al.'s (2007) Concept-Oriented Reading Instruction, students' views of content's relevance influence their intrinsic motivation. This has been shown to be a crucial factor in students' achievement in a culturally diverse high school (Froiland & Worrell, 2016). When the text topics are disconnected from students' experiences, they may become disengaged and, in some cases, reluctant to read (Assor et al., 2002).

The texts Hiebert and Fisher (2005) reviewed in the NRP (2000) meta-analysis of fluency typically consisted of short passages that moved from topic to topic. For example, in one program, a text on electric typewriters was followed by one on colonists bartering with Native Americans (McCall & Schroeder, 1979). Some recent fluency programs continue this trend of disparate content, with texts covering topics as varied as Jane Goodall, the Liberty Bell, and the Chicago fire (<https://www.readnaturally.com/product/read-naturally-live>).

This lack of thematic coherence can hinder the development of background knowledge essential for comprehension and reduce the texts' sense of relevance for adolescents. Open-access texts for supporting secondary students' automaticity with the CWZ (<https://textproject.org/teachers/free-texts/>) aim to enhance their background knowledge with relevant content. For example, one text set features the use of cell phones for different artistic goals (designing collages, writing poetry, and so on). A focus on the CWZs does not mean that the content of texts is bland. The CWZs include numerous content words that lend themselves to engaging topics, such as assorted forms of dance and the ways in which different beats in music lend themselves to particular dance moves.

Forms of the scaffolded texts, including those available in an open-access format ([textproject.org](https://textproject.org)), have been used in studies with students of a variety of ages, including those in secondary schools (e.g., Wexler et al., 2010). In studies with secondary students, however, scaffolded texts have been used in combination with other texts or as only part of an intervention. In another group of studies where scaffolded texts have been the focus of interventions with samples that included fifth graders, positive effects have been reported for fluency, vocabulary, and comprehension (Trainin et al., 2016; Vadasy & Sanders, 2008). Further, gains in content knowledge have been reported across students of different reading levels (Huxley, 2006).

Currently, a project using a program of scaffolded texts is underway with sixth through eighth graders in a U.S. community heavily affected by poverty. In the first year of the study, most participants began the school year reading several years below their grade level (Madden et al., 2023). In 2 years, intervention students have outperformed comparison students on both standardized and researcher-designed measures of comprehension. These findings suggest that, especially

for middle graders who are substantially below grade-level standards, reading scaffolded texts can lead to increased automaticity and comprehension.

## APPLICATIONS AND EXTENSIONS

Researchers have pinpointed specific instructional strategies and specialized texts that can significantly boost comprehension levels. These methods hold great promise for classroom use. However, for students to achieve automaticity in reading, these techniques and texts must be applied consistently and comprehensively. Unless students read often, the potential benefits of techniques and texts may not be fully realized. Observations from U.S. classrooms indicate that students are not reading extensively. Swanson et al. (2016) reported that only 15% of classroom time in English language arts and social studies from grades 7 to 12 was devoted to text reading. During much of the text reading time, students listened as the text was read aloud by teacher, peers, or a reader on an audio. The portion that students spent reading independently was limited.

Increasing the amount that students read on their own (i.e., silent reading) needs to be a focus of reading instruction. The rates at which students in U.S. schools read silently with comprehension has declined in the past 50 years, as is evident from a comparison between 1960 and 2011 of silent reading rates with comprehension of students in grades 2–12 (Spichtig et al., 2016). At the primary level, students' rates were comparable over the 50-year period, but by middle school, rates of silent reading with comprehension had stagnated. Whereas students in 1960 gained 19 words per minute (wpm) from grades 6–8, students in 2011 gained one wpm over the same period.

Increasing adolescents' involvement with texts that they can read and that support knowledge building is not the only solution for increasing their reading proficiency, but it is a critical one. I address four questions in this section about the selection of texts for supporting automaticity: why (teachers' and students' mindset), who (students), where (instructional contexts), and what (text selection).

### Texts for automaticity support: Why?

A history of struggling with literacy can leave students with a lack of agency and disinterest in reading (Guthrie & Wigfield, 2023). When implementing instruction for adolescents struggling with reading agency—a challenge notably prevalent among those from culturally and linguistically diverse backgrounds—addressing instructional features that have been shown to influence student motivation is important (Guthrie & Wigfield, 2023).

In addition to relevance and thematic coherence, three key factors that influence student engagement are success, choice, and collaboration.

In meta-analyses of interventions for adolescents (Steinle et al., 2022; Wexler et al., 2010; Zimmermann et al., 2021), only the element of success is consistently identifiable though the studies often poorly defined it. Some interventions have included activities like paired reading, but true collaboration extends beyond merely reading with a partner; it encompasses the opportunity for students to design or create together. The element of choice is notably absent in many interventions.

Studies of instructional elements that contribute to engagement in reading have been conducted in communities where African-American students are prominent (Guthrie et al., 2007). Students with primary languages other than English have not yet been a focus of Concept-Oriented Research Instruction. Other research indicates, however, that multi-lingual students are especially attuned to linguistic tasks, enhancing their sense of reading competence (Galloway et al., 2019). Explicit knowledge about the small part of the English lexicon essential for proficient reading can be shared with students, engaging them in activities to track their reading volume. Studies have found success with this strategy among ESL learners (Hadley & Charles, 2017).

### Texts for automaticity support: Who?

Most students who are classified as basic and below basic on state and national assessments are likely to benefit from texts supporting their automaticity with the CWZ. Classroom teachers may not have access to detailed information on their students' automaticity. The Rapid Online Assessment of Reading (ROAR; <https://roar.stanford.edu>) includes a sentence fluency measure that provides adolescents and teachers with information on silent reading automaticity in an open-access context. Teachers can use resources such as the ROAR assessment or oral reading assessments with comprehension questions, such as the one that is part of the scaffolded text program (<https://textproject.org/wp-content/uploads/2023/02/TR-Assessment-all.pdf>).

In establishing students' facility with CWZs, educators need to be aware that current vocabulary assessments may underestimate the proficiency of linguistically diverse students, especially Spanish speakers. Many general academic words come from the French/Latin roots of English and have similar cognates in Spanish (Lublimer & Hiebert, 2011). For instance, while “primary” is more common in academic contexts in English, Spanish cognates like “primero” and “producir/produce” appear frequently in both conversation and text. Spanish-speaking

students may already know some academic terms, which can be a valuable asset in reading. Therefore, assessments should consider the language strengths and resources students from diverse linguistic backgrounds bring to learning English.

## Texts for automaticity: Where?

Contexts used in studies illustrate the versatility of those contexts in which specialized texts emphasizing the CWZ can be used: (a) warm-up activity in tier-one instruction, (b) small groups or pairs, and (c) individual contexts.

### Tier-one instruction

Although the oldest students in the research project were fifth graders, the Article-a-Day Initiative showed promise for middle-school students (Hiebert, 2018). In that initiative, sets of five to six topically related texts were introduced at the beginning of the week. Students were given the opportunity (i.e., a construct that contributed to engagement; Guthrie & Wigfield, 2023) to select which of the topically related articles they would read. Over a week, several class sessions began with students silently reading articles. At the end of the week, a classroom discussion was held where students revealed insights from the articles on the shared topic they had read.

### Partner reading

In tier-two or even tier-one contexts, students can read texts in pairs. A strategy that Wexler et al. (2010) used with secondary students who have severe reading disabilities and Reed et al. (2019) with entire elementary classrooms is to place students in pairs where one student has high fluency and the other has low fluency. Reed et al. reported that, while effects were the strongest for students with initially low fluency, students with higher fluency levels also benefitted from the practice.

### Individual contexts

Some students who are struggling with automaticity may benefit from working with an interventionist individually or in digital contexts. The open-access scaffolded texts are in a format that students can use on tablets and computers. Fourth and fifth graders who read texts based on the scaffolded model in individual digital settings (Trainin et al., 2016) performed comparably to students who read the texts in group settings.

Rasinski et al. (2011) conducted one of the only studies with secondary readers that focused on silent reading in a digital context where texts were adapted to students' reading level. The team found significant differences in comprehension for students in the intervention group compared to the control group.

## Texts for automaticity support: What?

Open-access scaffolded texts have already been described herein (<https://textproject.org/teachers/free-texts/>). The texts in these programs are intended to be relevant to culturally and linguistically diverse adolescents in middle and high schools. Biographies of contemporary scientists, artists, designers, and technology entrepreneurs are included alongside texts on topics such as dealing with procrastination and anxiety. These resources, however, are just the beginning; teachers need a far broader range of resources to effectively address their students' diverse and unique needs. The following guidelines will help educators select texts that not only bolster automaticity but also build the background knowledge essential for proficient comprehension.

First, aim to select texts connected to a topic. As has already been described, key words in topical texts are likely to be repeated. In a set of passages on the breathing mechanisms of fish, for example, words such as *respiration*, *inhalation*, and *oxygen* are expected to be repeated within and across passages. The effort to decode a word pays off as students encounter it again.

Second, attend to the presence of rare words in selecting texts. Rare words that are connected to a topic—such as *foliation* and *tectonic* in a geology unit—are essential. At the same time, writers often include descriptive words that they believe will interest students, such as *blaspheme* in the reading excerpt in Table 3. This word appears a single time in the target text, and with a predicted frequency of one appearance per 10 million words, it is unlikely to appear anytime soon in students' texts. The concern is not with rare words that are monosyllabic and have easily decodable patterns (e.g., *slabs*), but with words of three or more syllables and those that are unlikely to exist in students' oral vocabularies.

Third, there are commercial sites that promise the same content with different reading levels. Reviews of these sites have indicated that this promise should be viewed critically. In an analysis of 100 text sets at five different Lexile levels, the biggest difference across levels was in the number of words and the sentence length, with higher levels consisting of more words and longer sentences (Hiebert, 2017). The pattern moved in the opposite direction for vocabulary: lower-level texts had as high or even higher vocabulary scores than higher-level texts. Considering the similarities in



vocabulary across text levels, it is not surprising that Lupo et al. (2019) found ninth graders who read either easy or hard forms of texts performed similarly on reading comprehension measures.

Fourth, some sites that offer open-access texts allow the option for texts to be read aloud. That feature may have been added to support students with various access needs. However, if the aim is to increase students' reading capacity, students need to be reading a text and not routinely having someone else do the reading for them.

Finally, the act of reading is complex, and experiences with a range of texts are required to develop the perspective-taking, inferencing, and critical thinking skills that characterize proficient reading. Scaffolded texts such as those intended to support students' automaticity with specific CWZs are not intended to be the be-all and end-all but rather to serve a specific purpose and for specific periods.

## CONCLUSION

Most American adolescents, especially those who score at below-basic levels on state and national assessments, can recognize many of the words in typical texts but read slowly. Over the past 50 years, the solution for their lack of automaticity in reading has been to ask them to orally read a text several times. Sufficient research exists on this practice to permit a definitive response as to its efficacy: repeated oral reading with adolescents has not resulted in a transfer to silent reading comprehension and to texts that are not part of the instruction.

As Table 2 shows, typical instructional and assessment texts average four low-frequency words and two rare words per 100 words of text. Even when words are familiar ones, an initial encounter with words in print may require students to pause and figure out their pronunciation and meaning. If words of high- and moderate-frequency need to be decoded for meaning to be retrieved (or if the meaning of these words is not known), students are likely to have a challenging time retaining the meaning of a text when they encounter the ever-present, unknown low-frequency and rare words. Texts that have been designed to support automaticity with the CWZs give students opportunities to extend their vocabularies, background knowledge, and word recognition.

Substantial research remains to be conducted on facilitation of automaticity with appropriate texts. Specifically, topics that increase engagement of adolescents while reading scaffolded texts merit attention. Further, the extension of experiences with scaffolded texts to higher comprehension and engagement in typical high-school texts warrants examination. These and other research questions need to focus on students

who are overrepresented in the below-basic group on assessments: that is, students who live in culturally and linguistically diverse communities. Even though numerous questions remain to be addressed, all indicators support the conclusion that texts matter in becoming automatic in word recognition that underlies high levels of comprehension.

## CONFLICT OF INTEREST STATEMENT

The author declares no conflicts of interest.

## ORCID

Elfrieda H. Hiebert  <https://orcid.org/0000-0002-2864-7549>

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## AUTHOR BIOGRAPHY

**Elfrieda H. Hiebert** is president and CEO of TextProject, an educational nonprofit, Santa Cruz, CA, USA; email: [hiebert@textproject.org](mailto:hiebert@textproject.org).

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