Reading in Virginia

Virginia State
Literacy Association
VSLA

Reading in Virginia

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Virginia State Literacy Association

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Letter from the VSLA Board President and Editor

Dear Literacy Leaders,

We are thrilled to share the 46th edition of the VSLA journal, Reading in Virginia. Reading in Virginia is a double-blind peer-reviewed publication intended to support the literacy instruction for and by researchers, specialists, and educators. This means all of the articles presented in the journal have been rigorously vetted in light of current evidence-based research by scholars in the field. Journal Co-Editors, Dr. Joan Rhodes and Dr. Courtneay Kelly have dedicated their time and efforts to compile nine articles that represent current teaching practices in hopes to assist and inspire educators and researchers.

Articles in this volume of Reading in Virginia highlight multiple aspects of literacy education to meet the diverse needs of P-12 learners and teachers. Articles are authored by our own VSLA members around the Commonwealth, including classroom teachers, university faculty and doctoral students. Topics range across the breadth of literacy education to offer accessibility to all readers.

If you are looking to better support preservice teachers, check out Leslie La Croix and Michelle Kennedy's article about a unique relationship between preservice teachers and elementary students (p. 1) and Lisa B. Cipolletti, Regina Frazier, Phyllis L. M. Haynes, and Sandy Wilberger's scholars program that strengthens the teacher preparation experience (p. 33). Those that are seeking information on literacy interventions and instructional strategies, be sure to read about Laura Jo Darcy and Tisha Hayes' evidence-based feedback routine (p. 23), Carly McCelland-Richards and Tisha Hayes' multicomponent reading intervention (p. 40), and Candace Bechtold's repeated text discussions instructional strategy (p. 46). If you want to learn more about how rapid automatized naming (RAN) is used as a screener, then do not miss Christina Chaney and Grace Forman's article on how RAN is used to identify struggling readers earlier (p. 53). If you are interested in learning more about policy, we encourage you to read Pamela Sullivan's research which analyzes literacy policies at multiple levels using Brofenbrenner's ecological systems model (p. 11). We close this issue with

insights to support secondary students. Michelle Skelton discusses a teaching strategy to enhance reading comprehension (p. 57) and Melissa Wredt goes in depth with a case study on the decoding and comprehension skills in these older students (p. 61).

In conclusion, Reading in Virginia is a peer-reviewed journal intended to support the professional development of literacy educators and researchers. The journal is intended to be shared worldwide and is now accessible through the EBSCO digital repository. Manuscripts are now being accepted on a rolling basis for the next issue. Please send manuscripts and any questions to Joan Rhodes at joan.rhodes@vslatoday.org and Courtneay Kelly at corrie.kelly@vslatoday.org. We hope you enjoy Volume 46 of Reading in Virginia and find it useful in your professional practice.

Yours in literacy,

Virginia R. Massaro

Virginia R. Massaro
President, VSLA
Board of Directors

Joan A. Rhodes

Joan A. Rhodes
Co-Editor, Reading in Virginia

Courtneay Kelly

Courtneay Kelly
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The Boo-Boos That Changed Our World:
A True Story About a Unique Story Exchange Between Preservice Teachers and Third Graders

Leslie La Croix, George Mason University
Michelle Kennedy Canavan, Fairfax County Public Schools

Once upon a time, Leslie and Michelle used *The Boo-Boos That Changed the World: A True Story About an Accidental Invention (Really!)* by Barry Wittenstein (2018), a Virginia Readers' Choice primary text, to facilitate a unique literature exchange between preservice teachers (PSTs) and third graders.

THE END.

Actually, that was just the beginning of our story. Social studies, language, and literacy content knowledge and skills work in complementary ways to promote learners' understandings. Wittenstein's (2018) historical fiction text provides a playful account of how BAND-AID® Brand Adhesive Bandages became the perfect little boo-boo bandages. Using the phrase "the end" at various points in the story Wittenstein underscores pivotal moments in the invention process to tease readers' interests and compel them to read on to find out what really happened. Inspired by the desire to promote PSTs' pedagogical and content social studies knowledge and provide third graders with a unique space for practicing their reading and writing skills, we used *The Boo-Boos That Changed the World: A True Story About an Accidental Invention (Really!)* (Wittenstein, 2018) to stage a literacy exchange between our classes (i.e., Michelle's third-grade students and Leslie's early childhood education PSTs). Wittenstein's (2018) book, a 2019 Virginia Readers' Choice text, presented us with the perfect opportunity to explore essential social studies knowledge and skills while also promoting unique literacy interactions between the two groups (see Virginia State Literacy Association (n.d.) for Virginia Readers' Choice program details). In this article, we describe our experiences guiding the PSTs to create a series of social studies and literacy-rich experiences for Michelle to facilitate with her third graders. This unique literacy exchange mimics pen pal correspondence practices to create a meaningful bridge between the elementary school and university learning environments.

As educators, we both embrace sociocultural perspectives and strive to immerse our students in authentic opportunities for learning.

Explaining the Literature Exchange Experience

As educators, we both embrace sociocultural perspectives and strive to immerse our students in authentic opportunities for learning. Situated in a Northern Virginia suburb, Leslie works with PSTs seeking teacher licensure in inclusive early childhood education and Michelle works with linguistically and ability-diverse young learners in a Title I school. Our collaborative partnership has spanned a decade. This project is like the pen pal exchanges we have implemented previously where the PSTs and primary-grade writers corresponded over several months. Although our student groups never formally meet during these exchanges, the experience enhances both PSTs' and young children's understanding of multifaceted aspects of literacy learning within an authentic context (see Hodges et al., 2021 for a full description of the pen pal exchange). Grounded in the Virginia Standards of Learning for children in third grade, this literacy exchange created a novel learning environment for both sets of students.

The content in *The Boo-Boos That Changed the World: A True Story About an Accidental Invention (Really!)* (Wittenstein, 2018) offers Virginia educators an opportunity to integrate essential *Virginia English Standards of Learning* (VDOE, 2017) with *Virginia Standards of Learning for History and Social Sciences* (VDOE, 2023). These standards work in complementary ways to strengthen children's overall literacy and social studies knowledge and skills. As future educators, PSTs need opportunities to design, implement, reflect, and refine lesson plans that leverage state standards and

Table 1

Related Virginia Standards of Learning

Reading	Writing	History	Economics
• Demonstrate comprehension of fictional and literary nonfiction texts • Set a purpose for reading • Ask and answer questions about what is read • Make and confirm predictions • Differentiate between fiction and nonfiction • Summarize plot events	• Write in a variety of forms • Express an opinion about a topic and provide fact-based reasons for support • Write a well-developed paragraph focusing on the main idea • Identify audience and purpose. • Write a clear topic sentence focusing on main idea. • Elaborate writing by including supporting details.	• Analyze and interpret information from primary and secondary sources. • Develop questions, demonstrate curiosity, and engage in critical thinking and analysis • Use evidence to construct timelines • Distinguish fact and opinion • Compare and contrast events • Identify cause-and-effect relationships	• Explain how human, natural, and capital resources are used in the production of goods and services • Use an economic decision-making model

Note. Standards are drawn from *English Standards of Learning for Virginia Public Schools* (2017) Reading 3.5, Writing 3.8, and Writing 3.9 and *Virginia History and Social Science Standards of Learning* (2023) Skills 3 and Economics 3.10. (For relevance we present the revised *Virginia History and Social Science Standards of Learning* 2023 standards that corresponded with the standards we selected at the time of implementation).

respond to the diverse needs of young learners (Darling-Hammond & Bransford, 2005). To promote learners' reading comprehension, writing expressions, historical thinking skills, and knowledge of economic production and decision-making processes, we collaboratively identified the Virginia Standards of Learning (VDOE 2017; 2023) we wanted our students (the third graders and the PSTs) to grapple with as they corresponded through the literature exchange (see Table 1).

After identifying the standards, we introduced the literacy exchange project to the PSTs. Before reading the story aloud to the PSTs, we explained they would be working in small groups to design hands-on mini-lessons for third-grade learners to promote their understanding of the story and the social studies concepts present in the narrative. After reading the story, we used the following guiding questions to provoke the PSTs' initial plans:

> (1) What do children need to know to fully understand the text?
> (2) How will you engage the learners in the story while supporting their understanding of history, economics, reading, and writing?

The PSTs worked collaboratively in small groups to reread the story and identify the relevant language arts and social studies knowledge and skills they could leverage to encourage children to think deeply about the story. After sharing initial thoughts, PSTs developed hands-on and collaborative experiences to encourage the third-grade students to grapple with new literacy and social studies content knowledge and skills. This article highlights the mini-lessons and individualized writing experiences the PSTs created in collaboration with us to meet the learning interests and needs of the diverse young learners in Michelle's class.

Engaging Learners in Historical Fiction Texts

Although the title, *The Boo-Boos That Changed the World: A True Story About an Accidental Invention (Really!)* (Wittenstein, 2018) claims otherwise, the children's text is actually a *mostly* true story explaining how Earle Dickson worked through the invention process to design and refine the first adhesive bandage and bring the product to consumers worldwide. Wittenstein includes a valuable author's note at the end of the book describing his inspiration for the book. Wittenstein

also details which aspects of the narrative are documented in historical records and which aspects he fictionalized to bring the story to life for his audience. The embedded explanation provided educators with the perfect opening for engaging students in critical conversations about how historical fiction authors use facts to re-present storylines bound to specific time periods. [Insert Appendix 1: Sidebar: What is Historical Fiction?].

Correspondence Journals. To support the third graders' sustained exploration of the central social studies concepts prevalent in the text and monitor the children's comprehension of the historical fiction narrative, we paired each PST with a third grader and created a correspondence journal that would travel between classroom environments as the literature exchange unfolded. Corresponding partnerships between university PSTs and primary-grade learners is recognized as a mutually beneficial, socio-constructivist practice that creates an authentic learning context for the pairs of learners (Bloem, 2004). Through writing exchanges, young learners develop essential skills and practices associated with reading and writing and PSTs gain critical insights regarding the pedagogical tools and assessment practices teachers use to promote engagement and learning (Bloem, 2004; Bromley et al., 1994; Gambrell et al., 2013; Moore & Seeger, 2009). We viewed the correspondence journal as a means of promoting a written dialog between the student buddies. The practice allowed the PSTs to prompt the children's wonderings and connections to the story and inspired the third graders to make a personal connection with a future teacher who was interested in what they were thinking and learning about. The PSTs used the journals to write mini letters to their buddy, sharing their wonderings about the characters in the story and encouraging the third graders to share their predictions as well. After the initial exchange, we also used the correspondence journals to share the social studies inquiry organizers designed to facilitate children's explorations of primary sources, history, and economic processes.

What is Historical Fiction?
Historical fiction uses factual details from the past to transport readers to a period in history that no longer exists. As a subgenre of informational fiction, it combines verifiable historical events, places, and people, with imagined elements like dialogue to engage readers.

THE END.

Not really. We bet you want to know more about how we progressed through the literature exchange.

Structuring the Literacy Exchange

We divided the narrative into three parts to mimic a "beginning, middle, end" pattern. Leveraging the phrase "the end" written into the narrative at various points created a space for PSTs and the third graders to pause and reflect on the different parts of the story and pursue mini lessons integrating language arts and social studies content. Strategic content-centered strategies integrated across the reading experience support students' achievement (Johnson et al., 2019). Applying a content-centered approach, the PSTs designed hands-on lessons to develop children's background and vocabulary knowledge. Additionally, the before, during, and after reading pattern created a space for PSTs to integrate multiple comprehension components to promote the third graders' use of specific social studies knowledge and skills. In the following sections, we share the five mini-lessons the PSTs created to illustrate how children's active language arts and social studies explorations were integrated into the small moments of the school day and sustained over time.

Round 1: Igniting Children's Interest

Two small group experiences sparked children's interest in the shared literacy experience and set the stage for children's reading of the text. The first experience prompted prediction and introduced the new vocabulary words students would encounter in the book. The second experience, guided children through mini-conversations designed to help students readily connect to the characters' problems in the book.

Prediction Bags: Sparking Inquiry and Developing Vocabulary. Inquiry approaches invite learners to lean in and wonder, to draw on their personal experiences to make connections to the new content they are confronting. Inquiry leverages children's "innate curiosity about the world and from their efforts to make sense of how that world works" (NCSS, 2013, p. 23). Developing learners' vocabulary is also essential for supporting academic inquiry and enhancing comprehension (Barnes et al., 2016). Attending to the

vocabulary children need to make meaningful connections to the text and world promotes children's disciplinary literacy skills (Shanahan et al., 2014). Integrating realia either through the inclusion of real objects or photos of real objects is recognized as an effective practice for supporting young learners' vocabulary and concept development, and promoting English language acquisition (Bauer & Manyak, 2011).

To spark children's wondering about the shared literacy experience Leslie's class created a set of sequenced prediction bags that included the following realia: (a) adhesive tape, (b) sterile pads, (c) cotton balls, and (d) a BAND-AID® Brand Adhesive Bandage (see Figure 1 of a child's exploration). The PSTs composed a set of explicit instructions for each experience so Michelle could easily facilitate the learning activity on behalf of the PSTs. The PSTs posed the following challenge:

> It's time to put on your inventor caps! We challenge you to discover what our shared story will be about. You will be matching the special word cards in the envelope to the items you discover in the prediction bags. Each bag has an item that goes with the story we are going to read.
>
> 1. Choose one group member to open the envelope labeled "special words-to-know" and lay the cards down so everyone can see them.
>
> 2. When your teacher tells you, take turns opening the bags one at a time. Open the bags in order 1, 2, and 3. After each bag, your teacher will give you time to stop and talk with your friends about the item. What do you think the item is? What is it used for? If you don't know that's okay! Brainstorm ideas with your group and see if you can match one of the special words-to-know cards to the item. Then, when your teacher tells you to you can open the next bag and repeat the process.
>
> 3. After you open bags 1-3 stop and think. If these items were combined, what could you make? Share your ideas and when your teacher tells you, it will be time to open bag #4. Ah ha! Was your prediction correct?

Discussion Cards: Making Personal Connections and Prepping Comprehension Points. Dialogic classroom talk encourages "children to actively participate … share their ideas, reflect on their own and others' contributions, and make an effort to understand one another" (van der Wilt et al., 2022, p. 1). This student-centered practice, also known as productive classroom talk, develops students' oral communication skills and positions students as thinkers as they negotiate meaning together, support each other's reasoning, and develop academic knowledge and understandings (van der Veen, et al., 2015). Creating space for children to develop their oral language competence supports learning, self-regulation, and social acceptance as they work together to express and share their ideas (van der Veen, et al., 2017). To initiate meaningful pre-conversations and get children ready to make personally relevant connections to the shared story, Leslie's class created a set of questions for the children to consider together (see Figure 2). The questions, grounded in children's personal experiences, encouraged children to think about and discuss what they do when they have a small cut or scrape. The sequential nature of the questions strategically leads children to consider what they would do if they did not have a BAND-AID® Brand Adhesive Bandage. This prepared students to wonder about a time before adhesive bandages were invented. The conversation starters also positioned students to empathize with the

Figure 1

Exploring Prediction Bags.

Figure 2

Conversation Starters: Getting Ready to Interpret the Text.

OUCH CARDS! **Directions:** **Work in small groups.** **1. Take turns reading aloud each question.** **2. Take turns sharing your answers.** **3. Make sure everyone has a turn.**	**Question #1** **Have you ever had a boo-boo? Tell the group your story about how you got your boo-boo.**
	Question #2 **What items might you find in a first-aid kit?**
	Question #3 **Why do you think there are so many different sizes of BAND-AID® Brand Adhesive Bandages?**
	Question #4 **What would you do if you were bleeding, and you did not have a bandage?**

main characters in the story who invented and then worked to promote the new bandages as the solution to everyone's little boo-boos. Finally, the questions primed students to begin to understand central economic principles of supply and demand. As the literacy exchange progresses, the third graders will learn that inventions are successful when they fulfill a social need.

After completing the two pre-reading experiences, the third graders read the story with Michelle until they reached "The End" on page 11. This first part of the story revealed the setting, main characters, problem, and first solution, and set the stage for the third graders to complete their first journal entry to their PST literacy buddy.

THE END.

This is definitely not the end. We are only a third of the way through the story (and the article).

Round 2: Expanding Comprehension Through Historical and Economic Inquiry Lenses

Upon receiving the correspondence journals from the third graders, the PSTs focused on creating lesson experiences to support children's understanding of history as it related to their shared text. Uniquely, the title, *The Boo-Boos That Changed the World: A True Story About an Accidental Invention (Really!)*, taunts children into critical inquiry challenging them to consider, "How do they "really" know if the story is true?" Historical inquiry pedagogies guide children to situate themselves in time and space, consider the causes and consequences of events, and compare the past to the present (NCSS, 2010). Integrating primary source materials into instructional routines is one strategy for supporting learners' historical inquiry process (Rodríguez et al., 2022). Primary sources are text and non-text based in nature and include photographs, eyewitness interviews, newspaper accounts, letters, memorabilia, and other media artifacts (videos, blogs, images, etc.). Learning how to analyze primary sources as firsthand evidence of social events and phenomena encourages students to use the patterns of thought and professional practices used by historians to interpret and understand events (Morgan & Rasinski, 2012). Coupling inquiry with primary source analysis supports children's critical consumption of texts and media and encourages learners to seek outside sources to verify narratives that may not be fully factual.

Historical Inquiry and Primary Sources: Focusing on Change Overtime. To spark children's critical historical thinking skills, the PSTs researched and selected primary source photographs of the BAND-AID® Brand Adhesive Bandage boxes from 1921 to the present (see Table 2 for online source sites). The PSTs prepared a timeline with year markers to challenge the third graders to sequence the photos chronologically (see Figure 3). Chronology is a specialized, time-bound sequencing skill. Interactive primary source timelines support children's meaningful explorations of the past. Open timeline frames, combined with hands-on primary source image sorts, guide children's comparisons and make the concept of time more visible. The PSTs' timeline experience encouraged children to analyze the primary source images for cues regarding the age of each item. The sort prompted comparisons between box materials, font differences, photo qualities, and color vibrancy. Additionally, the primary source experience helped children begin to critically examine the historical narrative and collect evidence for determining if the story really is true.

Economic Inquiry and Decision-Making Models. The PSTs also realized developing children's understanding of production, distribution, and consumption was an important interpretive lens for strengthening students' overall comprehension of the story. Economics is the study of how individuals decide to use resources to meet their wants (Meszaros & Evans, 2010). Economic inquiry invites children to consider, "How will I decide as a consumer or producer to use resources available to me?" Young learners engage in economic

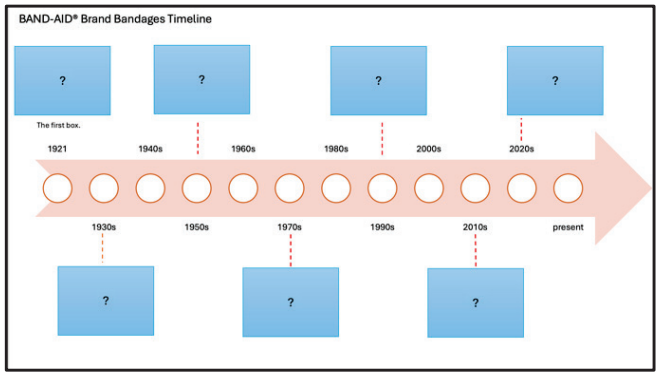
Table 2

BAND-AID® Brand Adhesive Bandages Primary Source Resources.

Online Resources
Johnson & Johnson (March, 2017). Our story. https://ourstory.jnj.com/first-band-aid-brand-adhesive-bandage
Johnson & Johnson (n.d.) Interactive timeline of our story. https://www.band-aid.com/our-brand/brand-history
Johnson & Johnson (2023). History of innovation. https://www.band-aid.com/our-brand/brand-history
Earle Dickson Patent Number for a surgical dressing US-2145755-A Patent Public Search: https://ppubs.uspto.gov/pubwebapp/static/pages/ppubsbasic.html

Figure 3

Primary Source Sort: Historical Timeline



decisions daily and building children's understandings of economic concepts "can shape today's young students toward being better economic decision-makers and, in turn, more responsible, active democratic citizens" (Casey & Casey, 2019, p. 148).

From identifying a social problem to realizing effective distribution chains, economics is the central theme driving the BAND-AID® Brand Adhesive Bandage invention narrative forward. The story chronicles the major obstacles Earle Dickson, the inventor of the adhesive bandages, encountered in bringing his product to market. Early on, building consumer awareness and market interest emerge as major problems for Earle. Shaping supply and demand for a particular product is a central economic concept which includes capturing consumers' interest and addressing consumers' perceived wants. Earle's economic problem remains a salient aspect of production, consumption, and distribution models today.

To help children understand the key economic concepts, the PSTs positioned their third-grade buddies as critical consumers with a hands-on experience examining contemporary adhesive bandage products. The PSTs challenged the third graders to use a decision-making matrix to determine the adhesive bandage they would most like to purchase. The PSTs selected cuteness, waterproofness, size, and comfort as the evaluative criteria for the matrix. To facilitate the third graders' decision making, the PSTs prepared an envelope with four different kinds of adhesive bandages for the student to evaluate. The decision-making matrix prompted, "Look at each of the bandages in the envelope. Draw a happy face or a sad face if it describes the bandage." Once students evaluated the bandages, children counted the number of happy faces each adhesive bandage received to determine which bandage was the best (see Figure 4). This economic inquiry opportunity pulled the third graders forward in time to the present and underscores again changes over time. In a parallel way, the decision-making matrix experience also situated them as consumers making decisions about whether to purchase a product, just like the individual consumers in the story.

It is important to note that teachers can prioritize other criteria, such as cost, amount, and stickiness. Additionally, when teachers and children engage in this inquiry in real time children can help determine the criteria. The decision-making matrix experience serves as a springboard for intentional economic-focused conversations regarding opportunity cost and the idea of making decisions on the mar-

Dialogic classroom talk encourages "children to actively participate … share their ideas, reflect on their own and others' contributions, and make an effort to understand one another" (van der Wilt et al., 2022, p. 1). This student-centered practice, also known as productive classroom talk, develops students' oral communication skills and positions students as thinkers as they negotiate meaning together, support each other's reasoning, and develop academic knowledge and understandings (van der Veen, et al., 2015).

Figure 4

Economic Decision-Making Matrix

Name: _____

Directions: Look at each of the bandages in the envelope. Draw a happy face or a sad face if it describes the bandage.

Decision-Making Matrix

Types of Bandages	Criteria				Total
	Cuteness	Waterproof	Size	Comfort	
Cartoon Bandage					
Flexible/Brown Bandage					
Butterfly Bandage					
Waterproof Bandage					

Now figure out which bandage is the "best."
To find the best bandage, count the number of smiley faces. The bandage with the most smiley faces is the best. (If there is a tie - pick your favorite.)

_____

gins. For example, if the cartoon and the waterproof bandage received an equal majority of happy faces. A consumer might decide to purchase (consume) the bandage with their favorite cartoon character over the waterproof bandage even though they know they are going to go swimming later. The individual consumer might decide they will just put a new bandage on when the first falls off. In this case, the waterproof bandage becomes the consumer's opportunity cost because it was their next best consumer option.

During this round, we read to page 19. The correspondence journals and hands-on experiences worked to support children's analysis of history and economic principles. The experiences also prompted children to thoughtfully consider the roles of individuals in society as consumers and producers.

THE END.

Almost.

Round 3: Connecting the Past to the Present and Writing to Persuade

In the final round, the PSTs worked to pull the historical inquiry and economic inquiry experiences together into a summative writing opportunity. The final experience explicitly integrated the language arts and social studies content areas. Turning again to primary sources to spark the experience, PSTs challenged the third graders to examine an advertising page printed in the *Evening Star* on July 23, 1933 (see figures 5 and 6). The PSTs asked students to first examine the whole page and then narrow their focus to the Johnson & Johnson ad. This experience supports children's historical thinking skills by allowing children to use primary sources to authenticate details contained in historical narratives.

Figure 5

Primary Source Advertisements from the Evening Star

Note. Image retrieved from the Library of Congress, https://www.loc.gov/item/sn83045462/1933-07-23/ed-1/

Figure 6

Examining Official Advertising Campaign

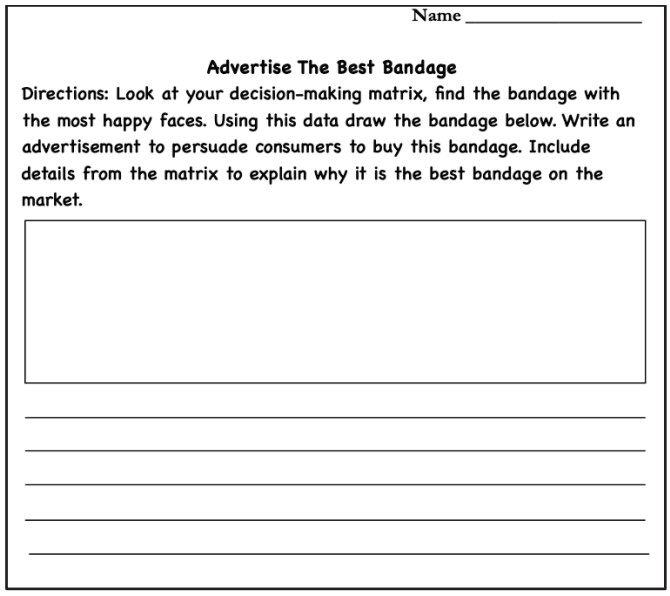
Note. This image is magnified from the original image retrieved from the Library of Congress, https://www.loc.gov/item/sn83045462/1933-07-23/ed-1/

After examining of one of the original adhesive bandage ads, the third graders were ready to engage in their own ad campaign. The PSTs designed a persuasive writing experience that prompted the third graders to craft their own bandage ad (see Figure 7). Building on the third graders' experiences evaluating bandages with the decision-making matrix, PSTs prompted the third graders to create an ad for the adhesive bandage they selected as the "best". The decision-making matrix served as a graphic organizer for the young writers. The children used the evaluation criteria on the matrix to develop their persuasive writing pieces and convince consumers to purchase their bandage. The final writing project helped children synthesize the primary history and economic themes permeating the story, allowing for a truly happy ending.

THE END. *Really!*

Figure 7

Create Your Own Adhesive Bandage Ad: Synthesizing Literacy and Historical Knowledge



Name _____

Advertise The Best Bandage

Directions: Look at your decision-making matrix, find the bandage with the most happy faces. Using this data draw the bandage below. Write an advertisement to persuade consumers to buy this bandage. Include details from the matrix to explain why it is the best bandage on the market.

End Note: Advocating for Literacy Integrations

Over the past four decades, instructional time focusing on enhancing children's understanding of social studies concepts has experienced a downward trend (Fitchett & Heafner, 2010; Heafner, 2018). There is evidence to suggest that primary-grade students receive significantly less instructional time in social studies than children in the intermediate grades (Fitchett & Heafner, 2010). Similarly, primary grade teachers and their learners may also find it challenging to identify time within structured literacy blocks to incorporate children's intentional explorations of texts outside of prescribed curriculum. However, integrating language arts and social studies holds promise as an effective practice for bolstering children's literacy development and social studies content knowledge and skills (Halvorsen et al., 2012).

Integrating language arts and social studies holds promise as an effective practice for bolstering children's literacy development and social studies content knowledge and skills (Halvorsen et al., 2012).

Primary grade teachers can use social studies tradebooks and non-fiction material to enhance "certain kinds of literacy skills, especially those that require critical reading, the ability to evaluate information, the broadening of worldviews, and the ability to reason and use evidence" (Altoff & Golston, 2012, p. 5). Social studies content is naturally integrative making it an ideal curricular companion for promoting young children's emerging literacies (NCSS, 2017). Learners need opportunities to leverage the higher-order thinking skills like the ones provoked in the social studies and language arts mini-lessons designed for *The Boo-Boos That Changed the World: A True Story About an Accidental Invention (Really!)* (Wittenstein, 2018). These experiences allow students to synthesize their knowledge and content area skills in meaningful ways. The Virginia Readers' Choice program supported by the Virginia State Literacy Association, offers teachers and students an opportunity to enrich and extend current curricular experiences in an authentic way.

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Appendix

Integrating Correspondence Journals into Your Practice

1. Find Reading and Writing Friends: Set up a reading/writing exchange with another class in your own school community allowing the children to serve as thought partners sharing their own responses to the narrative.

2. Establish a New Routine: Set aside a small moment of time for learners to listen to or read together a portion of the shared text and then jot or draw their wonderings to their partner. Transition times between learning blocks are a good time to integrate literacy moments with Virginia Readers' Choice Books.

No Silver Bullet:
A Bioecological Systems Approach to Analyzing Literacy Policy

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The state of Virginia in 2022 passed The Literacy Act, defined as a multipronged approach to "improve early literacy outcomes for Virginia's young learners" (VDOEb, NP). The Act, like others across the United States, addresses the recent National Assessment of Educational Progress (NAEP) and Program for International Student Assessment (PISA) drops in reading scores by mandating classroom instruction based on the science of reading, through state approved curriculum, with progress measured by state approved literacy screening tools. Training for teachers in the science of reading approaches as well as family involvement in individualized reading instruction plans for students not meeting benchmarks are both aspects of the Act (VDOEb, 2023, NP).

Current literacy scores in the state support the need for additional attention to be paid to literacy skills at all grade levels. Recent scores on the state early literacy screening tool have documented a decrease in literacy proficiency (VDOEa, 2023). Since the pandemic school shutdowns, scores nationwide have also declined in math and history (Betthäuser, Bach-Mortensen & Engzell, 2023; Mervosh, 2022; Nationsreportcard.gov, 2022).

Literacy skills impact quality of life at multiple levels. According to McCracken and Murry (2009), literacy levels impact a nation's economy in the ability to generate wealth, health, and social equality. Citizens need basic levels of literacy skills to participate in a democracy, have stable employment, earn better wages, and maintain better health. "As much as 55% of the variability in long term GDP per capita rate can be traced to differences in the average literacy rate both at a national and provincial level" (p. 4). When societies invest in literacy skills, the highest rate of return occurs with investments at the early stages, particularly pre-Kindergarten (OPRE, 2001, 2019).

Citizens need basic levels of literacy skills to participate in a democracy, have stable employment, earn better wages, and maintain better health.

Government, then, has a vested interest in investing in literacy skills, particularly in early literacy. This occurs through setting policies, usually accompanied by an incentive such as grants or other increases in funding to adopt the new practices or fines/punishment for noncompliance. Indeed, setting a literacy policy at a state, provincial, or national level has become more common across the globe, though literacy rate statistics give cause for questioning the efficacy of such policies (Fernandes & Colvero, 2019; Lo Bianco, 2004). "... state policies focused on literacy have become more common and recurrent in the last three decades but should be questioned since literacy difficulties persist" (Fernandes & Colvero, 2019, p. 292).

Reviews of past literacy policies show consistent and persistent problems with lack of efficacy (Cummings, 2021). This lack of efficacy has been attributed to: constraints on teacher autonomy; lack of specific definitions; lack of measurable goals; incomplete feedback during the planning process; contradictions between policy and best practice. The persistence of policy initiatives despite decades of documentation of the inefficacy lead some researchers to speculate that policy is less about effectively raising overall literacy levels and instead is "...purely political" to be seen acting or providing jobs, while lacking the critical input that would help solve the literacy problem (Fernandes & Colvero, 2019, p. 297). Thus, ineffective policies can be seen as

worsening the problem by exacerbating literacy instruction confusion and teacher fatigue. The purpose of this article is to examine literacy policies through the lens of Bronfenbrenner's bioecological systems model in hopes that future policy makers will craft more effective, sustainable initiatives to raise literacy rates.

Affecting change in a construct as complex and multilayered as literacy is not a straightforward process. To start, literacy as a societal concept is poorly defined in most policy and social statistics. Does literacy refer to the overall rates of functional reading levels in all aspects of society? Does it include all segments of that society including: school children, adults, persons with disabilities, second language learners, persons who have dropped out of school? Do the experts agree on the overall goal (Schwartz, 2023)? Do the statistics used to measure the literacy rate encompass both the broad view of increasing literacy across the spectrum of society and the specific measurements needed for changing discreet behaviors (Sussman, 2003)?

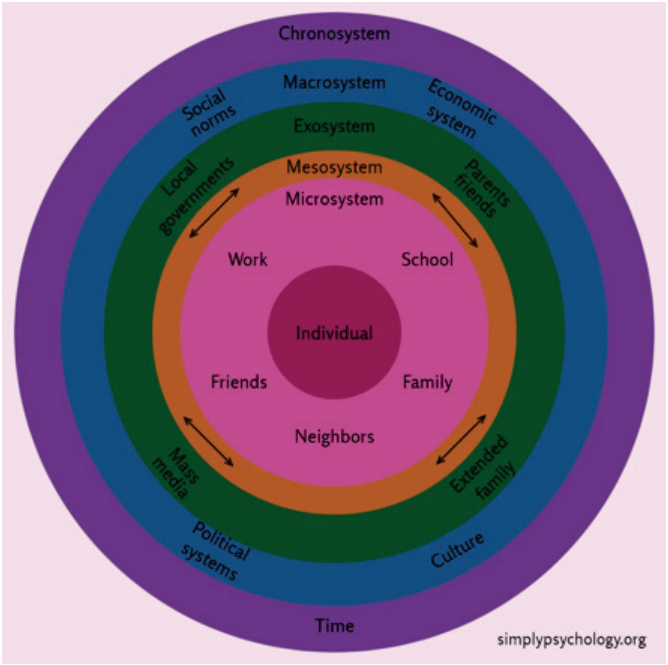
Lee (2008) has described one such statistic, the standard literacy *R*, which is the number of literate adults as a percentage of the adult population. The very broad statistic provides an overall measure of a general literacy rate in each population. It is ill-defined, however, as a specific literacy behavior measure in targeted populations and makes only a general good measure. It does provide an excellent starting point for discussions and developing definitions of literacy goals for more specific segments of the population and can also serve as a proxy over time for efficacy measures of other initiatives. Certainly, the overall goal should be to increase the percentage of literate adults in a population, so the *R* does provide a generalized, macrosystem measure over time. However, considering the *R* alongside data more specifically driven by student performance may help paint a more complete picture of literacy rates throughout childhood into the adult years. A measure such as the National Assessment of Educational Progress (NAEP) may help show development of literacy skills as a holistic piece of the developmental model (NCES, 2023).

Bronfenbrenner's Bioecological Systems Model

Bronfenbrenner's bioecological systems model (1979) is a pivotal theory grounding research for child development. It has not, however, been well-used as a lens through which to examine literacy development. Bronfenbrenner's model can be used to describe the experiences and transactions through which a student develops literacy skills including personal characteristics, such as phonological processing skill; proximal processes, such as manner of instruction; contextual systems, such as the prevalent knowledge of literacy development; and historical time, such as an overall societal view of schooling (Jaeger, 2016).

The ecological model considers each of these and the interactions between contextual variables to shed light on the complexities of child development. Specifically, Bronfenbrenner posited that child development could be explained by the idea of nested systems (see Figure 1). Four contextual systems surround the child: *microsystem* – proximal contexts such as the home, school, peer group; *mesosystem* – intersection of two or more microsystems such as parent/teacher interactions; *exosystem* – systems which do not directly impact the child but do impact members and functioning of microsystems, i.e., teacher training opportunities; and *macrosystem* – which is best seen as the society or cultural level and includes expectations for the child based on gender, race, age, as well as the economic and societal trends. Overlying all the other systems is a concept Bronfenbrenner referred to as the *chronosystem*, "...the changing expectations and events in the larger society, both within and across generations, as they affect and are affected by, processes and outcomes of human development over the life course" (Bronfenbrenner & Morris, 1998, p. 995, as cited in Jaeger, 2016). The power of the model, however, lies in the encompassing view of interactions between personal characteristics, proximal processes, context, and time (Rojas-Drummond, 2017).

Figure 1.
Bronfenbrenner's Ecological Systems Model



Developed by SimplyPsychology (Guy-Evans, 2023)

Bronfenbrenner's Model in Society-Wide Policies

Social policies enacted by government bodies are necessarily attempts at a *macro* or *exosystem* level to influence the behaviors of individuals at a *microsystem* level with the hope that those changed behaviors will in turn result in changes measurable at the *macro* level. Successful society-wide policies facilitate changes in behavior and cultural norms that sustain healthier choices in following generations. These necessitate changes to all levels of the ecological system. For example, the United States successfully ran an anti-smoking campaign and changed the culture from glorifying smoking to recognizing the health and safety issues inherent in that behavior. Along the way, industries and local economies reliant on the smoking behavior were given aid to change their business models and individuals were informed, aided, and taxed into changing their behaviors. Cigarette smoking has been on a consistent decline since the campaign started (CDC.gov, 2020). The power of the campaign is seen as a flexible, multi-pronged approach that changed public opinion, *macrosystem*, leading to specific laws, policies, *exosystem*, and individual behavior changes, *microsystem*, (Trelease, 2006).

Bronfenbrenner's Model and Literacy

As it relates to literacy, Jaeger's (2016) use of the model describes a student as a 'developing reader' and refers to the proximal processes as interactions with teachers, peers, and caregivers as well as with instructional and literacy materials, including iPads, magnetic letters, books, and other print related materials.

The *mesosystem* refers to the synchronicity with which the differing microsystems, and, therefore, the proximal processes, align in their approaches to fostering literacy. The *exosystem* includes non-child facing but influential variables such as teacher training opportunities. Jaeger (2016) theorizes that the actions of a body at the exosystem level may affect literacy development for individual students in the following manner, "The district school board is another example of an exosystem. If, in response to a misreading of the National Reading Panel Report...this body implements a heavy diet of instruction in phonemic awareness, classroom read aloud time is likely to be the first victim" (p. 181). The *macrosystem* includes variables such as the level of understanding or state of research knowledge about how literacy develops, economic impacts such as the money available for intervention, and it is here that literacy policies sit. The overlying *chronosystem* impacts literacy development in two ways: as a factor for the individual student, as skills in literacy build upon each other so the student will be able to call upon knowledge and processes at later ages that they were developing at younger ages; and as a factor for the macrosystem, where students who would not have been expected to develop high levels of literacy in eras past are now expected to achieve at high levels for example, female students. The chronosystem also provides a method to understand changes as the evolving body of research into literacy development impact practices at the microsystem level. Figure 2 shows the levels as they correspond to literacy environments.

Literacy Policy Overview

The vast majority of states currently have early literacy policies and initiatives in place. Historically, these have been, as Virginia's new Literacy Act is now, based on national data sources showing a downward trend in literacy achievement

Figure 2.
Bronfenbrenner's Ecological Systems Model Pertaining to Literacy

ECOLOGICAL SYSTEMS LEVEL	ASPECTS OF LITERACY
Macrosystem *Cultural or Societal level*	Cultural perceptions of the benefits of literacy Finance and priorities at a national level
EXOSYSTEM *INDIRECT INFLUENCY SYSTEMS*	Specific literacy policies Assessments of policies
MESOSYSTEM *INTERSECTIONS OF MICROSYSTEMS*	Community interactions and partnerships Trainings and higher education
MICROSYSTEM *PROXIMAL CONTEXTS*	Family literacy practices Literacy instruction in classrooms
CHRONOSYSTEM *CHANGES OVER TIME*	Progression through the literacy stages from birth to adult Generational understandings of literacy

and are focused toward fostering discreet early literacy skills. Many states' policies require literacy instruction in the "Big Five" components of reading (phonemic awareness, phonics, fluency, vocabulary, and comprehension) identified by a 2000 National Reading Panel report. However, experts have noted that evidence-based literacy instruction goes beyond these five components, and literacy instruction emphasizing the Big Five has been found to be ineffective in improving literacy achievement (Cummings, 2021, p. 3).
Money is usually set aside to facilitate the buying of teaching materials, often within a specified component of literacy or within a specified approach to literacy development, to hire teaching aides or coaches, professional development, assessments, and summer programs or family involvement. Since the publication of the National Reading Panel Report (2001), these initiatives have often focused on the "Big Five" components of literacy instruction. However, many researchers agree that exclusive focus on concrete skills in the areas of the "Big Five" do not encompass enough of the "complexity and sociocultural nature of reading" to sustain a lasting increase in society-wide literacy rates (Cummings, 2021). Additionally, neglecting to include teachers at the planning stage almost certainly dooms the chances for lasting success of any policy in education "...unequivocally, teachers are central to educational change" (Datnow, 2020). "No matter how well-intentioned, carefully planned, or "research-based" instructional materials and strategies are, if "done-unto" teachers, they will not have staying-power compared to approaches that teachers already use and believe in" (Goldberg & Goldenberg, 2022, p. 625).

In an echo of the idea of paradoxes in policy, Jaeger (2016) maintains that transactions are the key to understanding literacy from an ecological model lens and that, "Tinkering in one spot has repercussions anywhere and everywhere else" (p.181). Meaning, changing the proximal processes between teacher and student has effects, not always positive, that reverberate throughout the levels of systems. This enables a cycle in which policies appear effective at the beginning (Thomas, 2019, Manzo, 2008) but literacy rate effects dissipate over time and fail to generalize throughout society. In fact, there is data to suggest that this cycle leads to worse student outcomes over time (Cummings, 2021).

In response to the paradoxes described by Burns (2012), where changes in one aspect of literacy development beget unexpected changes in other areas, also described by Jaeger (2016) as changes across systems levels, Kim (2008) and Goldberg & Goldenberg (2022) focused on the need for changes in our system of policy making. Kim (2008) advocated for better policy making by way of a more cohesive approach to literacy research, whereby colleagues of differing views collaborated on a research study with an arbiter to "adjudicate disputes". Called "adversarial collaboration", Kim's approach theorizes that the reading wars, up to and including Reading First, could have been circumvented with this approach to research that produces collaborative findings. Goldberg and Goldenberg (2022) advocate for changes to the policy making approach, with agreement for Kim's (2008) theory that collaborative research is necessary, but not sufficient, for more effective policies. They argue that a "pre-mortem" approach, in which stakeholders at different levels congregate to think through a given policy or initiative as if it had already failed, and look for the reasons why, would be the most effective approach for new literacy policies.

A Bioecological Systems Approach to Literacy Policy Analysis

Early Intervention Reading Initiative

In 1997 on a macrosystem level, efforts were being made to put computers in all public schools, Microsoft Word programs dominated the technology offerings, and, nationally, there was a strong push toward establishing national standards for curriculum. In the field of literacy, the first Harry Potter novel (Rowling, 1997) had just been published and the America Reads program had been established to encourage volunteer tutors in public schools. In terms of literacy

The vast majority of states currently have early literacy policies and initiatives in place. Historically, these have been, as Virginia's new Literacy Act is now, based on national data sources showing a downward trend in literacy achievement and are focused toward fostering discreet early literacy skills. Many states' policies require literacy instruction in the "Big Five" components of reading (phonemic awareness, phonics, fluency, vocabulary, and comprehension) identified by a 2000 National Reading Panel report.

knowledge, the National Reading Panel report (2000) was still several years away but there was nationwide data from the HeadStart program indicating that an early literacy focus was the most effective time to focus interventions (OPRE, 2001, 2019).

In 1997 the VDOE implemented the Early Intervention Reading Initiative (EIRI) an initiative aimed at increasing early literacy skills. The overall goal of the Initiative was to reduce the number of children with reading problems through early diagnosis and intervention. The Initiative created funding at a state level to create a diagnostic assessment to identify and monitor students needing reading intervention. The Initiative resulted in grants to the state's flagship university to create the PALS assessment which was offered to public school districts free of charge to screen and monitor Kindergarten and First grade students. The initiative also funded early intervention for K-1 students, summer school, and aides for literacy time in the classroom so teachers could work directly with the most challenged students. No materials or methods for teaching or intervention were specified in the original Initiative but a series of professional development resources were developed by the staff at the PALS office and free consultations were encouraged.

The Initiative was considered successful and was expanded in 2000 to serve students in kindergarten through third grade. In 2012, the budget was expanded again to cover all the interventions for identified students in K-3. It was also revised to specify "repeated and meaningful practice with the foundational components of literacy", phonological awareness, phonics, vocabulary, comprehension, and fluency (VDOE, 1997).

To quantify effects of EIRI, reading levels were measured at the fourth and eighth grade levels using the NAEP (Nations Report Card, 2023). Overall, the *R* (Lee, 2008) was graphed from data Virginia adult literacy rates (wisevoter.com, 2023). The cohort in or starting Kindergarten at the time EIRI was implemented would have been 1999-2003. Reading First came into effect after 2003, so data past that date would be indicative of the effects of that set of policies. That cohort of students would have been in fourth grade in the years 2003-2008 and eighth grade from 2008-2013. They would be considered adults after twelfth grade in 2013. Measuring by the NAEP above basic proficiency score, Table 1 and 2 show the results for that cohort of students in Virginia.

Table 1

EIRI Cohort NAEP Reading Scores in Fourth Grade.

Year	NAEP 4th Grade % Above Basic
2002	71% (before EIRI cohort)
2003	69%
2004	No test administered
2005	74%
2006	No test administered
2007	75%

Table 2

EIRI Cohort NAEP Reading Scores in Eighth Grade.

Year	NAEP 8th grade % above basic
2007	79% (before EIRI cohort)
2008	No test administered
2009	78%
2010	No test administered
2011	78%
2012	No test administered
2013	77%

It appears that the data show alignment with other policy assessment critiques (Cummings, 2021; Fernandes & Colvero, 2019; Thomas, 2019), in that there is a slight rise in performance through fourth grade, but that the effects do not continue through the eighth-grade level.

Reading First

Reading First is perhaps the iconic example of a government literacy policy that failed to increase overall literacy rates and also contributed to confusion and fatigue. Part of the No Child Left Behind (NCLB) federal level initiative, "Reading First was intended to bridge the divide between classroom instruction and reading research" (Goldberg & Goldenberg, 2022). Driven by the National Reading Panel report (2000) and concerns that the United States education system was no longer competitive at an international level, the initiative focused on accountability by requiring testing in 3rd, 8th, and one level of high school. The goal was that all students would score within the 'proficient' range by 2014. The initiative also required a highly qualified teacher in every classroom, defined as a bachelor's degree and state certification (U.S. Department of Education, 2009). Specifically for literacy, the Reading First piece of No Child Left Behind required approved curriculum and instructional methods aligned with the "scientifically based evidence" of

effective practices. The focus was very much on the proximal processes at the microsystem level of the bioecological systems model.

From the very beginning, Reading First was mired in controversy and opposition. It was the epitome of a banking model of education, in which students are enacted upon by teachers and curriculum to achieve new skills or behaviors regardless of their personal interest or motivation (Freire, 1993). Such a model has been called "...efficient, maintains order, bureaucratically neat and tidy" but results in a "one-sided transactional relationship" (Burns, 2012). Students are reduced to essentially a responder to stimuli in this model. In addition, teachers, researchers, professors, and publishers all debated what exactly constituted "scientifically based evidence" for the efficacy of teaching practices, which programs/curricula met such criteria, and what could be included in literacy instruction. As Reading First ended there was no clear consensus on outcomes with states and federal evaluations contradicting each other and a general disagreement about what knowledge had been gained from such an expensive and intrusive policy (Goldberg & Goldenberg, 2022). Despite some gains in discreet skills such as decoding, most evaluations concluded that Reading First had no overall effect on literacy rates or comprehension skills and actually reduced student engagement with text. It was, therefore, considered a failure (Manzo, 2008; Thomas, 2019). Tables 3 and 4 show that this appeared to be the case with NAEP reading scores in Virginia.

Today, researchers are inclined to view Reading First as a case study in errors, with policy researchers advising "everyone should take the time to consider the cautionary tale of Reading First" (Goldberg & Goldenberg, 2022). The policy is blamed for burnout and exhaustion among teachers as well as a distrustful stance toward government created literacy initiatives within the literacy field (Cummings, 2021).

Table 3

NAEP 4th Grade Literacy Scores for Reading First Cohort in Virginia.

Year	NAEP 4th Grade % Above Basic
2007	75%
2008	No test administered
2009	73%
2010	No test administered
2011	72%

Table 4

NAEP 8th Grade Literacy Scores for Reading First Cohorts in Virginia.

Year	NAEP 8th Grade % Above Basic
2010	No test administered
2011	78%
2012	No test administered
2013	77%
2014	No test administered
2015	76%

Researchers have used the implementation of Reading First as well as the historic reading wars to analyze the failure to form cohesion and effective policies for literacy (Schwartz, 2023).

Virginia Literacy Act

In 2022, the Virginia General Assembly passed the Virginia Literacy Act (VLA) to address the need for improvement in early literacy skills (VDOEb, 2023). The Act took effect in the 2024-25 school year and primarily required instruction in approved curriculum for students in grades Kindergarten through 3rd. The curriculum utilized must meet the definition of 'scientifically based reading research', however, the VLA does not provide a clear and easy to find definition of that phrase. Teachers in grades K-3 are required to use approved materials as well as approved methods of instruction/intervention for the entire block of literacy time, usually ninety minutes and to use approved assessment screening tools for progress monitoring. Teachers must also participate in professional development training on scientifically based reading research. According to the Act, any student not meeting benchmarks on the progress monitoring tools will be given a student reading plan, in conjunction with their family and the district's reading specialist. Each district in the state will develop a district-wide literacy plan, including reading specialists to oversee interventions, professional development support for teachers, and use of the approved curriculum and assessment tools.

The Act was passed in response to a reported drop in reading scores on the current statewide literacy screening tool as well as a concern that not enough students are passing the third grade Standards of Learning (SOL) assessment in reading (VDOEb, 2023). On a macrosystem level, this Act is passed during a tumultuous time in education: following the school shutdowns during the COVID-19 pandemic; low levels of attendance; a teacher shortage; and culture wars with record numbers of book challenges that impact the types

of reading materials deemed appropriate for public schools (The Learning Network, 2023).

The Act will impact developing readers at the *microsystem* level, attempting to control the proximal processes within the classrooms including materials; methods of instruction; peer interactions through the controlled activities in the approved curriculum; and possibly family interactions through the literacy plan for those students not meeting benchmarks.

The emphasis on approved curricula and methods indicates a layer of control at the *mesosystem* level, though this is less influence and more compliance by local school districts as they adjust to new rules for funding. There are plans to extend the approved curriculum idea to grades 4-8 in the coming years. However, there are no plans to incorporate the *chronosystem* level by reviewing and changing the Act, specifically the definition of 'scientifically based reading research' as the current definition is challenged by new research findings or as new curriculum offerings becoming available. There are also no attempts to intervene in the *microsystems* prior to a child arriving in school, despite years of research-based efficacy for such approaches (OPRE, 2001, 2019), thus limiting the Act to one point in time and one source of literacy development with no extension of funding for early childhood literacy programs at libraries, or universal PreK, as examples.

The VLA, like Reading First, has been controversial for many of the same reasons: lack of input from practitioners prior to adoption; a single, somewhat limited, view of literacy research and how to implement the findings; and a focus on the *microsystem* with few supports or interventions across time or levels of a bioecological system. Interestingly, the statewide literacy screening tool, the Phonological Awareness Literacy Screener (PALS) that was created due to EIRI and through which the drop in literacy scores has been assessed (VDOEa, 2023), is being revised concurrently with the new reading instruction and materials changes, making it impossible to continuously track the progress of the students for whom this Act is intended. Success in the acquisition of reading skills will be redefined with the new Virginia Language and Literacy Screening System (VALLSS), making analysis of progress under the VLA procedures nearly impossible to reliably measure.

The VLA, like Reading First, has been controversial for many of the same reasons: lack of input from practitioners prior to adoption; a single, somewhat limited, view of literacy research and how to implement the findings

It is worth noting that the overall adult literacy rate in Virginia, the *R* (Lee, 2008), as measured by the NAEP 12th grade at or above basic proficiency has ranged from 79% in 1992 to a low of 72% in 2015 (NCES, 2023). The adult population literacy rate is estimated in Virginia to have ranged from 88% from 2002 to present and is currently at 81.2% (wisevoter.com, 2023). These measures show very little change over time, despite the initiatives and changes to proximal processes mandated by policies enacted throughout these decades.

A Bioecological Systems Approach to Creating Literacy Policy

Paradoxes exist in policy initiatives (Burns, 2012) and can occur within a bioecological systems model, as Jaeger (2016) stated, with intervention at any point resulting in changes at any or all levels. These changes may not be anticipated and may not always result in positive changes (Cummings, 2021; Fernandes & Colvero, 2019). As well, many of the positive changes are of brief duration without impacting higher order skills as the student matures (Thomas, 2019) or without generalizing to the entire population. In part this is due to supports that enabled the initial growth in skills to drop off at higher grade levels while the meso and exosystem conditions such as poverty or misalignment between home and school instruction continue. However, looking at policy creation and implementation the bioecological systems model creates the opportunity to incorporate levels and interactions that may amplify positive changes over levels and time. This is a look at policy making from a social process in a complex ecological system, emphasizing the inter-connected nature of the complex process of affecting change (Burns, 2012).

Using suggestions from Cummings (2021), Brooks (2013), as well as Fernandes & Colvero (2019) for specific literacy initiatives, and thinking of policy from a bioecological systems approach, policy considerations might be organized thusly:

At the *macrosystem* level the idea of full literacy would be a cultural priority. The current method of using a crisis mentality to involve limited stakeholders in a single level initiative is a crucially flawed approach to increasing literacy levels across

time and throughout the population (Cummings, 2021; Fernandes & Colvero, 2019; Brooks, 2013). There are multiple examples of successful changes to culture to impact specific, individual behaviors, like the aforementioned campaign to decrease smoking (Trelease, 2006). Any successful literacy campaign would similarly need a cultural belief in the advantages of full literacy levels, backed by economic data that those benefits apply to every citizen (McCracken & Murray, 2009), to be the multi-generational, multi-pronged shift in financing and behavior. Stakeholders at this level would include government leaders; employers and industry leaders; inspirational persons from all communities. Financially, resources would be necessary as outputs of money for budgets, tax credits, public/private partnerships, and those resources would need to be in place for at least two generations to see the benefits. Plans to continue the resources throughout recessions and other funding consideration changes would need to be in place.

Examples of literacy policy initiatives at a *macrosystem* level could include universal PreK programs, increased funding and roles in early and adult literacy skill development for public libraries, public/private partnerships with nonprofits such as Imagination Library or Raising a Reader (Sullivan & von Witzlaben, 2013), national encouragement for tutoring programs and service such as Colin Powell's America's Promise (Harvard School of Public Health, 2008) or America Reads (Federal Student Aid, 2024). The *macrosystem* level contains the big ideas and influences the cultural shift.

The *exosystem* level would have responsibility for setting policies and mapping interactions to align with the big ideas in the macrosystem. With collaboration, this level aids in local initiatives and monitoring programs and progress. Paradoxes occurring in initiatives are most likely to be seen clearly here and this is the level at which pre-mortems (Klein, 2007) and adversarial collaboration (Kim, 2008) can be effective methods for ensuring that all stakeholders have say that paradoxes are addressed in a timely manner, and that the continual reviews account for the role of time, the *chronosystem*, with additions of new research as it emerges. This is also the best level to systematically review the effects of policies over the course of a child's development into a reader.

At the *mesosystem* level, the focus is on partnerships between entities also within the microsystem such as partnerships between the home and the school and the library. Employers, pediatricians, and community groups expand their knowledge of literacy development and support wide reading across languages and sources of text, including digital texts. Teachers may participate in continuous, high level professional development alongside parents and community leaders.

At the *microsystem* level those directly impacting a child's skill development provide well-rounded, systematic literacy instruction. Parents receive support and encouragement for literacy and language activities that are linguistically and culturally sustaining. Libraries and community partners offer developmentally and culturally appropriate literacy activities and help for parents. Starting in PreK, schools provide developmentally appropriate, and research based, as well as culturally sensitive positive approaches to instruction. This incorporates a holistic view that maintains both the systematic and intensive teaching of phonemic awareness/phonics as well as opportunities for student choice in texts, wide reading, and peer interaction. The emphasis will be on teaching the child, not implementing a specific curriculum. As the child progresses in school and in literacy skills, the types and content of instruction will change, but the holistic view stays the same.

The *chronosystem*, or concept of time, includes annual and biannual reviews, including a process through which newer research findings, changes in culture, and lessons learned from the initiative can be incorporated to continuously improve. Student maturations, with changing expectations for their increased role in society, are also part of the chronosystem and are incorporated in levels of support appropriate to age and experience. Societal maturing will also occur as the changes at each level contribute to a new 'normal' with higher literacy rates and more knowledge of the process of learning literacy at the macrosystem level.

Conclusion

And, yet, with all this historical evidence that there is no quick fix for sustainable gains in literacy levels, we still face calls for policies focused on a silver bullet of reading instruction (Kristof, 2023, N.P.).

Policies at the state and federal level continue to approach changes to literacy behaviors through a crisis motivation lens, utilizing single-level interventions and simply hoping for change on a macrosystem level. The result has been the ineffective initiatives of the past decades as well as teacher and researcher fatigue (Allington & Woodside-Jiron, 1999; Cummings, 2021; Fernandes & Colvero, 2019). Learning from these past initiatives, suggestions such as adversarial collaboration (Kim, 2008) and pre-mortems (Goldberg & Goldenberg, 2022) hold promise of increased efficacy and cooperation.

Practically speaking, it can be difficult as a teacher or reading specialist to envision actions that influence policy makers throughout the systems model. But there are actions they can take, and, as we stated earlier, changes at any level affect other

Policies at the state and federal level continue to approach changes to literacy behaviors through a crisis motivation lens, utilizing single-level interventions and simply hoping for change.

levels of the model (Jaeger, 2016). Teachers and individual schools might consider holding pre-mortems as a school, grade, or team level in addition to the trainings on how to implement instruction mandated in a new policy. The questions raised could include: how does the new policy affect time for instruction of all aspects of literacy? What will be lost from current successful instruction or materials? Also, schools or districts may consider the relationships they are forming at all levels of the ecosystem model. What community help are they or should they be leveraging? Will the new policy help or hinder those relationships? Administrators may advocate for a universal, sustained measure of reading (the *R*) through which changes in literacy levels may be tracked. They may also advocate for timely reviews of policies, incorporating the chronosystem. Researchers and university partners should practice adversarial collaboration and use the results of studies to call for a cultural shift with detailed explanations of the benefits to society of full literacy.

The addition of a bioecological systems approach (Bronfenbrenner, 1979) to the policy creation approach might enable the multi-pronged, time sensitive, holistic aspects necessary for sustained, society-wide change. Rather than seeking a silver bullet, with focus at a microsystem level, an approach that builds from previous successful changes to societal and individual behaviors (Trelease, 2006) may be worth the effort across time to achieve real and lasting changes in literacy levels.

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2025-2026 VIRGINIA READERS' CHOICE TITLES

Primary Titles

Butt or Face?: A Hilarious Animal Guessing Game Book for Kids	Kari Lavelle
How This Book Got Red	Margaret Chiu Greanias
Buffalo Fluffalo	Bess Kalb
Yuna's Cardboard Castles	Marie Tang
Wild Blue: Taming a Big-Kid Bike	Dashka Slater
Night in the City	Julie Downing
How Dinosaurs Went Extinct: A Safety Guide	Ame Dyckman
No Cats in the Library	Lauren Emmons
Thank a Farmer	Maria Gianferrari
You're So Amazing!	James Catchpole

Elementary Titles

The Lost Library	Rebecca Stead and Wendy Mass
Bea and the New Deal Horse	L. M. Elliott
Because of You, John Lewis	Andrea Davis Pinkney
Hoops: A Graphic Novel	Matt Tavares
Dogtown	Katherine Applegate and Gennifer Choldenko
The Secret Battle of Evan Pao	Wendy Wan-Long Shang
The School for Whatnots	Margaret Peterson Haddix
Hidden Hope: How a Toy and a Hero Saved Lives During the Holocaust	Elisa Boxer
The Skull: A Tyrolean Folktale	Jon Klassen
Chupacarter	George Lopez and Ryan Calejo

Middle School Titles

The Mona Lisa Vanishes: A Legendary Painter, a Shocking Heist, and the Birth of a Global Celebrity	Nicholas Day
The Fire, The Water, and Maudie McGinn	Sally J. Pla
What Happened to Rachel Riley?	Claire Swinarski
The Last Hope in Hopetown	Maria Tureaud
The Town with No Mirrors	Christina Collins
The Night Raven (The Moonwind Mysteries)	Johan Rundberg, Translated by A.A. Prime
Something Like Home	Andrea Beatriz Arango
Global	Eoin Colfer and Andrew Donkin
It Happened on Saturday	Sydney Dunlap
A Perfect Mistake	Melanie Conklin

High School Titles

Four for the Road	K. J. Reilly
That's Not My Name	Megan Lally
The Silence that Binds Us	Joanna Ho
The Red Palace	June Hur
Impossible Escape: A True Story of Survival and Heroism in Nazi Europe	Steve Sheinkin
Divine Rivals	Rebecca Ross
Rez Ball	Byron Graves
How to Survive Your Murder	Danielle Valentine
Murder Among Friends: How Leopold and Loeb Tried to Commit the Perfect Crime	Candace Fleming
Now Let Me Fly: A Portrait of Eugene Bullard	Ronald Wimberly

Pause, Problem Solve, and Practice:
An Evidence-Based Feedback Routine

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Tisha Hayes, University of Virginia

Ms. Tibbs has been teaching her first-grade class to read words with the long vowel-consonant-silent e structure using the phonics scope and sequence in her schools' newly adopted core reading program. The program includes decodable books in which students can apply their new spelling-sound knowledge to read meaningful text. Right now, her students are reading a decodable book that includes lots of examples of words with the long vowel-consonant-silent e structure. Three pairs of students are partner reading the text at a small group table where Ms. Tibbs can monitor their oral reading and provide feedback when students make errors. She observes Julian turn to a page of text with the words, "The kids slide. They go fast!" and an illustration of children happily gliding down a playground sliding board. Julian reads, "The kids... slipped..." and after a pause, continues reading the next sentence.

This vignette invites the reader to recognize that every day, teachers make countless in-the-moment decisions about how to respond to students' misunderstandings during reading practice. Researchers hypothesize that teachers develop predictable response patterns to manage this complex decision-making, and these patterns seem to be grounded in their orientation, intentions, knowledge, and other resources (Kennedy, 1999; Schoenfeld, 2011). Decisions about whether and how to provide feedback have been observed to differ based on characteristics of the error, the student, and the teacher (Chinn, et al., 1993; Hoffman et al., 1984; Rodgers, et al., 2016).

The accumulated feedback toolbox of an experienced teacher like Ms. Tibbs might include ignoring the error. Julian is doing pretty well given his history of reading difficulty, and the error probably doesn't keep him from getting the gist of what is happening in the story. Her toolbox might also include prompts that direct students' attention to meaning or picture clues in the text that could help resolve the error, like asking "Does that make sense?" or directing Julian to check the picture and match his reading to the illustration. If more direct corrections are in Ms. Tibbs' toolbox, she might point to the word and ask Julian to "sound it out" or tell Julian the correct word immediately and ask him to repeat it. Despite their common use, some of these habitual patterns of responding—in particular, ignoring the error or relying on context and picture clues—miss valuable opportunities to reinforce taught spelling-sound knowledge and support Julian's developing decoding skills.

Introduction

Error episodes like the one described above occur numerous times every day during early reading instruction. On reflection, it is easy to see how each of the potential responses described above teaches students something very different about what readers do, particularly when these interactions are repeated across months when children are developing foundational reading skills. Unfortunately, research suggests that the new core reading program may not provide Ms. Tibbs with the direction she needs to guide her feedback decisions (Reutzel et al., 2014).

In order to make the most of errors as learning opportunities, teachers need to cultivate awareness of their feedback practices and align these practices with instructional goals. A critical goal of early reading instruction is to help students develop a cognitive system for reading words that is fueled by the alphabetic principle—an automatized understanding of how word structures determine their pronunciation. Effective feedback can reinforce students' dependence on spelling-sound information to solve word reading problems encountered in text. In this article, we present an evidence-based feedback routine that can be used during oral reading practice to support word reading skills.

Practice with Feedback

There is abundant research evidence that explicit instruction improves accurate and automatic word recognition, particularly for

early readers and students who demonstrate risk of reading difficulties (Castles et al., 2018; Ehri, 2020; Foorman et al., 2016; Rayner et al., 2001; Seidenberg, 2017). Furthermore, explicit instruction has been identified as a high-leverage practice for students with disabilities (McLeskey et al., 2017). Explicit instruction is described as unambiguous, structured, systematic, and scaffolded (Archer & Hughes, 2011). Cornerstone practices of explicit instruction emphasize the importance of student practice with support, prompting, and feedback from the teacher (Hughes et al., 2017).

In the context of early reading instruction, an important component of student reading practice is the application of word reading skills in connected text. When students read orally during reading practice, teachers can monitor their performance and offer timely and specific feedback to increase the accuracy of reading practice (Honig et al., 2018; NCII, n.d.; Spear-Swerling, 2018). Not only this, but teachers can use error interactions to support effective and successful decoding routines that teach students to use spelling-sound connections to read unfamiliar words (Ehri, 2020).

An Evidence-Based Feedback Routine

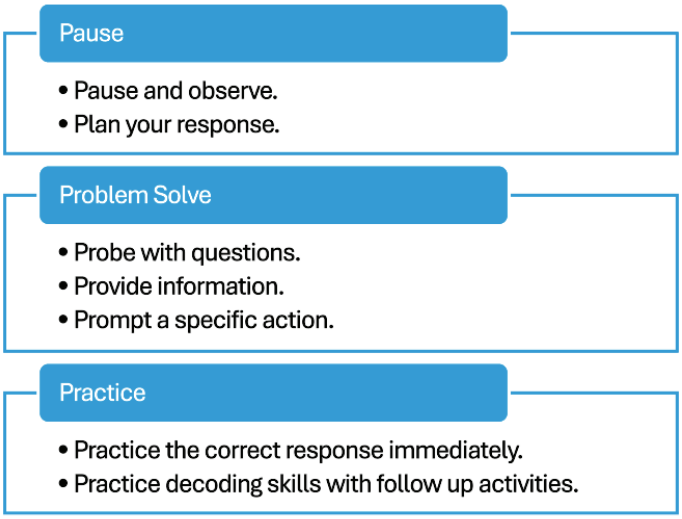
A structured feedback routine can help teachers develop skillful and productive feedback habits (e.g., 3Ps; Glynn, 2002; Shanahan, 2021). The feedback routine presented in this article—Pause, Problem Solve, and Practice—is based on research evidence from experimental, observational, and survey studies of teacher feedback. The recommendations in this routine will be most effective in the context of a systematic instructional cycle that aligns instruction, practice, and feedback. Early studies of teacher corrective feedback found that phonics-focused feedback was ineffective when instruction had not prepared students to use that feedback to improve word reading accuracy (Barbetta et al., 1993; Rose et al., 1982). In other words, if students had not received instruction and practice in using spelling-sound relationships to read words, feedback about word structure did not help students solve unknown words.

Importantly, phonics-focused feedback has been shown to improve students' skill in decoding both practiced and unpracticed words (Heubusch & Lloyd, 1998), particularly when that feedback is aligned with instruction (Carnine, 1980). Effective instruction includes both explicit instruction and practice with critical phonics principles, as well as text reading with abundant opportunities to apply decoding skills. Alignment of instruction and text prepares students to apply phonics-focused feedback in moments of hesitation and error.

Even when instruction has adequately prepared students for practice in aligned decodable text, errors are inevitable as students learn to integrate and apply isolated skills in the complex task of text reading. Research has shown that teachers respond to oral reading errors in many different ways (Chinn et al., 1993; Hoffman et al., 1984; Rodgers, et al., 2016), and that some patterns of teacher feedback appear to be associated with specific student reading behaviors (Chinn, et al.,1993; Hoffman et al., 1984) and overall reading proficiency (Rodgers et al., 2016). In other words, how teachers respond to students' oral reading errors is worthy of reflection, given the potential of feedback to shape how students think about words and how they respond in moments of difficulty. Although feedback is a complex teacher judgment that depends on many factors in the specific context, the evidence-based feedback routine presented in the next sections is intended to provide a general framework of effective practices (see Figure 1).

Figure 1

Evidence-Based Feedback Routine



Step 1: Pause

It may seem surprising that the first step in a feedback routine is to delay providing feedback. Guidance for practitioners commonly recommends immediate corrective feedback (Archer & Hughes, 2011; Honig et al., 2017; NCII, n.d.), since research has established that errors during text reading practice should not be ignored (Heubusch & Lloyd, 1998; Martin-Chang, 2017; McCoy & Pany, 1986). Particularly when teachers know that students have not been taught the word structures or high frequency words causing difficulty, an immediate correction may be the most efficient and effective choice.

Observations of teacher feedback during oral reading have shown that immediately supplying the word causing difficulty

is a common teacher response to oral reading errors, especially in text that is challenging for students (Chinn et al., 1993, Hoffman et al., 1984). However, this pattern of teacher responding may have unintended consequences, because immediately telling students a challenging word removes the opportunity to respond to their own error. One study found that when teachers delayed corrective feedback until at least the next sentence break, higher levels of student self-correction and fewer meaning change errors were observed (Hoffman et al., 1984). Furthermore, interruptions to students' oral reading, typically observed more frequently with weaker readers (Allington, 1980; Hoffman, et al., 1984), may interfere with the practice and development of reading fluency (Allington, 2014).

A reasonable pause before providing feedback may help students learn to assume responsibility for self-monitoring and problem solving when practicing in text at a reasonable level of difficulty (Spear-Swerling, 2018). As part of reading instruction, teachers can model how to use meaning to detect when something isn't quite right, and subsequently, how to correct the error by attending to the structure of the word causing difficulty. While using meaning to *guess* at words from context is not advised, the use of meaning to *monitor* reading accuracy is a skilled reading behavior (McGee et al., 2015). Therefore, when students make oral reading errors, it may be effective to wait until the end of a phrase, sentence, or maybe even a page in very short texts to make space for students to self-monitor, notice the error, and take strategic action. A patient pause may also be an effective response when students hesitate on a word, communicating confidence in students and positioning them to try to solve their own problems.

A little bit of wait time can benefit teachers as well. Feedback decisions are complex, and an extra moment to think may help teachers determine the most skillful feedback plan. Teachers can use those few seconds to observe the student, making brief notes about their specific errors and how they respond. For example, Ms. Tibbs might take a moment to observe what happens when Julian continues reading the line of text. She could note the error (slipped/slide) and her observation that Julian paused before and after his error, suggesting he has some awareness of the error. These notes can help frame the type of feedback Ms. Tibbs provides if Julian does not self-correct the error by the end of a short page of text.

In other words, if students had not received instruction and practice in using spelling-sound relationships to read words, feedback about word structure did not help students solve unknown words.

Step 2: Problem Solve

The next step in this feedback routine is Problem Solve. If students are unable to detect and self-correct their reading errors, it is important for the teacher to provide timely and skillful corrective feedback. There are many different types of teacher talk that can support students' problem solving at the point of hesitation or error. Teachers should consider specific characteristics of the challenging word and students' present knowledge when choosing whether to Probe, Provide Information, or Prompt. For each problem solving feedback type, examples are classified by two different feedback levels (Hattie & Timperley, 2007)—feedback that focuses on the error (Task) and feedback that focuses on more general knowledge and skills (Process). Often, corrective feedback will flexibly incorporate more than one type and level of teacher talk.

Probe: Open-Ended Questions

One feedback strategy to support problem solving is to probe with open-ended questions that focus students' attention and direct their thinking. Asking questions may be most appropriate when students have both the knowledge and skills to solve the problem but are still learning to apply these to the complex task of reading text. These examples present options that focus on the specific error or the general process of solving words in text (See Table 1).

Table 1

Open-Ended Questions to Probe Student Problem Solving

Task Probes	• Which word is the problem? • Which part do you know? • Which part are you working on?
Process Probes	• What do you notice? • What can you do? • How did that work?

Notice how these open-ended probes differ from the type of closed-ended questioning that teachers sometimes use in response to student errors. Ms. Tibbs should limit her use of yes/no questions like "Does that look right?" "Does that make sense?" or "Does that word have a short vowel sound?" from which students are expected to indirectly infer

that they have made an error. If a closed-ended question is only intended to alert students to an error they did not detect, consider providing that information more explicitly as presented in the next section. However, if Ms. Tibbs knows that Julian has the knowledge and skills to correct his error, she can probe with an open-ended question that recognizes his self-monitoring and encourages him to take ownership of solving the problem. For example, she might say, "I noticed that you paused at the end of this sentence. What are you thinking?"

Provide Information: Targeted, Explicit, and Correct

Another type of teacher talk that can support students' problem solving is providing information. While research syntheses have promoted feedback as a powerful instructional practice (Hattie, 2008), the amount and quality of the information provided by feedback seems to be a critical determinant of its effectiveness (Wisniewski et al., 2020). According to feedback researchers, "...students highly benefit from feedback when it helps them not only to understand what mistakes they made, but also why they made these mistakes and what they can do to avoid them the next time" (Wisniewski et al., 2020, p. 12). The most effective feedback not only provides information that students can use to solve their current problem but also helps to consolidate the skills they need to solve similar problems in the future.

Feedback information during word reading practice can direct students' attention to critical information—namely, spelling-sound correspondences—that increase the likelihood of effective decoding and word learning (Lambert & McCandliss, 2020; Yoncheva et al., 2015). According to Bruce McCandliss (2020), a cognitive neuroscientist who has studied how instruction influences the development of cognitive pathways for word reading, "a new way of thinking about the art of teaching is that you're actually playing a role in this brain development process by guiding selective attention to the most important information at just the right time" (Lambert & McCandliss, 2020, 33:00). Providing targeted information in response to student misunderstandings has the potential to direct students' selective attention such that they engage in ways of thinking about words that promote effective word learning.

Teachers can provide information about students' performance, information about the specific characteristics of the challenging word, and/or information about the process of solving words with this structure. The most supportive information is directly providing the difficult word. Consider these examples of how Ms. Tibbs might choose to provide information to Julian (see Table 2). Notice how in each instance, the information is provided explicitly—clearly and directly—so that the student is not left to infer what the teacher is communicating.

A final consideration for providing effective feedback information is that the information must be correct and aligned to the error. In previous studies, teachers have been observed to provide phonics-focused feedback that does not always target the part of the word causing difficulty (Chinn et al., 1993; Greaney, 2000). For instance, "Look at this word. It starts with /ssslll/..." would not be productive information for Julian's specific error. Misaligned feedback may reflect differences in teacher knowledge of English language structure that have been well-established by research (Carreker et al., 2010; Cheesman et al., 2009; Mather et al., 2001; Moats & Foorman, 2003; Spear-Swerling & Brucker, 2004, Washburn et al., 2017). Reading outcomes may be negatively impacted when teachers with incomplete knowledge provide explicit phonics information to students (Piasta et al., 2009). Teachers like Ms. Tibbs can find guidance for teaching English language structure in their core reading programs, as well as abundant online resources (e.g., https://literacy.virginia.edu/value-series-grades-prek-3).

Table 2

Examples that Provide Information

Task Information	• Only one word wasn't a match on this page. • Look at this word. You said, "slipped." • The vowel sound is not quite right in this word. • This word has a vowel-consonant-e spelling. • The I-consonant-silent *e* spelling stands for the vowel sound /ī/. • This word is "slide."
Process Information	• I noticed that you paused after reading "slipped." When a word doesn't make sense or sound right, it's a signal to go back and look more closely at the spelling. • Remember, words with the vowel-consonant-silent *e* spelling usually have a long vowel sound.

Table 3
Example Prompts

Task Prompts	Fix the vowel sound in that word. Watch me.../sss/ /lll/ /ĭĭ/ /d/ ... Now you try sounding it out.
Process Prompts	Read that page again and try to solve the problem. Check the anchor chart for word solving steps and remember what you can do. Look more closely at the letters in this word. Say each sound and blend the sounds together to figure out this word.

Prompt: Strategic Action

The last type of problem-solving teacher talk in this routine is prompting. A prompt directs students to take specific action to resolve the word causing difficulty. At the most supportive level, prompts include a model or demonstration of the problem-solving action. Prompts might also direct students to other supports in the environment such as a spelling-sound card or an anchor chart that lists the steps in a word solving procedure. Table 3 provides examples of explicit prompts that Ms. Tibbs might use to support Julian's growing development of strategic word-solving behaviors.

Step 3: Practice

The final stage of this corrective feedback routine is Practice. Research has demonstrated that opportunities for additional rehearsal and practice in response to student errors have been shown to improve word learning (Barbetta et al., 1993; McCoy & Pany, 1986; Rosenberg, 1986). Immediate practice can be as simple as repeating the difficult word aloud while looking at the printed word. Rereading the sentence or page with the challenging word also presents an opportunity to practice with success. After reading, additional practice might include extended activities to practice sounding out and/or spelling difficult words from the text that feature word structures that students are working to master. For example, if Ms. Tibbs notices Julian has a pattern of decoding errors for words with a long vowel-consonant-silent *e* structure, she might end the lesson with a quick dictation activity in which the small group writes words from the text and other words with this structure (e.g., *slide*, *trade*, *robe*).

What about Praise?

At this point, you might be wondering about praise, which is a common element of teacher-student interactions and feedback routines (Glynn, 2002). Researchers have debated the positive and negative effects of praise, so teachers like Ms. Tibbs may have encountered conflicting recommendations about praise. When delivered skillfully, praise can provide positive social reinforcement for students' behavioral and academic development (Bayat, 2011). However, teachers must be intentional with praise that specifically and authentically recognizes students' effort and strategic action. Understanding the following pitfalls can support productive praise.

First, praise that frames students' success as a product of fixed personal traits (e.g., "You're so smart!" and even, "You're a good reader!") can have unintended consequences. Researchers hypothesize that both praise and criticism have negative effects on performance for the same reason—these types of statements direct students' attention away from the task and towards the self (Kluger & DeNisi, 1996). Contrary to the good intentions behind offering praise to boost self-esteem, students may come to associate teachers' approval and their value with correct and incorrect answers. Over time, praise that is focused on personal attributes can interfere with the development of a risk-taking, growth mindset that supports curiosity, risk-taking, and learning hard things (Kamins & Dweck, 1999). Keeping feedback focused on the task and process normalizes errors as an essential part of learning.

Furthermore, praise is often ambiguous, which is inconsistent with explicit instructional practices. A generic "Good

Although teachers may be reluctant to give accurate feedback, particularly to students experiencing reading difficulty, it is important to communicate to students that you have confidence that they can confront difficulty and master challenging skills (Willingham, 2009).

Table 4

Examples of Praise/Confirming Feedback

Task Praise	• I noticed that you read the consonant sounds correctly at the beginning of this word. You are getting really smooth with those blends! Check the vowel sound in the middle. • I heard excitement in your voice when you read that last sentence. Great job paying attention to the exclamation point!
Process Praise	• I can tell from your pause that you've noticed something is not quite right. Good thinking! Reread that page and see if you can fix it up. • Wow, Julian! You worked really hard to figure out what the author is saying on that page about the kids on the playground. Let's stop for a second and talk about one word here that is like other words that we have been practicing. • You and your partner are doing a nice job taking turns and paying attention when the other one is reading! Practicing so well helps both of you both learn more and more words.

job!" does not direct students to specific actions that they executed successfully. Instead of generic praise, recognize student success during oral reading with confirming feedback. Confirming feedback acknowledges and names students' strategic behaviors and the productive result of those behaviors. By naming the specific processes that led to successful outcomes, teachers can help students develop a sense of agency and the belief that they are capable of solving problems (Johnston, 2004). Confirming feedback also provides students with language to talk about how their reading is going and to seek specific help when needed.

Finally, researchers caution against the tendency to praise performance that does not meet expectations. Although teachers may be reluctant to give accurate feedback, particularly to students experiencing reading difficulty, it is important to communicate to students that you have confidence that they can confront difficulty and master challenging skills (Willingham, 2009). Instead of ignoring errors or providing inaccurate feedback, teachers can pair specific confirming feedback with corrective feedback. The examples in Table 4 show how Ms. Tibbs might recognize Julians' hard work, progress, and strategic action while avoiding praise pitfalls.

It is important to recognize and manage unproductive emotional responses that we may experience when students make errors, such as frustration, anxiety, disappointment, sympathy, or impatience. Teachers have an opportunity to model a mindset of errors as learning opportunities by responding calmly, clearly, and compassionately when students have difficulty during oral reading practice.

One More P... Pay Attention

As you start to think more reflectively about your feedback, it is important to pay attention to your own reaction when students make errors. Research suggests that student errors and misunderstandings universally make teachers uncomfortable (Kennedy, 2005). It is important to recognize and manage unproductive emotional responses that we may experience when students make errors, such as frustration, anxiety, disappointment, sympathy, or impatience. Teachers have an opportunity to model a mindset of errors as learning opportunities by responding calmly, clearly, and compassionately when students have difficulty during oral reading practice. Over time, responding to errors skillfully and intentionally can create a feedback-friendly climate where students' mistakes are celebrated as valuable learning opportunities (Hattie & Clarke, 2019).

Conclusion

Learning new and complex skills like playing the piano, hitting a foul shot in basketball, or driving a car requires practice with aligned, targeted feedback. Piano students don't passively sit and watch their teacher play. They practice increasingly difficult songs aligned with their current skill level. Most importantly, this practice includes feedback from an expert teacher who monitors their application of basic skills like finger placement that have been practiced in isolation.

In this same way, Ms. Tibbs knows there is a time for the explicit phonics instruction in her core program, but she also knows her first grade students need practice in text that provides abundant opportunities to apply the skills that they are learning. Armed with an evidence-based feedback routine, she has a toolbox of productive responses to word reading errors that enables her to confidently support Julian's word learning.

After jotting a quick note, Ms. Tibbs says, "I noticed that you paused on that first sentence. Which word is the problem?" Julian immediately returns to the word 'slide' and studies the letters. "Oh, they SLID!" Ms. Tibbs smiles, "You knew just which word to work on! Remember, the i-consonant-silent e spelling stands for the vowel sound /ī/." Julian sounds and blends 'sliiiii-ide,' and Ms. Tibbs gives him a thumbs up. "Paying close attention to the spelling helped you fix up that word! Go ahead and practice reading that page smoothly." Julian confidently rereads the page. "Your turn!" he says to his partner as they continue their practice.

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Effective Teacher Preparation in Literacy: Enhancing the University Preservice Teacher Experience through a Scholars Program

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Reading is a complex and necessary life skill. Yet, the most recent National Assessment of Educational Progress results indicate that only 32% of all fourth graders are reading at or above proficiency (National Center for Educational Statistics, 2022). These scores demonstrate an urgent need to focus on prevention and effective instruction to improve reading proficiency in this country (Torgesen, 2004). Teaching youth to read requires specialized knowledge and training, which begins with initial teacher preparation. Standards for initial teacher licensure vary by state. Some require a specific number of reading courses within a degree program, while others provide a list of required literacy competencies. However, the urgent need to graduate well-equipped teachers is consistent nationwide.

School divisions seek quality teacher candidates who graduate from teacher preparation programs with knowledge of effective reading instruction. Many states are passing legislation to ensure that colleges and universities provide training in science-based reading research (Schwartz, 2024). As universities review and revise degree programs, it is important to determine effective preparation models. Research suggests that preservice teachers need foundational knowledge and an opportunity to apply their knowledge in an environment that includes supportive coaching and mentoring (Englert et al., 2020; Peltier et al., 2020; Purvis et al., 2016; Spear-Swerling & Brucker, 2004). Universities partner with local school divisions to provide field placements for teacher candidates to apply their knowledge and receive constructive feedback. Collaboration between preparation programs and local schools is essential for effective partnerships that bridge coursework and practical knowledge (Burroughs et al., 2020).

The purpose of this article is to describe an initiative at a college in the eastern United States focused on improving pre-service teacher preparation in reading instruction. The program was designed to increase pre-service teacher knowledge in meeting the needs of elementary students who struggle with reading, including students with dyslexia. The intent was to build on pre-service teachers' existing coursework and increase their knowledge of structured literacy, strengthening their preparation and job readiness. The program started in 2022 and included university support and instruction, statewide training, public school division support, and targeted supervised tutoring with elementary students in a public school setting. Specifically, the initiative sought to understand the ingredients or elements of effective, structured literacy training for teacher candidates, emphasizing teacher knowledge and effective mentoring. The authors present an overview of the program's development and provide informal data regarding its impact on teacher candidates. A formal program evaluation has not yet been conducted, but the authors discuss plans for assessment.

Review of Research on Teacher Preparation

Research demonstrates that intentional coursework and field experiences can increase preservice teachers' knowledge and effectiveness (Englert et al., 2020; Peltier et al., 2020; Purvis et al., 2016; Spear-Swerling & Brucker, 2004). Increasing preservice teachers' understanding of language and reading instruction is essential, given the lack of foundational knowledge that many preservice teachers possess (Washburn et al., 2011; White & Kirkpatrick, 2020). Survey data indicate that upon entering their programs, most preservice teachers lack knowledge of the structure of English, and they often have inaccurate understandings of dyslexia that follow societal myths, such as seeing letters in reverse (Washburn et al., 2011; White & Kirkpatrick, 2020).
Some research suggests that dyslexia can affect up to 20% of the population (International Dyslexia Association, 2020a; Shaywitz, 1999). Other research suggests that identification rates may vary from 3% to 17% depending on testing cutoff scores and identification procedures (Wagner et al., 2020). Education majors surveyed knew the least about treating dyslexia, even after completing 44% of their programs (White & Kirkpatrick, 2020). Only 6% of the respondents to White and Kirkpatrick's survey of education majors felt very

prepared to work with students with dyslexia; the majority did not feel at all prepared. Those statistics were echoed by Washburn et al. (2011), who found that 80% of their survey respondents indicated inadequate training in working with children with dyslexia. Although these articles were published almost ten years apart, their findings were similar. White and Kirkpatrick (2020) wrote, "Despite advances in research, the participants did not seem to show any more knowledge about dyslexia than participants of studies from over fifteen years ago" (p. 231).

Research indicates that intentional coursework is effective for teaching essential language structure knowledge to preservice teachers (Purvis et al., 2016; Spear-Swerling & Brucker, 2004). Purvis et al. (2016) found that providing seven hours of explicit instruction in metalinguistic concepts to preservice teachers had a direct, positive impact on their knowledge. Spear-Swerling and Brucker's (2004) study also demonstrated increased knowledge about word structure after course instruction. However, their study found that six hours of instruction was insufficient for teacher candidates to perform at high levels on the knowledge posttest. Increased instructional time is needed for preservice teachers to build a strong foundation of knowledge (Spear-Swerling & Brucker, 2004).

To effectively teach the components of structured language, preservice teachers need foundational knowledge and opportunities to apply their knowledge (Englert et al., 2020). Peltier et al. (2021) emphasized the need for intentional connections between coursework and fieldwork. They studied how six literacy teacher educators supported teacher candidates in their learning. The teacher educators effectively bridged coursework and fieldwork by making explicit connections, including opportunities for formal reflection, engaging in direct supervision and mentoring of teacher candidates, and providing needed resources. Peltier et al. noted that these components should be bidirectional.

Importance of Structured Literacy Knowledge

Previous research suggests structured literacy is effective and critical in teaching children to read, especially those with reading disabilities (International Dyslexia Association, 2020b). Structured literacy includes instruction in phonemes, letter-sound relationships, syllable patterns, morphemes, vocabulary, and sentence, paragraph, and text structure (Spear-Swerling, 2019). Explicit teaching of the alphabetic principle is necessary for students to access print and gain the skills necessary for word recognition (Spear-Swerling, 2019). While students are learning to decode, they learn vocabulary and morphology to support their language comprehension (Spear-Swerling, 2019). Higher levels of explicit literacy instruction are incorporated to benefit the academic needs of older students. The direct, systematic, explicit, and prescriptive approach of the Orton Gillingham (OG) pedagogy aligns with the principles of structured literacy instruction (International Dyslexia Association, 2020b). The OG approach is an example of engaging instruction for students as they grasp the intricate concepts of the English language (Spear-Swerling, 2019). Just as explicit, systematic language instruction benefits elementary students, preservice teachers benefit from learning foundational knowledge about the English language and having opportunities to apply their knowledge in well-designed field or practicum experiences (Englert et al., 2020; Peltier et al., 2020; Purvis et al., 2016; Spear-Swerling & Brucker, 2004).

Given this understanding, a university in the eastern United States piloted an initiative to increase pre-service teachers' knowledge and effectiveness in elementary reading instruction. This initiative embedded knowledge of dyslexia and OG pedagogy in teacher preparation through a partnership with the state education department and a local school division.

Creation of a University Scholars Program

A community member with connections to the university advocated for treating dyslexia. In her career as an OG Fellow, she trained teachers to provide intensive reading intervention. Her financial contributions laid the foundation for a university Scholars program. Through a collaboration between the individual community member's family foundation, the university's school of education, the state Department of Education, and the state technical assistance provider, the Scholars program was developed to enhance the university pre-service teacher experience in gaining knowledge of effective reading instruction. It aims to increase the awareness of reading instruction for elementary students needing intervention, including students with reading disabilities.

To effectively teach the components of structured language, preservice teachers need foundational knowledge and opportunities to apply their knowledge (Englert et al., 2020).

The Scholars program planning team first identified responsibilities for the key stakeholders, the state department of education, and the state technical assistance provider. Responsibilities included recruiting interested university students, conducting a 30-hour summer training in multisensory structured literacy led by an OG Fellow, and coordinating with a public school division. As collaborative partners in the Scholars program, the state technical assistance center directors contacted school-based partners to determine the best way to introduce the Scholars program to key stakeholders in a local school division. After identifying and obtaining support from stakeholders within the division's central office, the next step was to obtain school-level consent. Schools with existing afterschool programs were identified since their existing afterschool program structure would easily facilitate a location for tutoring. After obtaining school-based support, the planning team sought to identify teachers with OG Classroom Educator level certification willing to support this effort. Individuals with this certification completed coursework and a 50-hour practicum supervised by an OG Fellow (Orton-Gillingham Academy, 2023). The school division connected the university with school-based classroom educators who directly supervised university students in providing reading instruction to elementary students in a semester-long tutoring experience. The state technical assistance center financially supported classroom educators and university students.

University Training and Support

Pre-service education students, in any degree program leading to initial teacher licensure, interested in the Scholars program completed an application process. Criteria for acceptance included an interest in reading instruction, demonstrated leadership qualities, a letter of recommendation from a faculty member, and a minimum GPA of 3.0. The Scholars program complemented required coursework and practicum experiences. It provided an additional professional development experience. Once selected, the Scholars attended an orientation and three training sessions with university faculty before the state-level training. University faculty accompanied undergraduate and master's-level elementary and special education students to an intensive 30-hour training based on the OG multisensory approach to reading instruction led by an OG Academy Fellow. The state education department sponsored all students in the training and provided related supplies such as a textbook and materials for tutoring.

Following the multisensory training, the scholars participated in approximately 25 hours of small group or individual elementary reading tutoring in a local school division under the supervision of licensed elementary educators holding an OG classroom educator certification. Each participating elementary school selected students who would benefit from additional reading instruction. During their semester-long experience, university faculty observed each student at least twice. In addition, students attended monthly meetings with the university faculty, during which additional training in structured literacy and dyslexia was provided, and students reflected on their tutoring experiences. Scholars also participated in conferences and presentations related to dyslexia outside of existing coursework. Students received a tuition scholarship, a small stipend, and coverage of expenses for attending the state-wide training after completing their tutoring assignments.

Discussion of Lessons Learned Through Partnership

The Scholars program depended on the collaboration between the family foundation, the university, the technical assistance center, the state department of education, and the school division partner. The successful partnership was built through clear communication and a shared agenda: to effectively train and prepare preservice teachers to teach reading and enhance the teacher candidates' experience.
Preservice teachers must have high-quality field experiences. Research indicates that coaching and expert guidance are necessary to close the research-to-practice gap (Hudson et al., 2021). The university students followed a structured lesson template, applying their knowledge of the OG approach, and were provided ongoing coaching from their classroom educator and university faculty. Using the critical elements of a structured lesson plan alongside experienced coaching can be applied across preparation programs and with novice teachers.

After the semester-long experience, informal evaluations took place in the form of semi-structured interviews. Scholars described the personal and professional benefits of participating in the Scholars program. A previous Scholar, Katherine, worked alongside a reading specialist while tutoring. The reading specialist modeled instructional techniques and

Preservice teachers must have high-quality field experiences. Research indicates that coaching and expert guidance are necessary to close the research-to-practice gap (Hudson et al., 2021).

provided constructive feedback. Katherine noted, "Through my time working with her, I saw firsthand how to provide remedial phonics instruction to students using the Orton-Gillingham approach. After being in this program, I am much more prepared to provide reading instruction, and I am confident that I will use the skills I have acquired throughout my teaching career" (K.T., personal communication, January 11, 2023). Another scholar from the first cohort, Vanessa, noted that her lack of phonics knowledge allowed her to conceptualize her tremendous growth. "I am confident working with students on reading. I could use the knowledge and resources I gained from my training during my student teaching internship experience" (V.A., personal communication, January 13, 2023). Vanessa noted that her experience in the Scholars program positively set her apart from her peers. She found that teachers were surprised and impressed that she had received training in the OG approach. A scholar in the second cohort described her experience by saying, "I would say that my experiences as a Scholar were ones that allowed me to gain new insight/information in the literacy and dyslexia world" (I.S., personal communication, January 16, 2024). They said that "the professional development with dyslexia and multi-sensory pilot training has helped me feel extremely prepared to work with students who suffer from dyslexia or any specific learning disabilities" (I.S. personal communication, January 16, 2024).

Mentor teachers were a critical component of the program and provided resources to the Scholars to support them throughout their teaching careers. Scholars benefited from immediate feedback after each lesson and an opportunity to improve instructional practices in upcoming lessons under the direct supervision of a well-trained teacher. Scholars experienced a connection to a new school in a local school division, formed professional relationships, and gained confidence in their instructional capabilities. "I do not think there could be a more valuable program to integrate into my studies as a student," Vanessa concluded (V.A., personal communication, January 13, 2023). Scholar Sarah emphasized positive relationship-building with colleagues, professors, and elementary students in her reflections on the program. "I expanded my reading knowledge and put it into effective practice. I am so happy with the experiences gained and cannot wait to use them in my classroom!" (S.G. personal communications, January 13, 2023).

The classroom educators provided informal feedback on the Scholars Program through semi-structured interviews. They indicated that this program provided them an opportunity for professional development and reflection, allowing them to compare notes with the Scholars and grow in foundational pedagogy. The mentor teachers had the opportunity to share their expertise in the science of reading and the OG approach and develop their coaching skills in the classroom setting. They noted that this opportunity provided future teachers with the tools to be effective teachers of reading and introduced the preservice teacher to their school, where there may be an opportunity for future employment. Scholars in the program's first cohort also noted areas for improvement, including supplemental training and the opportunity to work with small groups of elementary students. For cohort two, the program's planning team increased the training hours before and after the summer statewide training and provided opportunities for Scholars to plan and reflect on their lessons. As the Scholars program evolves, the planning team will continue building upon the lessons learned to strengthen the program.

Conclusion

The Scholars program is grounded in research on teacher knowledge, effective mentoring, and structured literacy instruction. The program focuses on enhancing the preservice teacher experience and competence in literacy instruction throughout a semester-long experience, including professional development, supported practice, and reflection. It is designed to address the needs of students who struggle with reading, spelling, and writing difficulties, including students with disabilities and dyslexia. Preservice teachers experience opportunities to learn and apply a direct and systematic instructional approach to teaching language structure for reading remediation.

Informal data from Scholars points to the program's positive impact on their overall preparation. Their reflections encouraged project improvement for implementation. Future program implementers should consider opportunities mentioned by previous Scholars to enhance their preservice programming. As the program continues, the authors intend to engage the stakeholders in a formal program evaluation to collect data to address the initiative's impact. A program evaluation will enable stakeholders to refine and improve processes. Broadly, the processes to be evaluated include preservice teacher selection, the week-long training by the state department of education, pairing with the school-based mentor, the coaching knowledge of the school-based mentor, the selection of elementary students, and support

Effective teacher preparation relies on strong partnerships between educator preparation programs and school divisions.

from the university. In addition, the authors would like to examine any change in teacher knowledge after the program through a teacher knowledge survey and other data, such as lesson plans. Furthermore, the data collected and analyzed will guide the interpretation of the findings about process or impact and yield fruitful conclusions and recommendations about the Scholars Program moving forward.

Effective teacher preparation relies on strong partnerships between educator preparation programs and school divisions. Preservice teachers gain new knowledge through coursework and apply their learning through hands-on classroom experience. In this program, teacher candidates received personalized coaching and guided feedback from mentor teachers with specialized training and experience in the OG approach. There was a clear connection between new knowledge gained through the statewide and university training and the field experience. The Scholars program demonstrates the importance of a partnership in which there is cohesion between theory and practice (Peltier et al., 2020).

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Manuscripts will be evaluated for the following elements:

1. Relevance to the audience (literacy teachers, specialists, coaches, librarians, and researchers).
2. Significance and importance of the topic and treatment.
3. Sufficient grounding in literacy theory and research

Additionally, manuscripts will be evaluated for clarity and organization of writing, appropriate tone for the audience, and overall writing quality, including mechanics. Papers should adhere to American Psychological Association (APA) formatting according to the 7th edition.

Preparing Your Manuscript: Style and Format

All submissions must be digital. Word document format is required for text, tables, and figures (e.g., docx; .doc). Pdf manuscripts will be returned for reformatting into Word. Any submitted artwork may be saved in other appropriate formats (e.g., .pdf, .jpeg, .tiff). Please prepare a blinded manuscript using a 12-pt Times New Roman font, double-spaced text with one-inch margins. All elements should adhere to APA 7 format, including headings and subheadings. Please include a 50 to 75 word abstract at the beginning of your manuscript.

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Multicomponent Reading Interventions and Intensifications in Upper Elementary Grades

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Tisha Hayes, University of Virginia

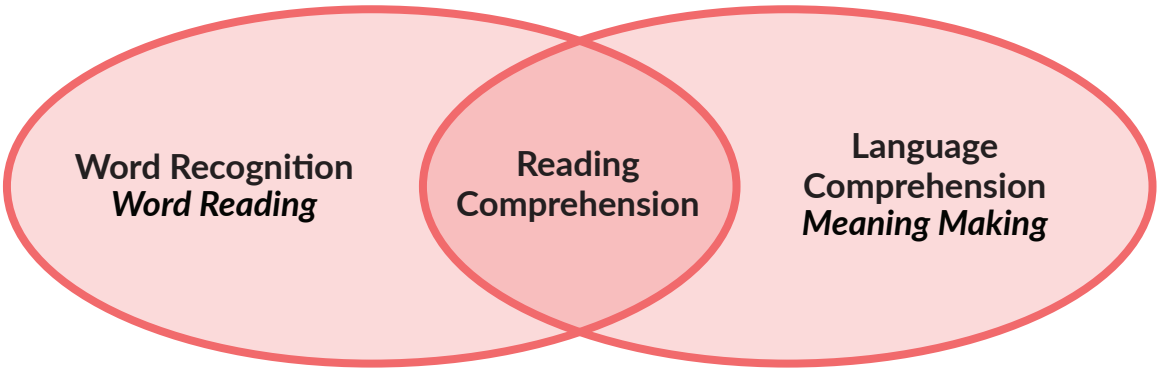
Upper elementary grades represent a critical window in learning to read. At this juncture, students apply their word reading ability to not only comprehend more complex text but to learn from the text (Donegan & Wanzek, 2021; Miciak et al., 2018). Adequate word reading, however, does not guarantee adequate comprehension, and current data shows that upper elementary students have difficulty with reading comprehension.

The Simple View of Reading (SVR; Gough & Tunmer, 1986; Hoover & Gough, 1990) is an empirically validated framework for understanding the elements that contribute to students' reading development. The SVR asserts that reading comprehension derives from proficiency in both word recognition and language comprehension (see Figure 1). Word recognition, also referred to as word reading skills, describes the ability to recognize words accurately and quickly (Hoover & Tunmer, 2020). Language comprehension, also referred to as the meaning-based skills, describes the ability to make meaning from oral and written language. A student who can read words accurately and quickly will not be able to comprehend a text without the requisite language comprehension skills. A student who can understand language elements will not comprehend a text without being able to read the words in the text. Consequently, students need to cultivate their word recognition and language comprehension skills to support their reading comprehension development.

Moreover, weak word recognition might lead to secondary difficulties in language comprehension in the upper elementary grades. While instruction in early elementary grades generally focuses on word reading and other foundational skills, the focus tends to shift in late elementary grades to content acquisition and literature analysis (Vaughn et al., 2019). Students with word recognition deficits who do not receive early enough or intensive enough interventions, might develop secondary difficulties in meaning making skills such as background knowledge or vocabulary (Vaughn et al., 2019). Al Otaiba and colleagues (2023) hypothesized that word reading difficulties, "if not adequately addressed, can lead to more pervasive challenges related to language development and to comprehending and learning from the text" (p. 314). In other words, students who began with word reading difficulties, might require additional interventions in meaning making skills in upper elementary grades. Consequently, interventions in upper elementary grades likely need to include multiple components (Al Otaiba et al., 2023; Donegan & Wanzek, 2021).

Figure 1

An Illustration of the Simple View of Reading: The Contributions of Word Recognition and Language Comprehension on Reading Comprehension.



Comprehensive Multicomponent Interventions

Over the past thirty years, there has been a shift towards utilizing multicomponent interventions (MCRIs) in upper elementary grades. Driven by the SVR, the assumption is that deficits in both word recognition and language comprehension need to be addressed in reading interventions to influence reading comprehension outcomes. Wanzek and colleagues (2020) suggest, "students who struggle with reading beyond the early elementary grades frequently demonstrate deficits in multiple areas of reading (i.e., phonemic awareness, phonics, fluency, vocabulary, and comprehension) ... and may require intervention in several reading areas" (p. 409). In fact, systematic reviews of intervention research have found MCRIs can be particularly effective in building word reading skills for upper elementary grades and beyond (Donegan & Wanzek, 2021; Scammacca et al., 2015). The research on MCRIs currently falls short on influencing meaning making and reading comprehension outcomes but sheds light on the importance of intensifications to produce stronger results.

Several large-scale, high quality MCRI studies illustrate the potential benefits of these multipronged interventions (Miciak et al., 2018; Wanzek et al., 2020; Vaughn et al., 2019). Miciak and colleagues (2018) studied the effects of an intensive intervention with fourth and fifth graders. Students who scored below their grade-level peers were included in the study – specifically, students who achieved a standard score of 85 or below on the Gates-MacGinitie Reading Test, a standardized reading measure. Participants were assigned to one of three groups: a researcher-provided intervention for one year, a research-provided intervention for two years, or a business-as-usual school-based intervention (BAU) for two years. The BAU comparison group was not multicomponent and varied across classrooms. The researcher-provided interventions aligned with the grade-level social studies and science standards and included components addressing word study, vocabulary, and self-regulation. The researcher-provided interventions were provided in small groups (four to five students) in daily 40-minute sessions for a total of roughly 40 hours per year. Researchers reported significant gains in reading fluency and word reading measures for the researcher-provided intervention groups as compared to the BAU comparison group. However, there were no statistically significant differences in reading comprehension outcomes between any of the three groups.

A student who can read words accurately and quickly will not be able to comprehend a text without the requisite language comprehension skills.

Wanzek et al. (2020) investigated the effectiveness of a commercially available, intensive MCRI called *Voyager Passport*. This intervention included daily instruction across components addressing phonics, vocabulary, fluency, and comprehension. Four hundred three fourth-grade students who performed below their grade-level peers were eligible to participate in the study – students who achieved a standard score of 85 or below on the Gates-MacGinitie Reading Test, a standardized reading measure. Participants were then split between two groups: intervention group and BAU comparison group. The intervention group received a daily 45-minute intervention in small groups of two to three students with a total of 100 sessions, while the BAU comparison group received typical school services with some of these students (59 students) receiving a multicomponent school-based intervention. Like Miciak et al. (2018), the intervention group did not differ significantly from the school-based BAU group on reading comprehension outcomes but outperformed the BAU group on measures of word reading and word reading fluency.

Vaughn and colleagues have investigated the efficacy of MCRIs with upper elementary grades for over 15 years. The most recent study by Vaughn and colleagues (2019) yielded promising results. Students who performed below their grade-level peers were eligible to participate in the study – students who achieved a standard score of 85 or below on the Test of Silent Reading Efficiency and Comprehension, a standardized reading measure. Students met in groups of three to six for 30-45 minutes sessions, five days per week, for an average of 44.4 instructional hours. The multicomponent intervention addressed word reading, reading fluency, and reading comprehension. The BAU comparison group received typical reading instruction with 66% of this group also participating in additional school-based reading interventions. Like the previous two studies, the intervention group had statistically significant outcomes for both word reading and oral reading fluency in comparison to the BAU group. However, the intervention yielded mixed results for reading comprehension. These three studies seem to indicate promising outcomes of MCRIs for students in the upper elementary grades, especially on measures of word reading and reading fluency. The question remains, though, about how to impact change in the language comprehension, or meaning making skills, that will result in greater reading comprehension outcomes. As Conner

and colleagues (2018) noted, "...improving reading comprehension continues to prove more difficult than anticipated" (p. 480). Therefore, researchers continue to study ways of intensifying interventions to influence reading comprehension outcomes.

Intensifying Multicomponent Interventions

To improve the outcomes of MCRIs, intensifications are typically called for in researcher next steps. After completing a yearlong MCRI, Vaughn and colleagues wrote, "it may be necessary to provide even more intensive intervention for some students (e.g., longer time, smaller groups, intervention even more specifically focused to meet students' needs)" (2016, p. 16). Intensifications can be quantitative and qualitative in nature. Quantitative intensifications include structural changes like influencing the total number of hours of intervention a student receives or limiting the group size. Qualitative intensifications include narrowing the intervention to focus on specific component interventions based upon student need.

Quantitative Intensifications

Increasing dosage, or the total number of hours of an intervention, is frequently cited as an important intensification (Miciak et al., 2018; Vaughn et al., 2019; Wanzek et al., 2020). If students are not demonstrating adequate growth with a current intervention, one possible next step is an intervention of longer duration. Extending the total number of intervention hours provides not only additional opportunities for extended instruction but also additional time for student practice with feedback, which may be especially helpful for students with reading difficulties to make greater gains (Wanzek et al., 2020). This said, dosage seems to have a greater impact on intervention outcomes in early elementary interventions (Al Otaiba et al., 2005) as compared to upper elementary. For example, while Donegan and Wanzek (2021) found that longer duration upper elementary interventions predicted significant effects for reading comprehension, duration did not moderate student outcomes in upper elementary grades – a finding consistent with systematic reviews of intervention studies over three decades (Scammacca et al., 2015; Wanzek et al., 2013). Duration, in these studies, however, is much shorter than the typical 36-week schoolyear, most often occurring over 12-20 weeks and measured in hours.

If students are not demonstrating adequate growth with a current intervention, one possible next step is an intervention of longer duration. Extending the total number of intervention hours provides not only additional opportunities for extended instruction but also additional time for student practice with feedback, which may be especially helpful for students with reading difficulties to make greater gains (Wanzek et al., 2020).

Rather than these findings indicating that increasing dosage is not a useful practice, they perhaps indicate the complexity and high level of intensity needed to address reading difficulty in the upper grades. Wanzek and colleagues (2020) conducted an intensive upper elementary MCRI with over 100 sessions totaling more than 75 hours and did not yield a statistically significant effect on reading comprehension outcomes. The authors reflected "that even the more intensive implementation did not provide enough intensity to accelerate reading comprehension outcomes for this sample of students who averaged lower initial word-reading skills" (p. 425). While this study was nearly twice as long as other multicomponent studies (e.g., Miciak et al., 2018; Vaughn et al., 2019), interventions may need to be more intensive – or longer – to influence reading comprehension (Wanzek et al., 2020). Miciak et al. (2018) wrote that to improve reading comprehension in upper elementary grades, "it is unrealistic to expect robust growth in intervention dosages that are measured in hours rather than years" (p. 33).

Qualitative Intensifications

Qualitative intensifications may focus on word recognition or language comprehension. Some upper elementary students with persistent word reading difficulties may require more targeted word reading instruction to 'move the needle.' Notably, educational scholars hypothesize that upper elementary students with profound reading difficulties might need a more targeted, single component word reading intervention before gains in reading comprehension can be realized (Wang et al., 2019). Toste and colleagues (2019) conducted a relatively short, 10-week (26 hours) multisyllabic word reading intervention with fourth and fifth grade struggling readers. Students were identified by scoring below their grade-level

peers on a standardized reading measure – students who achieved a standard score below 90 on the Test of Word Reading Efficiency-2. Researchers noted a gap in the upper elementary students' ability to read multisyllabic words, and so they planned explicit instruction that targeted their word reading needs. The word reading intervention group significantly outperformed the BAU comparison group on measures of word reading and spelling. Surprisingly, the word reading intervention also had a statistically significant effect on a measure of reading comprehension. In other words, an intervention that targeted students' specific word reading difficulties also resulted in gains on a broader measure of reading comprehension.

Qualitative intensifications may also focus on developing components of language comprehension by supporting access to grade-level content. As students move into upper elementary grades, gaps in their language comprehension may limit their ability to comprehend text, especially as reading in social studies and science becomes more prevalent (Vaughn et al., 2019). To further intensify an intervention, some educational scholars aim to build students' background knowledge and vocabulary by using content-focused reading passages (Miciak et al., 2017; Vaughn et al., 2019). A recent meta-analysis reported promising results for integrated reading interventions and content-area instruction, particularly on reading comprehension outcomes (Hwang et al., 2022).

What this Means for Schools and Interventions

In conclusion, this brief review of multicomponent studies and intensifications in upper elementary grades has several implications for schools and reading interventions (see Figure 2). Upper elementary students should generally receive interventions that support both word recognition and language comprehension components to influence reading comprehension. For schools to be able to make appropriate data-based decisions about reading interventions in the upper grades, universal reading screeners and progress monitoring protocols must include accurate measures of both word reading and reading comprehension. Schools can then

Figure 2
What This Means for Schools and Interventions

think about promise of MCRIs for upper grades by including both word-reading (word recognition) and meaning-making (language comprehension) components in interventions
think about building word reading skills as a support for reading comprehension by starting intensive interventions early for students with persistent reading difficulties
think about the complexity and intensity needed – it's years not months as you intensify by providing longer duration interventions
think about a student's word reading skills as you consider starting with a single component word reading intervention
think about building background knowledge and vocabulary by integrating grade-level science and social studies content

use these data to individualize and intensify interventions. For example, upper elementary students with profound and persistent word reading difficulties might need targeted word reading interventions prior to comprehension-focused or multicomponent interventions (Toste et al., 2019).

Progress monitoring data may reveal students require intensifications that increase total duration. This may mean schools need to take a long-game approach and consider a multi-year intervention rather than year-by-year intervention. Miciak and colleagues (2018) suggested that to influence reading comprehension outcomes, students might need years rather than months to improve reading comprehension.

Schools should also consider intensive interventions with regular, high dosage in the early grades. While one approach to a multi-tiered system of support is to move students through less intensive interventions (Tier 2) to more intensive interventions (Tier 3) based upon progress monitoring data, an alternate approach for students with significant difficulties is to begin intensive interventions (Tier 3) immediately (Wanzek et al., 2020). By providing earlier and more intensive interventions, students with the most significant needs may have a greater chance at remediation (Wanzek et al., 2020).

Lastly, schools can intensify interventions by integrating reading comprehension interventions with grade-level science and social studies concepts. Incorporating content into interventions plays a dual purpose. Students gain practice grappling with texts and content-driven concepts in supportive environments Moreover, they are afforded opportunities to build background knowledge and related vocabulary – two components that contribute to reading comprehension (Vaughn et al., 2019). While the evidence base continues to grow, these recommendations born out of MCRI research provide schools with promising practices to consider for their upper elementary students who continue to struggle with reading.

For schools to be able to make appropriate data-based decisions about reading interventions in the upper grades, universal reading screeners and progress monitoring protocols must include accurate measures of both word reading and reading comprehension.

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Repeated Text Discussions: A Strategy for Language Comprehension Instruction

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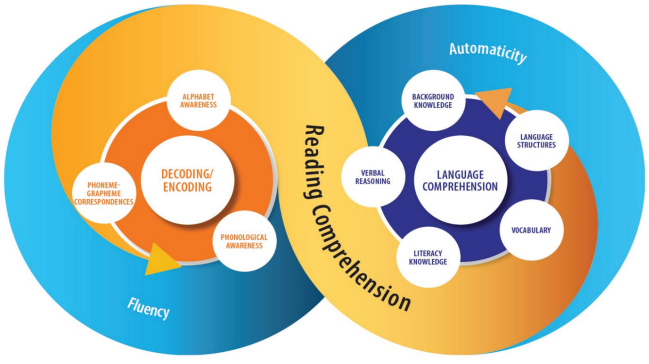
The Science of Reading (SoR) movement has adopted a few models of reading that attempt to capture the nuance of reading instruction that has to occur in a classroom to ensure students have reading success. Gough and Tunmer's (1986) Simple View of Reading and Scarborough's Reading Rope Model (2001) were exhaustively referenced during the initial phases of the SoR movement, however research in reading comprehension has progressed and adapted tremendously. Two models that represent the progress of the SoR are Duke and Cartwright's (2021) Active View of Reading, and the Virginia Literacy Partnership's (2022) Interactional Model of Reading.

With the rise of the SoR movement, and state departments of education creating literacy policies that incorporate the tenets of the SoR, teachers may benefit from a clear understanding of commonly referenced models such as the Active View of Reading and the Interactional Model of Reading. The author also surmises that teachers could feel overwhelmed by the nuanced complexities and vastness of the comprehension strands promoted by these models. This review aims to effectively describe the comprehension strands referenced in these two models (see Figures 1 and 2) in a clear and concise manner to best support educators in the field. To offer additional support, this review discusses a teaching strategy called Repeated Text Discussions that embeds each strand, assisting educators with ensuring all strands of comprehension are covered in their literacy lessons.

Figure 1

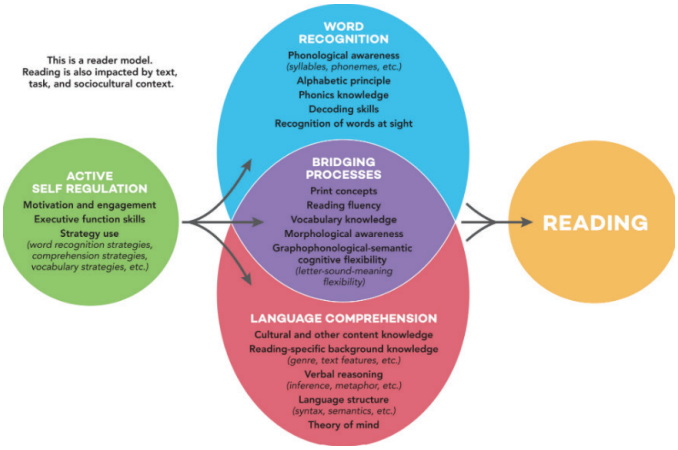
Interactional Model of Reading.



Adapted from Gough, P. and Tunmer, W. (1986) and Scarborough, H. S. (2001)

Figure 2

Active View of Reading



Note. "The Active View of Reading" by Duke, N. K. & Cartwright, K. B. is licensed under Creative Commons CC BY-NC-ND 4.0

What is and What is Not Comprehension Instruction?

Comprehension can be described as the dynamic, multi-component process of constructing meaning from spoken or written language. Models of reading often use "language comprehension" and "reading comprehension" interchangeably, however the two are distinct. Language comprehension (LC) is the ability to derive meaning from words, sentences and other discourse while reading comprehension (RC) involves comprehension of print (Gough & Tunmer, 1986).

Teaching LC is teaching students about language so they can make meaning from what is being read in the text. Students

need instruction in three main areas: linguistic knowledge (e.g., syntax, semantics, genre, text structure), non-linguistic knowledge (e.g., content knowledge, vocabulary), and higher-thinking mental processes (e.g., inferencing, reasoning, strategies) to make meaning from a text (Scarborough, 2001; Duke & Cartwright, 2021). The complexity of LC mirrors the multifaceted nature of its instruction.

The three areas of instruction for LC (linguistic knowledge, non-linguistic knowledge, and mental processes) have been discussed in the field of literacy since the publication of the National Reading Panel Report in 2000. Over two decades have passed since this report and evidence has shown that poor comprehension instruction still dominates in classrooms. Recent media outlets and research publishers have aimed to shed light on poor comprehension practices such as the overemphasis of strategy instruction (e.g. Hanford, 2022; Wexler, 2019). Shanahan and colleagues (2010) wrote in a What Works Clearinghouse Practice Guide for comprehension that strategy instruction can be described as explicit instruction in how to organize one's thoughts before, during, and after reading, as well as how to monitor one's understanding if the meaning of the text breaks down. Shanahan and colleagues (2010) as well as Duke, Ward & Pearson (2021) have provided evidence that instruction in before, during, and after reading strategies are helpful for students but are often narrowly focused and outcomes are only short term. Research emphasizes the importance of centering the focus of instruction on the meaning and content of the text, and not on the strategies used to organize thoughts.

Three Areas of Language Comprehension: Non-linguistic Knowledge, Content Knowledge, and Vocabulary

Arguably the most crucial knowledge to learning language is content knowledge, also referred to as world knowledge or core knowledge. Content knowledge is the key concepts and principles of social studies and history topics. Research has confirmed that students' understanding of content knowledge heavily influences their reading comprehension (Hwang & Duke, 2020; Cabell & Hwang, 2020; Duke, Ward, & Pearson, 2021). The importance of word meaning and vocabulary knowledge to comprehension is also widely documented in research (Nagy & Townsend, 2012; Moats & McKeown, 2004). Even if students have sufficient decoding skills and strategically use comprehension strategies, if they do not know the concepts and vocabulary words in the text, they will struggle to make meaning and inferences from what they are reading. Recht and Leslie's (1988) often cited baseball study supported the idea that prior knowledge of the content of the text is a crucial factor in comprehension. They found that students with high prior knowledge of baseball, even those with poor reading skills, outperformed students with strong reading skills but little baseball knowledge. This demonstrated that having a solid foundation of knowledge about a topic can significantly enhance one's ability to understand and remember information from text.

Linguistic Knowledge: Language and Text Structures

Despite having strong decoding skills, content knowledge and adequate vocabulary, students still need to develop a solid understanding of both language structure (knowledge at the word, sentence, and discourse levels) and text structure (e.g., genre elements). This knowledge pertains to how the text is organized, how sentences are arranged and the author's deliberate word choices to create meaning. This deeper level of word, sentence, and organization knowledge allows readers to grasp the meaning and relationships within the text. Language structures, how the sentences in the text are organized, includes the domains of semantics and syntax. This includes analyzing the author's word choices and their meanings (semantics) as well as how the sentence is structured grammatically (e.g., adjectives, alliterations). Students must develop an understanding of how sentences are structured in grade level texts and how authors make choices about the structure of sentences to accurately comprehend at the sentence level.

In combination with the organization of the individual sentences, students also need to understand how the text is organized as a whole. Text structure refers to "the way information is organized and sequenced within a text" (Altinok & Taskin, 2021, p. 18). Text structure instruction explores the different organizational patterns used in different genres. This includes analyzing how fiction texts are structured with character, setting, problem, plot, resolution, and theme. Organizational patterns in informational texts include description, sequence, problem/solution, cause/effect, and compare/contrast. Text structure also included knowledge about genres. Genres depend on the social purpose of a text, follow predictable stages, and influence the types of language structures in the text (Hanson, 2022). Exposure to diverse genres and fostering discussions about their unique features can significantly enrich young readers' understanding of text structures.

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Table 1

Details of Each Repeated Read

	Aim	Question Focus	Example Questions
1st Read	Introduce the topic, give needed content knowledge and vocabulary words, explicitly address complex sentences *(i.e. Content knowledge)* **Read**: Whole text	Focus on a literal understanding of the text's meaning, central themes and ideas	What was the main idea? What was the central conflict in the story? Why did the character _?
2nd Read	Focus on the smaller details of the text, give repeated exposure to vocabulary words *(i.e. Linguistic knowledge)* **Read**: Portion of text	Analyze author's choice of words, sentences, and text organization (e.g. syntax, genre, story/text features) and how these choices connect to the meaning of the text	What does the word __ mean in this story? What does ___ mean in this sentence? What were the story's elements? How was this text structured?
3rd+ Reads	Identify deepest meaning of the text, use higher-order mental processes to make inferences *(i.e. Mental processes)* **Read**: Reread whole text or a portion of text	Make inferences about implicit or subtle ideas, interact with the text through writing, utilizing graphic organizers	What did the author mean by____? Why do you think the character ____? What would have happened if _____?

Mental Processes: Reasoning and Strategy Use

Students need to receive instruction on a variety of topics that pertain to language, such as knowledge about world facts and cultures, the meaning of words, and knowledge of syntax, genres, and text structures. However, instruction exclusively in these areas will be insufficient for adequate comprehension of text. It is important to note that students can learn extensive amounts of knowledge in these areas as early as preschool. However, research has shown that students need to develop mental reasoning processes to effectively utilize the knowledge they have about language, as well as have a wide variety of strategies to help them organize their learning. The Active View of Reading model explains that several mental reasoning skills contribute directly to reading and should be modeled explicitly, including cognitive flexibility, inhibitory control, working memory, planning, and attentional control (Duke & Cartwright, 2021). The Active View of Reading model also emphasizes comprehension strategy instruction that fosters students' abilities to use mental reasoning and inferencing skills. Comprehension strategies are "deliberate, goal-directed attempts to control and modify the reader's efforts to decode text, understand words, and construct meanings of text" (Duke & Cartwright, 2021). Okkinga et al. (2018) showed that teaching comprehension strategies improve reading, even in young students, in students with learning disabilities, and whole-class formats. The authors found evidence for strategies that included predicting, activating prior knowledge, setting a purpose for reading, self-quotations during reading, summarizing, inference, and self-monitoring. Wright and Cervetti (2016) highlight the importance of teaching students flexible use of diverse strategies for comprehension rather than focusing solely on a single strategy at a time. It is important to note that Wright and Cervetti assert that strategy instruction, although found to be useful for aiding mental processing, should not be overemphasized in the classroom or taught in isolation.

Repeated Text Discussions: A Strategy for Teachers

Students need explicit instruction in content knowledge, linguistic knowledge, and mental processes in order to meet grade level reading comprehension goals. However, classroom instructional activities often ineffectively cover these three domains. Comprehension instruction is nuanced and

complex. Teachers are often left feeling unprepared to write lesson plans and prepare activities that address all the needed skills for comprehension. This section will describe the Repeated Text Discussions (RTD) strategy that effectively engages students in all three domains of knowledge needed for comprehension addressed in the sections above. The RTD format was first proposed by the Virginia Literacy Partnership (Virginia Literacy Partnership, 2024).

Building Text Sets

In RTD, texts are read, and discussions are had between teachers and students and amongst the students. The texts utilized should range between simple and very complex. Tim Shanahan's (2013) *Beginners Guide to Text Complexity* provides rubrics for fiction and nonfiction texts that gauge a text's complexity based on five factors; layout, purpose, structure, language features, and knowledge domains. Many states have passed curriculum requirement legislation since the SoR movement, so educators could have access to text sets through newly adopted curricula that follow a thematic unit and already include complex texts. For schools that do not have access to already-curated text sets, educators are advised to build sets of three to four texts that range between "somewhat simple" and "very complex" (according to Shanahan's rubrics), that match a content theme in science or social studies (e.g. habitats, countries). This cross curricular planning will ensure literacy instruction is "content literacy instruction", meaning it teaches content knowledge as well as literacy knowledge– a crucial factor for meeting both content knowledge and literacy knowledge tenets of comprehension. Kim and colleagues (2021) experimentally studied content literacy instruction in 10 first grade classrooms and found the complex, thematic text sets in the units developed students' comprehension levels and content knowledge. Generating effective text sets is a crucial factor for the effectiveness of the RTD strategy and should be heavily considered.

Developing the Guiding Questions

RTD is what the name suggests– repeated readings of the same text with a discussion. The number of repeated readings, typically ranging between two and four, are at the discretion of the educator. The goal is to choose a different skill to focus on for each reading. Typically, the first read focuses on content knowledge and vocabulary, the second read focuses on linguistic knowledge, and the third read focuses on mental processes, but this procedure can be altered. This strategy can be used to introduce a skill, or used to practice skills already learned, and can be done at all grade levels K-12. Table one outlines the aim of each read and some examples of guiding questions that can occur during each read of the same text.

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The Discussion

Discussing the text is essential for LC development, especially in early readers, because the focus is on understanding the language of the text. Discussions can be facilitated as a whole class or in small groups. Introducing the text and its content knowledge topics and vocabulary words can often be more effective in smaller groups. Discussions can be enhanced with videos, graphics, and organizers. Teachers should balance their speech with student speech with the educator explicitly teaching content and vocabulary and students discussing with their peers. Discussions occur before, during, and after each reading of the text. When planning a text set unit, educators locate predetermined stopping points in the text where they will engage in a discussion about the chosen guiding questions, utilizing both teacher to student talking, and student to student talking.

The Extension

After a predetermined amount of repeated readings (typically between two and four) of the same text, and engaging discussion about the text's meaning, sentences, structure, and implicit inferences, the student will engage in an extension activity to develop deeper comprehension. Research has shown that engaging in writing about the text is highly supported by scientific evidence. Duke, Ward, and Pearson (2021) summarized recent meta-analyses that:

> "Compared the effects of different kinds of writing activities on reading comprehension [and] found that engaging students in extended writing activities improved their reading comprehension more than question-answering (Hebert, Simpson, & Graham, 2013) ...and literacy instruction that balanced reading and writing significantly improved students' reading comprehension (Graham et al., 2018)" (p. 668).

Educators can engage students in a multitude of writing activities that engage them with the meaning of the text

such as filling out graphic organizers, writing opinion pieces on their perception of the text, and writing argumentative pieces on their agreement or disagreement with the author's syntax or semantic choices. Students can write nonfiction summaries, create posters or presentations (including digital) of the content knowledge they learned from the text. They can write letters to local organizations detailing what they learned and how they would like to advocate for change through the organization. Students can create a writing piece on their own topic of interest or based on their own narrative using the text as a guide for the genre. The creative writing ideas are limitless when educators base extension activities on content and linguistic knowledge learned from RTD.

Conclusion

With practitioners in mind, I attempt to address the nuanced complexity around comprehension instruction. With the SoR movement influencing many states to create literacy initiatives that incorporate research proven instruction, it's crucial for teachers and teacher educators to understand models of reading. Models such as the Active View of Reading, and the Interactional Model of Reading explicate multiple strands of literacy skills and knowledge needed for reading comprehension. Teachers should be well-versed in the three areas of knowledge addressed in these strands-linguistic knowledge, non-linguistic knowledge, and higher-thinking mental processes. Teachers should also be well versed in teaching strategies that effectively embed all three areas of knowledge. Repeated Text Discussions use repeated readings of the same text, with a different focus during each read. The first read typically covers the whole message of the text, and the second and third readings use a portion of the text that allows the teacher to focus on specific linguistic or content knowledge skills, or mental processes. Each read of the same text enforces the vocabulary used in the text and gives students important fluency exposure. Teachers should consider using this teaching strategy to effectively embed each strand of reading comprehension.

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Expanding our Vision: Using RAN to Identify Struggling Readers Earlier

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In 2022, the National Assessment of Educational Progress (NAEP) found only 32% of fourth-grade students performed at or above the proficiency level on the NAEP assessment in reading. (NAEP reading report card, 2022). Research shows that children reading below grade level at the end of third grade rarely close the achievement gap (Hernandez, 2012). In the primary grades, teachers have a responsibility to identify struggling readers and, most importantly, design highly effective interventions to close this gap. Beginning with the 2024-25 school year, the Virginia Literacy Partnership (VLP) updated the Phonological Awareness Literacy Screening (PALS) to the Virginia Language and Literacy Screening System (VALLSS). One component of the VALLSS for students in kindergarten through third grade is a subtest of rapid automatized naming (RAN). Including this subtest has exciting implications for early identification of struggling readers. The practical application for teachers is that RAN can be assessed early, before letter-sound or phonological awareness (PA) instruction begins. RAN scores support prediction of a child's future reading ability and inform the needed intensity of early intervention. It provides a path forward for intervention planning in Pre-K to first grade. The VLP states that screening students earlier will help teachers identify students with weak literacy skills and allow them to provide more intense and targeted instruction (Biel et al., n.d.). The authors of this article will define RAN, give examples of RAN assessments, discuss RAN's importance according to research and practical applications, and, finally, give do's and don'ts when it comes to applying RAN information to the classroom.

A Definition and an Example

Rapid automatized naming (RAN) is the ability to quickly name familiar information such as letters, colors, objects, or numbers. If assessed early, it is a strong predictor of future reading difficulties (Kilpatrick, 2015; Nadiyah, et al., 2022). The items in the screener are arranged in an array that repeats. Students are required to read aloud from left to right and top to bottom as quickly as possible, similar to reading a text. Objects and colors are primarily used with younger children in pre-K and kindergarten who have not yet mastered the alphabet or number identification. A critical component of test administration is that the items in the array are over-learned stimuli. This means the students know them with mastery. If the student has not mastered the items they are naming for the assessment, then the test is measuring identification instead of rapid recall and naming of the items. The relationship between object and color naming tasks is not as closely related to future reading as alphanumeric tasks (number and letter naming). A possible reason is that alphanumeric tasks more closely imitate reading (Norton, 2020).

Importance and Application to Practice

It is important to note that RAN is more accurate at predicting future reading difficulties in younger children (pre-kindergarten/first) and becomes less relevant beyond second grade (McWeeny et al., 2022). The relationship between RAN and future reading is unidirectional. Early reading skills do not necessarily predict later RAN skills, but RAN can predict reading growth when measured before reading instruction begins (Kilpatrick, 2015). Additionally, PA and orthographic processing impact the RAN-reading connection. PA is crucial for early reading development but, as children progress, orthographic processing skills become increasingly important (Papadopoulos et al., 2016). Teachers can assess RAN early and use this data to predict a child's reading trajectory to plan effective interventions.

As previously stated, early assessment informs intervention planning. Adding a RAN subtest gives critical information about how well a child will respond to intervention and how intensive it should be. Furthermore, the subtest can explain why a child is *not* responding to intervention. While working on RAN as an isolated skill has not been shown to improve future reading, the best way to improve RAN and word reading is through intensive work with phonological awareness (PA) and phonics skills. When a child with low RAN has

strong PA and phonics skills, strength in those foundational areas will support their reading (Kilpatrick, 2015).

Multiple studies have shown the importance of using RAN to predict future reading difficulties (McWeeny et al., 2022; Nadiyah, et. al, 2022; Norton, 2020). Additionally, a study conducted by Ozernov-Palchik, Norton, Sideridis, Beach, Wolf, Gabrieli, and Gaab illustrated how a RAN score provides more information than a PA score alone. This two-year, longitudinal study included 1215 pre-kindergarten/kindergarten students. It assessed their IQ, PA, verbal short-term memory, RAN, and letter-sound knowledge.

Based on the findings, those at risk for reading failure fell into three categories: PA risk, RAN risk, or a double-deficit risk. The study had two interesting conclusions. First, those with a RAN risk were considered proficient in all other areas. Had it not been for an at-risk RAN subtest score, these students might not have been identified for remediation. In fact, students with RAN risk later scored lower on reading skill tests than students with only PA risk. Second, those with a double-deficit risk were the students who went on to struggle the most with reading. If RAN had not been assessed, students with the double-deficit would have been grouped with the PA risk group. RAN adds the additional flag to indicate that a child needs more intensive intervention. This study supports the conclusion that a low PA score is not enough to determine the intensity of remediation a student needs to become a proficient reader. A RAN subtest is critical to catching students whose only deficiency is in RAN as well as students with a double-deficit in RAN and PA. Both groups will need more intensive interventions than those with a PA risk alone. Of the RAN risk and double-deficit groups, the double-deficit group needs the highest intensity intervention (Ozernov-Palchik et al., 2017; McWeeny et al., 2022).

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A Case Profile

The following is one author's experience with administering a RAN assessment and how its results identified student deficiencies that were not readily apparent with standard PALS results. In fall of 2023, Forman administered a RAN assessment to 10 first grade students who were reading at a Readiness reading level on PALS. The additional RAN assessment identified students "at risk" who would require intensive phonological awareness and phonics instruction throughout the school year. Interestingly, the PALS assessments in kindergarten had not identified these students as being at risk for future reading difficulties because their deficiencies were not in letter sound knowledge or phonological awareness. The addition of a RAN assessment indicated that while these students may not have been identified as needing intensive reading support in kindergarten their RAN deficiency identified in first grade indicated a need for intensive phonics and phonological awareness support to mitigate any potential reading difficulties in the future.

Throughout the 2023-2024 school year, there was a significant difference in the progress of the students with RAN risk, versus those without a RAN risk. Those with the RAN risk struggled to make progress in oral reading fluency and were impacted by the inability to quickly recall high frequency words and letter sounds when decoding. The classroom teacher's instruction focused on intensive phonics and phonological awareness such as daily use of Heggerty Phonemic Awareness (Heggerty& VanHekken, 2022) the University of Florida Literacy Institute (UFLI) phonemic awareness materials (UFLI, 2023), teaching high frequency words using the Institute of Multisensory Education (IMSE) techniques, reading decodable text, and constantly spiraling back to review previously learned phonics patterns and high frequency words. Additionally, the classroom teacher focused on bolstering students' self-confidence and motivation through praise and intrinsic motivation.

During parent-teacher conferences, the classroom teacher explained the RAN assessment, its results, and potential impact on a child's future reading abilities. This dialogue between families and primary grade teachers is critical to keep families informed and recognize the importance of early literacy interventions focused on phonics and phonological awareness. Teachers themselves need to understand how to interpret RAN results, use the results to inform instruction, and how to explain risk scores to families. RAN-risk results could be a surprise to families whose children met the kindergarten and first grade PALS benchmarks. Families must be made aware their child might potentially struggle with reading in later grades, and understand the importance of intensive phonics and phonological awareness interventions.

Research shows the best way to improve RAN is to strengthen a child's PA.

Limitations and Implications

Whereas much is known about RAN and its correlation to a child's responsiveness to reading interventions, there are still unknowns. First, and most notably, there is no known way to target improving RAN that also has a positive effect on reading. For now, research shows the best way to improve RAN is to strengthen a child's PA (Balci, E. (2020); Kilpatrick, 2015; McWeeny et al., 2022). There are no known RAN specific interventions. It is important for teachers to be aware of this limitation so precious classroom time is not wasted practicing RAN skills that will not translate into improved reading. Second, researchers are still learning exactly how RAN impacts reading and its relationship with working memory (Kilpatrick, 2015; Norton, 2020). The addition of RAN to statewide literacy screeners provides an exciting opportunity for more educators to learn about the powerful information this subtest can provide, and it is equally important to understand the limitations. When PA and phonics skills are strong, less cognitive energy is needed for applying those skills to word recognition. That means more cognitive energy will be available for reading (i.e., rapidly naming) words with automaticity. Thus, reading with greater automaticity, along with language comprehension, results in better reading comprehension. The latter being our ultimate goal for readers.

Conclusion

Rapid Automatized Naming (RAN) is one of many skills needed for proficient reading. It is an important tool used to flag at-risk students earlier, even before formal literacy instruction begins. Doing so allows reading interventions to mitigate future reading struggles. Highly effective reading instruction and interventions are important for all students, but especially the students whose only chance of learning how to read is at school. If a student is identified as having poor RAN scores, the intervention team immediately has data to support the implementation of intensive intervention to strengthen their PA and phonics skills. Early identification and intervention, informed by RAN scores, can help close the achievement gap for more of our learners.

Highly effective reading instruction and interventions are important for all students, but especially the students whose only chance of learning how to read is at school.

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Journey to Understanding: Enhancing Reading Comprehension in Secondary Students: A Teaching Strategy to Embed the Strands of Language Comprehension

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As students transition from the elementary to the secondary grades they encounter more cognitively demanding tasks in relation to their vocabulary, background knowledge, and understanding of complex texts (Wanzek, 2013). Students are expected to read topics of which they have no knowledge, in a format they are not familiar with and with vocabulary they might not have encountered (Donegan et al., 2021). From third grade and later, students are no longer in the learning-to-read stage, but rather in the reading-to-learn stage and require more advanced comprehension skills to aid in their development of reading as well as in the academic success of their other content areas (Peng et al., 2024). The effect of reading success transcends their schooling and directly influences their employment, health, and longevity (Peng et al., 2024).

The objective of this article is to identify effective reading comprehension strategies for middle school students who struggle with reading, despite having strong decoding skills. It aims to provide practical guidance for educators to enhance their instructional methods, improve students' comprehension abilities, and ultimately boost their academic performance on assessments.

The Challenge

Background

It is estimated that about 5% to 10% of the school-aged population are at risk for significant reading difficulties (Peng et al., 2024). One of the greatest challenges that many secondary reading specialists face is deciding which reading interventions to provide in order to improve the reading comprehension of these struggling readers (National Reading Panel, 2000). This is a question that is often asked especially after reviewing low scores on district and state standardized tests. Furthermore, numerous secondary content teachers also struggle with providing reading comprehension instruction in their classrooms and lack the professional knowledge and training in literacy (Ness, 2016).

Context

The impetus for my exploration of effective reading comprehension instruction was based on the below average performance of my seventh-grade students on their district and state reading assessments for the current academic year. Despite all but two students having accurate and automatic decoding, they were not making the progress that I was anticipating from my instruction. Although the school year was about halfway complete, I needed to research what could be done to help improve their reading comprehension that could be reflected in their end of year reading assessments.

Findings: Strategies and Tips

The following five tips are what I found to be the most helpful and promising based on research on reading comprehension and were able to incorporate into my instruction for the remainder of the school year:

1. Focus on a smaller number of strategies taught, preferably the combination of main idea, text structure and retell.

Reading comprehension strategies are intended to reduce the cognitive load and help the comprehension process. However, learning and applying these strategies can be cognitively demanding (Peng et al., 2024). Peng et al. (2024) found that no single strategy is "the most important", instead the combination of related strategies interact to produce different effects. Furthermore, teaching the strategies of main idea, text structure and retell was found to be the most effective in optimizing the cognitive load and improving instruction (Peng et al., 2024).

Towards the end of the school year, I updated my approach to focus on teaching text structure, self-monitoring, and retell/summarization while reading. As a result, some of my students were better able to self-monitor their understanding and recognize text structure while

reading as evidenced by classwork discussions and improved formative assessments. I intend to continue developing and applying this approach for the upcoming school year.

2. Combine the application of reading strategies with background knowledge for greater success in reading comprehension.

Reading comprehension is a complex skill. Drawing on background knowledge to make connections helps avoid overloading working memory and enhances the effects of comprehension strategy instruction (Peng et al., 2024). Background or content knowledge is crucial for understanding a text, as it allows information to be stored together, freeing up space for new information to be learned from the text (Cabell & Hwang, 2020). Without background knowledge, the reader needs more time and working memory to make sense of different parts of the passage to better understand it as a whole (Peng et al., 2024).

Review and front loading a topic has been an effective approach to include background knowledge with my reading comprehension strategy instruction. Often, when planning ahead, I select articles on topics that students are familiar with or have been taught in their content classes, such as history or science, so the focus can be on applying strategies. When teaching an unfamiliar topic, I often include a YouTube video or other engaging content combined with class discussion at the beginning of the lesson to provide students with background knowledge. This allows the focus to be on applying comprehension strategies rather than trying to understand the new topic and related vocabulary.

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3. Strategy instruction should be explicit, including teacher and/or student modeling of the strategy in action, linking its application in a text, and nurturing metacognitive skills.

Instruction should include explicit explanations, think-alouds, modeling or demonstrating, and guided and independent practice on how these strategies can be used to improve understanding both in the context of a lesson and in other reading situations (Duke & Pearson, 2002; Duke, Ward & Pearson, 2021; Magnusson et al., 2018). Furthermore, repeated exposure to different strategies will not guarantee that students become good readers who are able to comprehend. Instead, explicit instruction and integrating cognitive skills through various learning opportunities will bring them closer to that goal (Magnusson et al., 2018).

Scaffolding instruction has been extremely successful in my teaching. Crucial to this success has been the inclusion of think-alouds and modeling, allowing students to see how the thought process operates while reading. Additionally, it cannot be assumed that students know how to use the knowledge presented to them. One of my past mistakes was not providing enough opportunities for students to connect and apply the taught strategy, reinforcing that these strategies are tools to comprehend text, not just activities.

4. Establish a "Comprehension Routine" with a common label to remind students of the next steps in their reading process.

Establishing a comprehension routine that includes a "package" of strategies, reviewing how, when, and why to use them while reading, can be beneficial for readers with current and future texts alike. This is especially true when there is a "common label" for the routine that reminds students of the next steps in their reading process (Duke & Pearson, 2002; Magnusson et al., 2018).

I hope to fully implement a comprehension routine strategy in the coming school year. To help students remember the recommended steps and strategies they will be learning and applying, the acronym SMART will be used. This strategy could help students become more engaged and take responsibility for their own reading comprehension. After instruction and application, students will be asked if they are being a SMART reader:

one can't assume that students are aware of the cognitive processes and strategies that are needed to comprehend what their more complex texts.

Set Goals: Establish clear objectives for what you want to achieve while reading.
Monitor: Keep track of your understanding as you read, adjusting strategies as needed (this could also be combined with find the main idea).
Annotations: Make notes or highlight important information to engage with the text actively.
Retell: Summarize the main points in your own words after reading to reinforce comprehension.
Text Structure: Recognize the organization of the text to make it more understandable and memorable (Duke & Pearson, 2002).

5. Visually display your strategies for quick reference and reinforcement using graphic organizer anchor charts or posters.

Text structure in expository passages is usually more complex and cognitively demanding than the narrative structures students encountered in elementary school (Donegan et al., 2021). Ideas in expository texts are arranged to reflect relationships such as cause and effect and compare and contrast (Merkley & Jefferies, 2000). Graphic organizers provide a means to visually display these relationships and connections among ideas and help facilitate reading comprehension. Additionally, comprehension can be further enhanced when the graphic organizers are partially created by students as a during or after reading activity (Merkley & Jefferies, 2000).

After reviewing and practicing how to identify different types of text structures with various nonfiction reading passages, I had my students work in pairs to create text structure graphic organizers. They defined the relationship of ideas both visually and in words on poster paper, which I hung around the room. These posters served as great reference points and reinforcement throughout the year whenever students had questions about text structure and needed to identify the author's purpose and relationship of ideas.

Conclusion

Summary of Key Points

As students transition into middle school, they also encounter a transition in the types of text they read. Many of these texts are complex and one can't assume that students are aware of the cognitive processes and strategies that are needed to comprehend what their more complex texts. Important to consider in reading strategy instruction are the factors of the student's decoding ability along with the background knowledge of the student. As to which strategies to consider, recent research has found that more is not always better and choosing a few key strategies and placing them into a "comprehension routine" can be most effective. Finally, best practices of explicit instruction along with scaffolding, think alouds and modeling during the application can ensure the best understanding and transfer of knowledge.

Teacher Professional Development and Collaboration

Enhancing teacher professional development is crucial for improving the quality of reading comprehension instruction by classroom educators, as research indicates a positive link between professional development, teachers' knowledge, and students' reading achievements (Hudson et al., 2023). Collaboration among literacy specialists and classroom teachers on the topic of effective reading comprehension instruction through additional school or district-based offerings could be a means by which a common vision and responsibility for literacy development can be spread to all content areas. Considerations can include in-person or asynchronous trainings covering recent research, videos of master teacher implementation, in addition to classroom visits.

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Remediating Decoding Ability and Language Comprehension in Secondary Students: A Retrospective Case Study

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The U.S. Department of Education has been administering the National Assessment for Educational Progress (NAEP) to track the nation's reading scores for school-aged children since 1979. Except for one state, America's reading scores have not substantially increased for over 50 years (NAEP, n.d.). In 2013, Mississippi overhauled the state's reading curricula to align with the body of academic literature known as the science of reading (SOR). In 1998, only 17% of fourth-graders in Mississippi were reading at a proficient or advanced level; however, by 2022, this number increased to 31%, and the nation took notice.

Like Mississippi, other states are making similar changes and aligning their curricula with SOR. The three-cueing method of reading instruction is the major casualty of this shift. This article discusses how Virginia's policymakers are revamping K–8 reading instruction and how secondary students continue to be left behind. A brief overview of SOR literature and a retrospective case study of three secondary students who received reading remediation for decoding and language comprehension during the 2022–2023 school year are provided.

Virginia Revamping Reading in Grades K-8

Virginia passed the Virginia Literacy Act (VLA) in 2022 to improve reading proficiency for students in grades K-8. The Virginia Department of Education (VDOE) requires teachers and reading specialists to receive training in evidence-based practices and provides funding for one reading specialist per 550 students in K-3 public schools. Reading specialists will continue to provide Tier 2 and 3 reading interventions and lead K-3 educators in practices, policies, and training recommended by school, district, and state leaders. With these measures in place, students should be reading on level by the time they enter fourth grade and sit for the NAEP Reading Assessment; however, the VLA does not mandate any reading specialists beyond Grade 3.

To ensure Virginia educators are using effective, evidence-based instruction, the VDOE and Virginia Literacy Partnerships (VLP) have a list of Approved Core Instructional Programs, an Intervention Instruction Program Guide, and a Supplemental Instruction Program Guide for Grades K-5. Like the textbook adoption process, publishers must submit programs for evaluation, and program evaluations are conducted as a partnership between the VLP and VDOE. Intervention and Supplemental Instruction Program Guides are currently being developed for Grades 6-8 and the VDOE anticipates their deployment by local school divisions in the 2025-2026 school year.

There is a current population of struggling readers in the 9-12 grade setting taught by educators who may have received inadequate reading training.

What about Grades 9-12?

The VLA addresses the need for reading specialists in the K-3 setting and the need for implementing effective reading curricula aligned with SOR in the K-8 setting. However, a population of students is moving into the 9-12 grade setting who may not have received effective reading instruction and are not guaranteed to receive support from reading specialists.

Need for Effective Instruction for Struggling Readers in 9-12 Setting

Effective instruction requires educators who have received effective teacher preparation and school districts that provide a curriculum aligned with SOR (Moats, 2014; Washburn et al., 2016). In a review of elementary and secondary

teacher preparation programs conducted by the National Council on Teacher Quality (NCTQ), 78% of K-12 teacher preparation programs received an "inadequate" rating for their ability to train teachers to work with "struggling readers" (Greenberg et al., 2013, Fig. 14, p. 41). The NCTQ conducted a similar review a decade later focusing on elementary teacher preparation programs and there is still room for improvement. For example, in 2013 roughly 182 of 692 institutions evaluated (29%) earned an adequate score in Early Reading (Greenberg et al.). In 2023, the NCTQ found that roughly 173 of 693 institutions evaluated (25%) earned an adequate score in teaching the five core components of reading instruction, 401 of 693 institutions (58%) provided fewer than two instructional hours supporting struggling readers, and 561 of 693 institutions (81%) provided no practice opportunities for teaching struggling readers (Ellis et al., 2023).

Both reviews (Greenberg et al., 2013; Ellis et al., 2023) demonstrate there is a current population of struggling readers in the 9-12 grade setting taught by educators who may have received inadequate reading training; additionally, this population of struggling readers is unlikely to decrease if teachers are not better prepared. The VDOE is addressing the shortcomings of teacher preparation programs by providing mandatory trainings for public school educators (e.g., elementary educators, reading specialists, middle school educators, special educators, and English Learner educators). In partnership with the VLP, the VDOE is offering a free microcredential in reading education upon the completion of an SOR curriculum.

The VLP and VDOE's Core Instructional Program (CIP) Review assesses program materials submitted by publishers to be evaluated for use in grades K-8. This CIP Review consists of two phases. Notably, the only non-negotiable requirement for curriculum selection in Phase 1 is "that the curriculum does not require or encourage three-cueing. … If the program receives a score of 'does not meet expectations' on this indicator … the program will receive the overall rating of 'does not meet expectations" (VDOE, 2022, p. 3). Some researchers (Hempenstall, 2003; Tunmer et al., 2002) have suggested that students who are exposed to three-cueing instruction (e.g., meaning, sentence structure, and visual information) while they are learning to decode show a *decline* in reading ability as three-cueing instruction interferes with phonetic decoding. The VLA policymakers concur with the SOR—three-cueing reading instruction is ineffective and go a step further by *prohibiting* the use of any curriculum that promotes three-cueing reading instruction. Thus, the VDOE is taking measures to prevent further potential decline in phonetic decoding ability in students in grades K-8.

Currently, 63% of high school seniors are not proficient readers.

Need for Intervention Apparatus in Grades 9-12

Unfortunately, the VLA does not address the needs of secondary students or attempt to rectify the learning loss caused by years of poor reading instruction (e.g., three-cueing). While specific intervention training and curricula are guaranteed for the K-8 population, the VLA neglects to address the needs of 9-12 grade students. According to Archer et al. (2003) students with poor reading ability are:

1. More likely to struggle in secondary coursework
2. More likely to drop out of school when given the first opportunity
3. Less able to obtain employment that supports themselves and their families as adults
4. More likely to have social/emotional challenges as adults
5. Less able to participate in post-high school educational training programs at technical schools, community colleges, colleges, and universities. (pp. 90-91)

Low reading performance is impacted by outside factors (e.g., mental health, cognitive ability, trauma, attendance, and socio-economic status); however, the U.S. education system is responsible for the quality of education students receive (elementary, secondary, and post- secondary) and how to distribute funding for effective programming. The United States.needs to improve reading education for elementary and secondary educators. Struggling readers are promoted to a secondary setting without the necessary reading interventions to improve.

Currently, 63% of high school seniors are not proficient readers (NAEP, 2019b). Unlike K-3 students, secondary students are unlikely to have access to a reading specialist (Francis & Rearick, 2009). Reading intervention is rarely provided in the secondary setting unless learning disabled students are receiving special education services or English learners are receiving English language learner services. Table 1 reveals the percentages of proficient and nonproficient readers in Grades 4, 8, and 12 (NAEP, 2022a, 2022b). These percentages demonstrate that nonproficient readers do not improve without intervention. With a 50-year stagnancy in reading scores, it is unclear why policymakers and schools are not also addressing the need of secondary students.

Table 1

Percentage of Proficient, Basic, and Below Scores on 2019 NAEP Reading Assessment (NAEP, 2022a, 2022b)

Grade	% Proficient	% Not proficient	% Gains/ losses
4	35	65	--
8	34	66	+1
12	37	63	-3

What Works for Struggling Readers in a 9-12 Setting?

Unlike younger students, secondary students need to receive a one-on-one reading intervention or small-group instruction instead of whole-group instruction (Kamil et al., 2008). School leadership should consider providing the student with one-on-one instruction when a high school student needs to receive foundational reading instruction (i.e., remediation in phonological awareness and decoding). Providing emerging readers with one-on-one instruction can speed up recovery and prevent the student from experiencing perceived social awkwardness associated with reading so far below same-aged peers (Kamil et al., 2008).

Policymakers should be considering more than one reading specialist per 550 students at the secondary level. In addition to the current lack of reading specialists in secondary settings, secondary educators do not receive training in foundational reading instruction. When secondary educators make statements like, "It's not my job to teach kids to read," they are referring to the large population of students who struggle with foundational reading skills—not students who struggle with text features in a textbook or have difficulty with more advanced comprehension strategies (e.g., making inferences, comparing and contrasting, etc.). Three methods of effective reading remediation include multisyllabic reading interventions (Archer et al., 2003), teaching phonics (Pikuski & Chard, 2005), and repeated reading (Lee & Yoon, 2017). Secondary teachers should receive training in multisyllabic reading interventions and repeated reading as these are interventions that can occur in a small group setting; however, local school divisions should provide a reading specialist to provide one-on-one interventions with students who need to improve foundational reading skills (e.g., phonics).

If 66% of American eighth-grade students are not proficient readers, they will be unable to handle the demands of disciplinary literacy in high school courses. If 63% of American 12th-grade students are not proficient readers, they will struggle with demands in the workforce and postsecondary education. This gap in reading proficiency in secondary learners cannot be ignored by educators or policymakers.

Understanding SOR

Phonological awareness, phonemic awareness, and phonics are essential foundational reading skills. Phonological awareness starts to develop *in utero* and refers to one's auditory ability (Moon et al., 2012); consequently, the quantity and quality of language exposure during the first four years are predictive of reading outcomes in later years (Lundberg et al., 1988). People with strong phonological awareness should be able to manipulate onsets and rimes and identify sounds and syllables within a word. The phonological processing pathway is activated to decode (i.e., read) and encode (i.e., spell) words. Unlike phonics, phonological awareness instruction consists of activities that could be performed in the dark as the focus of instruction is on auditory discrimination (National Reading Panel [NRP], 2000). Emerging readers can practice phonological awareness activities by segmenting syllables in spoken words (e.g., asking the student to lay down chips when they hear a chunk) and identifying onsets and rimes. Phonemic awareness is part of phonological awareness that requires explicit instruction in blending, segmenting, and phoneme manipulation in spoken words (NRP, 2000). Phonological awareness and phonemic awareness are precursors for learning the alphabetic principle (i.e., the concept that certain sounds correspond with certain graphemes, known as letter–sound correspondence), as auditory discrimination is needed to segment sounds in words and segment words into syllables (Vandervelden & Siegel, 1995).

Phonics instruction explicitly introduces and reinforces the application of the alphabetic principle. Phonics instruction starts with the basic code (i.e., one sound to one grapheme) and progresses to advanced code (i.e., one sound to multigraphs). Readers use letter–sound correspondence to decode and encode for reading and spelling. When readers understand the alphabetic principle (i.e., a grapheme or multigraph represents a sound) and apply this principle to reading, visual memory is freed up for learning multigraphs, special endings, and blending multisyllable words (Ehri, 2014). Therefore, a strong foundation of phonological awareness, phonemic awareness, and alphabetics is necessary for students to be able to read and spell with fluency.

Interplay Between Decoding and Language Comprehension

These foundational skills have a reciprocal relationship with language comprehension (i.e., oral language, vocabulary,

and background knowledge), and both are needed to support orthographic mapping. Automatic word recognition does not occur by rote memorization; it is a function of orthographic mapping. Ehri (2017) described orthographic mapping as a relationship between symbols, sound, and meaning. When reading, two cognitive mechanisms are activated: the phonological processing pathway (i.e., the pathway that connects the symbols to the sound and enables a reader to blend the sounds into a word during decoding) and the semantic processing pathway (i.e., the pathway that connects the word to its meaning during word recognition). Once those two pathways are activated, orthographic mapping occurs, and the reader accurately decodes and recognizes the word and its meaning (Ehri, 2017). Carey (1978) suggested that fast mapping (i.e., incidental word learning via initial context) occurs during a reader's first exposure to a word, while extended mapping (i.e., deeper knowledge of the word) occurs during subsequent exposures, thus establishing fluency.

Fluency refers to accuracy, automaticity (i.e., reading rate), and prosody (i.e., appropriate expression while reading). According to Rasinski (2023), fluency and reading comprehension have a moderate-to-high correlation (*R* = .45-.91), that is, as fluency increases so does reading comprehension. Thus, fluency acts as a bridge between decoding ability and language comprehension. Neural pathways become stronger every time they are activated; thus, repeated reading increases fluency. As word recognition becomes more automatic from decoding practice and oral language development, reading comprehension increases. Fluency also increases language comprehension. Wide reading exposes readers to new words (i.e., fast mapping) and expands background knowledge. Repeated reading reinforces vocabulary acquisition (i.e., extended mapping).

The Simple View of Reading

Reading comprehension cannot exceed a reader's decoding ability, nor will it exceed a reader's language comprehension. Gough and Tunmer's (1986) simple view of reading (SVR) suggests that reading comprehension can be calculated by multiplying decoding ability and language comprehension. Decoding and language comprehension are deeply connected. According to the SVR equation (i.e., D X LC = RC), if a student is decoding on level (1.0) and their language comprehension ability is below level (.75), then they will comprehend a text that matches their language comprehension ability (1.0 X .75 = .75). Although a reader can accurately decode unknown words, the lack of language comprehension hinders fluency and reading comprehension.

Fluency acts as a bridge between decoding ability and language comprehension.

For example, if a reader is decoding a passage that is heavy with unknown words, semantic processing will be overburdened—imagine reading a redacted document, then having to answer questions about the parts that are redacted. Readers also rely on meaning to accurately decode a word (Coppola, 2014). If a reader sees the word *lead*, in a sentence (e.g., They found lead in the water.) and has no background knowledge of the various meanings of the word, they may not accurately decode the word (e.g., they may decode *lead* in the verb form instead of the noun form), and the sentence will not make sense.

Impact of Decoding Ability on Word Recognition

According to the SVR equation (Gough & Tunmer, 1986), if a student is decoding below level (.75) and their language comprehension ability is on level (1.0), then they will comprehend a text that matches their decoding ability (.75 X 1.0 = .75). If the reader decodes inaccurately throughout the text, they will not understand what they have read. Two NAEP panels (Daane et al., 2005; White et al., 2021) analyzed the oral reading comprehension of fourth-grade students who participated in the NAEP Reading Assessment. The results revealed that students who struggled with decoding did not earn a proficient score.

Need for the Study

More studies are needed to assess how struggling secondary students respond to reading interventions focused on decoding. Scammacca et al. (2007) conducted a meta-analysis of 31 studies pertaining to reading interventions for adolescent learners. Eight of the 31 studies in the meta-analysis examined how a high school population responded to advanced reading skills interventions (i.e., interventions for vocabulary, fluency, and comprehension). Although results from the NAEP panel studies (Daane et al., 2005; White et al., 2021) demonstrated that students with poor word recognition did not score proficiently on the reading assessment, only *one* of 31 studies (Kennedy & Beckman, 1993, as cited in Scammacca et al., 2007) examined how a high school population responded to interventions focused on decoding interventions.

To explore the impact of providing reading remediation to

secondary students, the researcher/reading specialist intern presented data collected for three secondary students during the 2022–2023 school year. Henceforth, the researcher/reading specialist intern is referred to as the intern. The intern was employed full-time as an Alternative Education Reading Specialist in an urban school district in Central Virginia while completing their Master of Education, Reading Specialist endorsement program.

Method

A retrospective case study is an analysis of data collected during a specific period not initially intended for research (Street & Ward, 2010). Instead, the intern determined enough data existed to warrant an investigation after much of the data had already been collected. Therefore, this case study evolved from a data review. Several types of data were collected for this case study (see Table 2), including demographics (e.g., age, race, and learner characteristics), educational background, attendance during interventions (e.g., absences and suspensions), and test scores (e.g., pre-intervention, intervention, and post-intervention). Additionally, intervention strategies with the number of sessions, a record of mastery, and the duration of interventions are included.

Maya, James, and Amanda (pseudonyms) were enrolled in an alternative education setting in an urban school district in Central Virginia in which the intern worked during the 2022-2023 school. Maya and James have learning disabilities and Amanda has been referred to a Child Study Team for concerns related to dyslexia and auditory processing delay. Maya has a history of frequent absenteeism due to health-related issues and James has a history of frequent absenteeism due to suspensions. Amanda attended school for the first time at the age of 14 when she was placed in foster care due to extreme neglect.

Pre-Intervention

To establish a baseline, the intern administered the Basic Reading Inventory (BRI; Johns et al., 2017) to determine the students' oral reading ability (see Tables 4, 6, and 8) and the Phono-Graphix™ Test of Reading Subskills and Code Knowledge (McGuinness & McGuinness, 1998) to determine the students' foundational reading abilities (see Tables 3, 7, and 10). None of the assessments were timed. Maya was able to complete the initial foundational reading skills test and the oral reading comprehension test. James was able to complete the initial oral reading comprehension test; however, the intern was unable to conduct the foundational skills test with James due to his frustration. The intern was unable to establish a baseline of Amanda's oral reading comprehension, listening levels, and foundational reading skills because she was an emerging reader. If this study had been planned, instead of a review of data collected, the intern would have administered a listening level pre-assessment to Maya and James to track their language comprehension progress; unfortunately, this was unmonitored for this study.

Intervention

During the 2022–2023 school year, the intern administered one-on-one reading remediation to each learner in 30- to 45-minute sessions. The intern kept a log of student attendance and duration (see Table 2) as well as intervention strategies and skill mastery (see Tables 5, 8, and 11). The intern was not planning on using any of the data collected for an organized study; therefore, the intern used progress monitoring intuitively instead of systematically. When the intern noticed an improvement in a student's ability to decode and comprehend, the intern administered the BRI to assess the students' oral reading abilities (see Tables 4 and 9). For progress monitoring, the intern conducted two oral reading comprehension tests and one listening level test with Amanda as well as one oral reading comprehension test with Maya. However, the intern did not conduct any tests with James (see Table 2) due to the student's frequent lack of attendance. As the intern's knowledge of the SOR deepened during the 2022–2023 school year, they concluded it was necessary to collect Amanda's listening levels using the BRI; however, the intern was unable to obtain a pre- or during-intervention listening level for Maya and James as their intervention had ended before the intern realized the value of this test. Assessing a student's listening levels provides additional context for understanding a student's background knowledge and working vocabulary.

Post-Intervention

To determine overall growth, the intern compared students' initial BRI scores with final BRI scores; however, the intern did not conduct final foundational reading skills tests for any of the students. Mid-intervention, the intern conducted initial listening level tests for Amanda, so the final listening level score demonstrates her language comprehension growth after her first eleven sessions. Unfortunately, the intern did not collect initial listening level scores for Maya and James so there is no record of their language comprehension growth. The intern reflects on the use of systematic progress monitoring to improve interventions in the discussion.

Maya

Maya is an 18-year-old African American female who attends an alternative education school for academic reasons.

Table 2
Data Collection for Retrospective Case Study

Data collected	Maya	James	Amanda
Demographic	• *age*: 18 • *race*: African American • *learning disability*: Other Health Impairment & Intellectual Disability	• *age*: 18 • *race*: African American • *learning disability*: Emotional Disturbance Disorder	• *age*:16 • *race*: African American • *learning disability*: referred to Child Study Team
Educational Background	• alternative education setting • history of absenteeism due to poor health	• alternative education setting • history of suspensions due to behavior	• alternative education setting • history of neglect/ trauma • attended school for the first time at age 14 • foster care
Attendance During Intervention	• *absences*: 1 • *suspensions*: 5	• *absences:*7 • *suspensions:* 9	• *absences:* 3 • *suspensions:*0
Pre-Intervention	• initial foundational reading skills test (Table 3) • initial oral reading comprehension test (Table 4)	• initial oral reading comprehension test (Table 6) • unable to complete foundational reading skills test as student was frustrated	• unable to determine initial oral reading comprehension or listening levels (Table 9) • did not attempt foundational reading skills test
Intervention	• oral reading comprehension test (Table 4) • intervention strategies with # sessions & record of mastery (Table 5) • duration of interventions: 7-9 hours	• intervention strategies with # sessions & record of mastery (Table 8) • duration of interventions: 4-6 hours	• foundational reading skills test after 9 sessions (Table 10) • 2 oral reading comprehension tests (Table 9) • initial listening level test after 11 sessions (Table 9) • intervention strategies with # sessions & record of mastery (Table 11) • duration of interventions: 22 hours
Post-Intervention	• oral reading comprehension test (Table 4) • listening level: Grade 6 • language comprehension progress: not measured	• foundational reading skills test after 8 sessions (Table 7) • listening level: Grade 3 • language comprehension progress: not measured	• oral reading comprehension test & listening levels (Table 9) • language comprehension progress: 1 grade level

Maya has an Individualized Education Plan (IEP) for Other Health Impairment and Intellectual Disability. Due to poor health, Maya missed one year of school before the schools closed for the COVID-19 pandemic. Maya did not pass any classes in the virtual setting during the pandemic closures. At the start of the 2022–2023 school year, the director of the alternative education program referred Maya for reading remediation services to prepare Maya to meet her final graduation requirements. The intern provided Maya with one-on-one reading remediation from August 26 to October 20.

Intervention Data

The intern used the Phono-Graphix™ Test of Reading Subskills and Code Knowledge to assess Maya's initial foundational reading skills (see Table 3). Maya was unable to segment CVC words and quit trying after segmenting the first CCVC word. Maya correctly blended 10 of 15 words; however, she could not blend two CVC words (i.e., pin and shell), one CCVC word (i.e., stick), and two words with five sounds (i.e., print was blended as present, and plant was blended as ant). Maya accurately deleted phonemes from three of 10 words (e.g., upon request, Maya could say pim without the /p/). Maya scored 54% on the Phono-Graphix™ Code Knowledge assessment. She could accurately offer the sounds for the following graphemes and multigraphs: b, c, d, f, g, h, k, l, m, n, s, v, z, sh, ch, th, ck, qu, ce, ou, ow, igh, eigh, ay, aw, ew, and oo. Initial data indicate Maya has poor foundational reading skills.

Table 3

Maya's Initial Foundational Reading Skill Assessment Data

Variable	Segmenting	Blending	Phoneme manipulation	Code knowledge
Score	0/63	10/15	3/10	54%
Score descriptor	poor	poor	poor	poor

For the initial oral reading comprehension assessment administered on August 26, the intern used the Form A Word List and Reading Passages of the BRI. The intern used Form B Reading Passages for the assessment administered on September 20 and Form A Reading Passages for the assessment administered on October 20. During the initial assessment, Maya struggled with reading loan words, or words borrowed from another language, such as voyage, prairie, moccasin, yacht; multisyllable words (e.g., automobile, helmet, furnish, accomplishment, definite); and words with special endings (e.g., location and satisfaction). In many instances, she would start with the first letter or syllable and guess the word. Maya was also transposing internal sounds in words (e.g., she read "pulp" as "plup") and inserting sounds into words (e.g., she read "scamper" as "scramper"). Using the scoring recommendation, the intern determined that Maya could independently read text written on a second-grade reading level. Table 4 shows Maya's oral reading comprehension assessment data.

Table 4

Maya's Oral Reading Comprehension Assessment Data

Variable	Initial	Progress Check	Final
	8/26/2022	9/20/2022	10/20/2022
Independent reading level	Grade 2	Grade 3	Grade 5
No. of sessions	0	6	7
No. of absences	-	1	5

Between August 26 and September 20, the intern worked with Maya for six 30- to 45-minute one-on-one sessions. Maya was absent on one occasion due to poor health. Intervention sessions consisted of adjacent consonant instruction and advanced code instruction (i.e., words containing multigraphs). On September 20, the intern administered the BRI again, and Maya could independently read text written on a third-grade reading level.

The intern worked with Maya on seven occasions between September 20 and October 20. Maya missed five days of school due to suspensions. Intervention sessions consisted of adjacent consonant instruction and advanced code instruction. Although the intern did not administer the Phono-Graphix™ Test of Reading Subskills again, Maya mastered segmenting, blending, and phoneme manipulation with adjacent consonant sounds by Session 8. On October 20, the intern administered the BRI to assess Maya's oral reading comprehension. Maya could independently read text written on a fifth-grade reading level. With scaffolding, Maya could read texts written on a sixth-grade reading level; however, anything higher frustrated her.

The director of the school wanted to shift Maya's remediation to writing to prepare Maya to pass the Writing Work Keys assessment and meet her final requirements to graduate. Maya passed the Writing Work Keys in November 22. Maya worked from home during the spring semester due to poor health and completed her remaining graduation requirements. On Maya's last day of school, May 25, the

Table 5
Maya's Intervention Progression

Intervention strategies	Foundational skill(s) addressed	Content	Sessions practiced	Mastery achieved
Adjacent-consonant sound word building Adjacent-consonant sound manipulation w/nonsense words Adjacent-consonant word reading and spelling Adjacent-consonant phoneme deletion	Phonological awareness, phonemic awareness, phonics, fluency, and spelling	VCC, CVCC, CCVC	1-8	Yes
Advanced code word building, reading, and mapping Sorting words by overlapping digraph ("ow" and "ea") Advanced code spelling w/graphic organizer Reading decodable texts (/aʊ/ & /ō/) Reading uncoded texts (r-controlled, /ē/, /r/, /ā/) Locating the target sound in words in a text	Phonemic awareness, phonics, fluency, and spelling	/aʊ/ /ō/ r-controlled /ē/ /r/ /ā/ /ĕ/ /d/	2, 3, 8 3, 4, 8 4, 5, 7 5, 6, 9 6, 7 8 9 10	Achieved for these sounds
Multisyllable word building, reading, mapping, and spelling	Phonological awareness, phonemic awareness, phonics, fluency, and spelling	2-syllable	10-12	Nearing

intern administered the BRI to obtain Maya's listening level. Maya understands texts written on a sixth-grade reading level when read aloud.

Intervention Sessions

Table 5 provides Maya's intervention progression. This includes an overview of the instructional strategies used, the foundational skills addressed, the sessions in which these strategies and skills were implemented, and whether Maya mastered the foundational skills.

Results

After 13 sessions, between 7–9 hours of intensive reading instruction, Maya made gains in her decoding ability. The intern cannot provide Maya's language comprehension progress as Maya's listening levels were not assessed until the end of the intervention. In late August, Maya could read and understand texts written on a second-grade reading level. By late October, May could read and understand texts on a fifth-grade reading level, and she could read and understand texts written on a sixth-grade reading level with scaffolding. A large component of Maya's poor reading comprehension was resolved when Maya mastered segmenting and phoneme manipulation with adjacent-consonant sounds. In November

2022, Maya passed the Writing Work Keys assessment and met the requirements to graduate in June 2023 with a Standard Diploma.

James

James is a 16-year-old African American male who attends an alternative education school for behavioral reasons. James has an IEP for Emotional Disturbance Disorder. In September 2022, James' IEP Team determined that he also qualified for audio or read-aloud accommodations if audio is not available for assessment. A general education teacher requested a reading evaluation for James in February 2023. The intern provided James with one-on-one reading remediation from February 22 to March 20. Table 6 shows James' oral reading comprehension assessment data.

For the initial oral reading comprehension assessment administered on February 22, the intern administered the BRI-Form A Word List. James was unable to read the words on the third-grade reading level, so the intern started with beginning Kindergarten Word List and determined that James could read independently at the mid-Kindergarten level. James was able to read some high-frequency sight words; however, when reading words with adjacent-consonant sounds, James would start with the first sound and guess the word. The intern used the BRI-Form A Reading Passages for the assessment on March 20; after eight sessions, James could independently read text written on a third-grade reading level.

After completing the initial BRI, the intern discerned that James was frustrated, so they postponed further testing and started intervention. During the adjacent-consonant sound intervention, James could accurately offer the sounds for the following graphemes and digraphs: b, c, d, f, g, h, j, k, l, m, n, p, r, s, t, v, w, z, sh, ch, th, and ck. However, James needed to review the short vowel sounds.

On April 4, James completed the Phono-Graphix™ Test of Reading Subskills and Code Knowledge foundational skills assessment (see Table 7) to establish a baseline after eight intervention sessions. James was able to segment CVC words and some words with adjacent-consonant sounds; however, James linked two sounds for some of the consonants (e.g., he read /m/ as /muh/). James correctly blended 14 of 15 words; however, James was unable to blend one of the words with five sounds (i.e., he did not try to blend the word print). James was able to delete the correct phonemes from five of 10 words; he struggled with deleting phonemes in most of the words containing adjacent-consonant sounds. At the time, the intern anticipated reading intervention to continue with James when end-of-course tests were complete; however, April 4 was the last day of reading intervention with James. Reading remediation stopped during the month of April for spring break and spring end-of-course testing. Before reading remediation could resume in May, James was suspended for nine days and had seven unexcused absences. The intern could not provide James' language comprehension progress as James' listening levels were not assessed until the end of the intervention. On James' last day of school, May 24, the intern used the BRI to obtain James' listening level: James understood texts written on a third-grade reading level when read aloud.

Intervention Sessions

During March 2023, the intern worked with James for eight one-on-one 30- to 45-minute sessions. Intervention sessions consisted of adjacent consonant instruction and advanced code instruction. James wanted to attempt multisyllabic words; unfortunately, this work was frustrating for him, and the intern postponed multisyllabic instruction. Table 8 provides an overview of the instructional strategies used, the foundational skills addressed, the sessions in which these strategies and skills were implemented, and whether James mastered the foundational skills.

Results

After eight sessions, between 4–6 hours of intensive reading instruction, James made gains in his decoding ability. At

Table 6
James' Oral Reading Comprehension Assessment Data

Variable	Initial	Final
	2/22/2023	3/20/2023
Independent reading level	Mid-Kindergarten	Grade 3
No. of sessions	-	8
No. of absences	-	1

Table 7
James' Foundational Reading Skill Assessment Data

Variable	Segmenting	Blending	Phoneme manipulation	Code knowledge
Score	54/63	14/15	5/10	44%
Score descriptor	poor	low moderate	Poor	Poor

the beginning of the intervention, James could read and understand texts written at a mid-Kindergarten level. By the end of the intervention, James could read and understand texts written on a third-grade reading level. A large component of James' poor reading comprehension was addressed when James improved his blending and segmenting ability.

Amanda

Amanda is a 16-year-old African American female who attends an alternative education school for academic reasons. Amanda is currently being reviewed by a Child Study Team for dyslexia and auditory processing concerns. The first time Amanda attended any school was in November 2021—a few months before she turned 15. She and her siblings were removed from their parents and placed into foster care due to extreme neglect. Amanda was placed in the alternative education setting in February 2023. The director of the alternative education program referred Amanda for reading remediation services for Tier 3 intervention.

Table 8
James' Intervention Progression

Intervention strategies	Foundational skill(s) addressed	Content	Sessions practiced	Mastery achieved
Adjacent-consonant sound word building Adjacent-consonant sound manipulation w/ nonsense words Adjacent-consonant word reading and spelling Adjacent-consonant phoneme deletion	Phonological awareness, phonemic awareness, phonics, fluency, and spelling	VCC, CVCC, CCVC	1-5	Nearing
Advanced code word building, reading, and mapping Sorting words by overlapping digraph ("ow") Advanced code spelling w/graphic organizer Reading decodable texts (/aʊ/ & /ō/) Reading uncoded texts (r-controlled, /ē/, /r/, /ā/) Locating the target sound in words in a text	Phonemic awareness, phonics, fluency, and spelling	/aʊ/ /ō/ r-controlled /ē/ /r/ /ā/ VCe	2, 3, 3, 4, 4, 5, 5, 6, 6, 7 8	Nearing

From March 27 until May 24, the intern provided Amanda with one-on-one reading remediation and collected data for the Child Study Team. Amanda spends the school day in a self-contained classroom working one-on-one with a tutor. The intern provides 30 minutes of specialized reading instruction and advises the tutor regarding additional reading instruction (e.g., digital texts, decodable texts, thematic units, reading aloud, and buddy reading). The tutor also reinforces the intern's intervention strategies.

Intervention Data

To measure growth, the intern used the BRI to assess Amanda's oral reading comprehension and establish Amanda's independent listening level. Table 9 shows Amanda's oral reading comprehension assessment data, which includes her listening level scores.

On February 27, the intern was unable to establish Amanda's baseline scores, as Amanda could not read any of the words or answer any of the questions about the passages read aloud to her for the listening assessment. The intern could not ascertain if Amanda's performance was inhibited due to her anxiety at being in a new learning environment or working with an unknown adult or if Amanda was an emerging reader. The intern used the Form A Word List and Reading Passages on March 15 and April 6. On March 15 the intern obtained a baseline score for Amanda's oral reading comprehension and listening level: Amanda could read and comprehend text written on a first-grade level and she understood text read aloud on a third-grade level. On April 6, Amanda's oral language comprehension increased two grade-levels; however, Amanda was reading the same passage from February 27 and March 15 (i.e., repeated readings).

The intern administered the Phono-Graphix™ Test of Reading Subskills and Code Knowledge on March 10 after Amanda completed nine intervention sessions. Table 10 shows Amanda's initial data on the foundational reading skills assessment. After administering the segmenting, blending, and phoneme manipulation subtests, Amanda struggled with blending and segmenting CVC, CVCC, and CCVC words; additionally, Amanda had great difficulty with phoneme deletion. For example, when the intern asked Amanda to say cat without the /k/, Amanda would repeat cat. Amanda has the basic code knowledge of the following sounds: long and short vowels, b, c, d, f, g, h, j, k, l, m, n, p, r, s, t, v, w, sh, ch, and th. After a quick review of qu, x, y, ck, ce, and z, Amanda demonstrated mastery of the basic code.

Intervention Sessions

Amanda completed 11 sessions between February 27 to March 15. Intervention sessions consisted of drilling Amanda to recognize 16 irregular high-frequency words (i.e., two, four, once, been, pretty, laugh, buy, your, any, many, want, eye, of, are, the, warm), adjacent-consonant sound instruction, and phoneme manipulation drills. Between March 15 and April 6, Amanda completed 12 sessions and was absent two days. Interventions consisted of adjacent-consonant sound instruction and phoneme manipulation drills and introduced advanced code instruction. Amanda mastered the irregular high-frequency words by Session 23.

Amanda participated in nine remediation sessions from April 7 to April 28. Intervention sessions focused on advanced code instruction. Amanda continued to read and map adjacent-consonant sounds during directed reading. Adjacent-consonant sound instruction occurred during error corrections to encourage Amanda to practice error correction and increase her accuracy. Amanda completed 11 sessions between April 28 and May 19; Amanda was absent one day. Intervention sessions consisted of advanced code

Table 9

Amanda's Oral Reading Comprehension and Listening Level Assessment Data

Variable	Initial 1	Initial 2	Check 1	Check 2	Final
	2/27	3/15	4/6	4/28	5/19
Independent reading level	*	Grade 1	Grade 3^	Grade 1	Grade 2
Independent listening level	*	Grade 3**	Not assessed	Not assessed	Grade 4
No. of sessions	-	11	12	9	11
No. of absences	-	0	2	0	1

*Unable to obtain a score.
**Intern read the passage aloud to Amanda on 2/27 for the listening-level assessment.
^Intern read the passage aloud to Amanda on 2/27 and 3/15 for the listening-level assessment.

Table 10
Amanda's Foundational Reading Skill Assessment Data

Variable	Segmenting	Blending	Phoneme manipulation	Code knowledge
Score	40/63	13/15	0/10	72%
Score descriptor	poor	low moderate	poor	low moderate

instruction and multisyllabic word attack strategies. Table 11 provides an overview of the instructional strategies used, the foundational skills addressed, the sessions in which these strategies and skills were implemented, and whether Amanda mastered the foundational skills.

Results

After 43 sessions, approximately 22 hours of intensive reading instruction, Amanda has made gains in her decoding ability and language comprehension. In late April, Amanda could read and understand text written on a first-grade reading level. By mid-May, Amanda could independently read and comprehend text written on a second-grade reading level, and with scaffolding, Amanda could read and understand text written on a third-grade reading level. Amanda also made gains in her listening level scores. In March, Amanda could understand text written on a third-grade reading level when read aloud; however, the intern read the text aloud to Amanda on February 27. By May, Amanda could understand text written on a fourth-grade reading level when read aloud. Amanda did not have prior exposure to the passage for the May 19 assessment.

Discussion of Findings

The Matthew effect, or the concept that the rich get richer, and the poor get poorer, was used by Stanovich (1986) as an analogy for the consequences of failing to teach children to read. A permanent gap emerges between readers and nonreaders. This would be like expecting a person who has never run a mile to catch up to a person who has been running five miles a day for 10 years (18,250 miles)—the nonrunner cannot close the distance with the runner unless the runner stops running or has a permanent injury. The gap is the gap—however, reading remediation can prevent the gap from getting wider.

By the time students reach fourth grade, they should be proficient readers. Unfortunately, as data from the NAEP (2019b) Reading Assessment reveal, only 37% of high school seniors are proficient readers. For this retrospective case study, none of the students could read and understand texts written on a third-grade reading level before the intervention. Before receiving reading remediation, Maya and James qualified for special education (SPED) services, they have received additional specialized instruction from a SPED teacher for core academic classes (e.g., math, science, history, reading, and writing); however, it is unknown what type of reading interventions they received as part of their service or how much progress they made from the specialized instruction.

Despite frequent absences and suspensions, Maya and James demonstrated progress from this reading intervention (i.e., Maya gained three grade levels in 7–9 hours of instruction, and James gained three grade levels in 4–6 hours of instruction). Amanda started reading instruction when she first attended school as a 14-year-old; consequently, the educators working with Amanda had to start with foundational reading skills instruction. Maya, James, and Amanda needed intensive one-on-one specialized instruction to make progress.

James and Amanda will continue to receive reading remediation; however, both students have a permanent gap in their overall reading experience compared to their same-aged peers who are proficient readers. Unfortunately, Maya will not have access to reading remediation unless her parents hire a private tutor. Maya graduated from high school with a Standard Diploma, and she wants to become a Certified Nursing Assistant (CNA). Maya is unsure what she will do if she cannot earn the CNA credential. If Maya had received effective reading remediation sooner, her final year in high school could have been used to help her prepare to earn the CNA credential. Students who leave the public school system before becoming proficient readers are at risk of missing opportunities that have a direct impact on their livelihoods (Blanchard, 2023).

Impact of Language Comprehension on Phonological Processing

Language comprehension supports auditory discrimination. Auditory processing starts to develop *in utero* (Moon et al., 2012), and language exposure during early childhood (ages 1-4) are predictive of reading outcomes in later years (Lundberg et al., 1988). Therefore, those with weaker phonological processing may also struggle with auditory discrimination (i.e., segmenting sounds and differentiating one sound from

Table 11
Amanda's Intervention Progression

Intervention strategies	Foundational skill(s) addressed	Content	Sessions practiced	Mastery achieved
Adjacent-consonant sound word building* Adjacent-consonant sound manipulation w/ nonsense words** Adjacent-consonant word reading and spelling* Adjacent-consonant phoneme deletion**	Phonological awareness, phonemic awareness, phonics, fluency, and spelling	VCC, CVCC, CCVC	1-23	Yes, with error correction* Yes, with visual aids**
Advanced code word building, reading, and mapping Sorting words by overlapping digraph ("ow," "ea", "ou," "oo") Advanced code spelling w/graphic organizer Reading decodable texts (/aʊ/ & /ō/) Reading uncoded texts (r-controlled, /r/, /ē/, /ĕ /, /ā/, /ʊ/, /uː/, /ɒ/) Locating the target sound in words in a text	Phonemic awareness, phonics, fluency, and spelling	/aʊ/ /ō/ r-controlled /ē/ /r/ /ā/ /ĕ/ /d/ /uː/ /ʊ/ /ɒ/ /ʌ/ /s/ VCe	18-43	Nearing for these sounds Nearing for these sounds
Multisyllable word building, reading, mapping, and spelling	Phonological awareness, phonemic awareness, phonics, fluency, and spelling	2-syllable	39-43	Emerging

another). Proficient readers need to master segmenting adjacent-consonant sounds before introducing multisyllabic instruction (Vandervelden & Siegel, 1995).

By the end of the intervention, Amanda still struggled with phoneme manipulation in spoken words when segmenting internal sounds. Amanda could manipulate the first and last sounds without a visual aid (e.g., Amanda can say stop without the /s/.), but she needed a visual aid to manipulate the internal sounds in adjacent-consonant words (e.g., Amanda needed the intern to cover the second Elkonin box to say stop without the /t/.). Amanda also occasionally struggled with differentiating one sound from another. Amanda would confuse the /f/ and /v/ sounds and the /f/ and voiceless /th/ sounds. At times, Amanda would write b to show the /m/ sound and m to show the /n/ sound. Amanda made the appropriate error corrections for these issues when directed. Until Amanda's language comprehension and phonolog-

Table 12

Students' Pre- and Posttest for Oral Reading Comprehension and Final Listening Levels

Student	Pretest oral reading comprehension	Posttest oral reading comprehension	Final listening levels
Maya	Grade 2	Grade 5	Grade 6
James	Mid-Kindergarten	Grade 3	Grade 3
Amanda	Grade 1	Grade 2	Grade 4

ical processing are much stronger, she will need a buddy reader to help her identify errors, and she will struggle with words containing more than two syllables.

Impact of Language Comprehension on Decoding Ability

Reading comprehension cannot exceed one's language comprehension; thus, if a student is decoding on level and has below-level language comprehension ability, they will comprehend a text that matches their language comprehension ability (Gough & Tunmer, 1986). None of the students in this retrospective case study have on-level decoding ability or on-level language comprehension ability; however, James' decoding ability and language comprehension ability are on the same grade level, while Maya's and Amanda's language comprehension ability are stronger than their decoding ability (see Table 12).

James and Amanda started closer to the same reading levels, and both gained three grade levels by the end of remediation; however, James' intervention took 4–6 hours while Amanda's intervention took 22 hours (not including the additional support Amanda received from a one-on-one tutor in a separate setting). Although the baseline language comprehension ability levels (i.e., their listening level scores) for James and Maya were not established, the intern concludes that James and Maya most likely started with higher language comprehension than Amanda, as Amanda was prevented from attending schools and socializing with peers until she was nearly 15 years old.

Language comprehension supports word recognition during decoding. For example, Amanda and Maya had difficulty discriminating internal sounds in l-controlled CVCC and CCVC words. By the end of the intervention, Amanda still needed prompting to make error corrections with adjacent-consonant sounds in some instances. When Amanda mapped words during the intervention, she would occasionally misspell the word (e.g., she would spell blub instead of bulb), segment the misspelled word correctly, and then blend the word incorrectly (e.g., she would say bulb instead of blub). Amanda's language comprehension is not strong enough to support decoding l-controlled adjacent consonant words (i.e., to Amanda, bulb was just as mysterious as blub, so she did not make an error correction because she did not recognize either word). Unlike Amanda, James and Maya started with stronger language comprehension. When James and Maya made errors during word mapping (i.e., writing words as they are segmented and blended), they could hear their mistakes and make the error corrections. Maya mastered adjacent consonant sounds by session 8. If James and Amanda master segmenting and blending adjacent-consonant words, they will be able to start multisyllable word instruction.

Impact of Decoding Ability on Word Recognition

Reading comprehension cannot exceed a reader's decoding ability (Gough & Tunmer, 1986). James' initial reading comprehension level indicates that James read very little after Kindergarten, as he did not have the ability to decode text. Although James' struggled with decoding, his language and background knowledge continued to develop because he had the opportunity to interact with same-aged peers and

Table 13

Comparison of Students' Phono-Graphix™ Test of Reading Subskills

Student	Segmenting score	Blending score	Phoneme manipulation score
Maya	0/63	10/15	3/10
James	54/63	14/15	5/10
Amanda	40/63	13/15	0/10

participate in society in general. By the end of the intervention, James was nearing mastery of adjacent-consonant sounds and was introduced to the advanced code.

Unlike Amanda and Maya, James did not struggle as much with segmenting and blending adjacent-consonant sounds. James' phoneme manipulation score (i.e., see Table 13) is higher than Maya's and Amanda's; thus, at the time the Phono-Graphix™ Test of Reading Subskills was administered to each student, James had stronger phonological processing skills than Maya and Amanda.

During remediation, James would segment correctly, blend incorrectly, and then make a self-correction. James also made corrections easily when he made mistakes with phoneme manipulation. Maya and Amanda needed more intensive practice mastering manipulating words containing adjacent-consonant sounds. Maya and Amanda also had difficulty with auditory discrimination in adjacent-consonant words and with short vowel sounds. Maya mastered this skill after 4-6 hours of remediation. Once Maya mastered these skills, she struggled less with learning the advanced code because she was no longer trying to memorize words; instead, Maya practiced segmenting and blending to read, and her automaticity increased.

When readers understand the alphabetic principle (i.e., a grapheme or multigraph represents a sound) and apply this principle to reading, visual memory is freed up for learning multigraphs and special endings and blending multisyllable words (Ehri, 2014). Inefficient readers use methods like three-cueing or memorization; although rote memorization is effective for learning the multiplication table, it is not sufficient for learning to read 30,000+ words. Instead, phonics instruction relies on incrementally and systematically teaching the reader the 200+ ways the 44 English phonemes are represented (i.e., grapho-phonemes) between Kindergarten and third grade (Venezky, 1999, as cited in Ehri, 2014).

Reading comprehension cannot exceed one's language comprehension; thus, if a student is decoding on level and has below-level language comprehension ability, they will comprehend a text that matches their language comprehension ability (Gough & Tunmer, 1986).

Providing students with the opportunity to read aloud for 20 minutes a day allows them to implicitly learn the 200+ grapho-phonemes as wide and repeated reading increases word recognition, automaticity, and vocabulary (Rasinski, 2023; Tumner & Nicholson, 2011). To work with multisyllable words, a reader needs to be able to segment words into syllables, decode the phonemes within each syllable, and remember the phoneme sequence long enough to blend the phonemes into syllables and the syllables into words.

Phonological processing ability and background knowledge impact how quickly a student will acquire foundational reading skills. Orthographic mapping occurs when the reader connects a grapheme to the sound, the sounds to the word, and the word to its meaning. If the student has auditory discrimination difficulties, they have difficulty isolating the sounds within a word (i.e., difficulty with letter-sound correspondence). If the student has weak background knowledge, they have difficulty with word recognition (i.e., difficulty with using the possible meaning of the word in the context of the sentence to aid in recognizing the word).

During earlier sessions, Maya and James would start with the first sound of a word and then guess the rest of the word. They needed frequent error correction until they mapped the word correctly. Both students quickly realized that segmenting and blending is what readers do to read, and both students made progress quickly. However, Maya and Amanda needed to work on segmenting longer before they made additional progress due to auditory discrimination issues. By Session 8, Maya mastered segmenting, and towards the end of her intervention, she progressed to reading multisyllable words. Table 14 illustrates the grade-level increase and hours of intervention for each student.

Table 14

Grade-Level Increase and Hours of Intervention for Maya, James, and Amanda

Student	Grade-level increase	Hours of intervention
Maya	3	7–9
James	3	4–6
Amanda	2	22

James and Amanda started closer to the same reading level; however, James' reading comprehension increased three grade levels after receiving six to eight hours of reading intervention, while Amanda's reading comprehension increased two grade levels after receiving 22 hours of reading intervention. James demonstrated the ability to segment and blend words and then moved quickly to word reading without segmenting. Amanda continued to segment and

blend each word while reading until Session 20. Afterward, Amanda practiced word reading without segmenting. While Amanda's reading rate is very slow, she comprehends what she reads. Maya, James, and Amanda rely on segmenting and blending unfamiliar words, and Maya has learned to segment and blend syllables for multisyllable words. James and Amanda are nearing mastery in segmenting; however, James will likely master segmenting more quickly as he does not have difficulty discriminating one sound from another.

The Relationship Between Fluency, Decoding, and Background Knowledge

During remediation, the intern increased the students' fluency with word mapping, repeated reading, and close reading activities. Word mapping is a multisensory approach that provides learners with visual, auditory, and kinesthetic exposure to a word while decoding. The repeated exposures via multiple sensory inputs increase the learner's automatic word recognition; however, reading is not an act of rote memorization. When reading, two cognitive mechanisms are activated: the phonological processing pathway and the semantic processing pathway. Once those two pathways are activated, orthographic mapping occurs, and the reader accurately decodes and recognizes the word and its meaning (Ehri, 2017). Neural pathways become stronger every time they are activated; hence, repeated reading increases automatic word recognition (automaticity), rate, and accuracy.

Repeated reading also increases conceptual knowledge. Carey (1978) suggested that fast mapping (i.e., incidental word learning via initial context) occurs during a reader's first exposure to a word, while extended mapping (i.e., deeper knowledge of the word) occurs during subsequent exposures as the reader develops a thorough understanding of the word. The intern used the same third-grade text for three of Amanda's assessments: the listening level assessments administered on February 27 and March 15 and the oral reading comprehension assessment administered on April 6. Amanda's higher scores on the March 15 and April 6 assessments support the use of repeated reading to improve background knowledge (see Table 8). The listening level assessment was administered two weeks after Amanda's initial exposure to the passage, and the oral reading comprehension assessment was administered three weeks after the second exposure to the passage. Furthermore, Amanda was unable to read and comprehend texts written on a third-grade reading level without prior exposure—even if she decoded with 98% accuracy. Although Amanda has the decoding ability to accurately read text written on a third-grade reading level, she lacks the background knowledge to understand text written beyond a second-grade reading level.

According to Nagy and Herman (1987), students who attend school and read between 1–20 minutes a day average between 8,000–1.8 million words read per school year. Sadly, this suggests that there are Kindergartners who have read more words in a year than Amanda, James, and Maya have read in their lives. Reading expands conceptual knowledge and vocabulary, strengthens orthographic mapping ability, and provides the brain with increased automaticity with word recognition (Ehri, 2017); therefore, students reading on the lower end (i.e., 8,000 words per year) and nonreaders will have less background knowledge, smaller vocabularies, and weaker decoding skills and fluency.

Amanda's final listening level was one grade level higher than James' listening level. Amanda started with an 80,000-word deficit compared to her same-aged peers. The increase in Amanda's listening level scores demonstrates that reading aloud to a student (e.g., using digital literacy tools or one-on-one reading instruction) and practicing guided reading (e.g., buddy-assisted reading) can increase a student's language comprehension. Maya, James, and Amanda need to continue to improve their language comprehension along with their decoding ability to increase their overall reading comprehension.

Recommendations to Policymakers

Struggling readers in the grade 9-12 population can be better served by providing them with access to effective

Table 15

Achievement Levels by Learner Characteristics on 2019 NAEP Eighth Grade Reading Assessment

Characteristic	% Proficient	% Basic	% Below
LD	10	27	63
EL	4	24	72
Not LD	38	41	22
Not EL	35	40	24

instruction and creating an intervention apparatus to guarantee services for these students. Effective instruction for this population includes small-group instruction (Kamil et al., 2008) in repeated readings (Lee & Yoon, 2017) and multisyllable strategies (Archer et al., 2003), as well as one-on-one instruction with a reading specialist in foundation reading skills (Kamil et al.; Pikuski & Chard, 2005). An intervention apparatus exists for learning disabled (LD) and English Language Learners (ELLs); thus, secondary schools have some infrastructure in place to facilitate evidence-based reading remediation for special populations. The process of screening students for special services provides valuable data for educators responsible for providing reading remediation. The VLA is requiring SPED and ELL teachers to receive SOR training, and if implemented correctly, SOR-aligned remediation will likely increase these students' reading proficiency scores (Kamil et al., 2008).

According to the National Center for Education Statistics (2023a, 2023b), 15% of the nation's K-12 public school population are identified as learning disabled (LD) while 10% are identified as EL. With mandatory, evidence-based reading remediation for secondary learners in special populations, 25% of the nation's secondary students could be provided with an opportunity to become proficient readers before they graduate. These populations performed disproportionately lower than their peers on the 2019 NAEP (2019a) Eighth Grade Reading Assessment. Table 15 provides the percentages for achievement levels by learner characteristics on the 2019 NAEP Eighth Grade Reading Assessment.

For the remaining population, schools could use state-mandated assessment data to prescreen students for reading difficulties. Policymakers need to provide schools with funding for secondary reading specialists who can conduct a more in-depth screening for students to determine whether students need foundational reading intervention, morphological reading intervention, or fluency reading intervention. Secondary reading specialists can train secondary educators on how to provide direct instruction in morphological awareness (e.g., word attack strategies for multisyllable words, direct instruction with words with special endings, and direct instruction in roots and affixes) and advise school leaders in reading-across-the-curriculum strategies to address fluency. However, students who need remediation in foundational reading skills need to receive it from a reading specialist in a one-on-one setting (Kamil et al., 2008), and this initiative needs to be supported and funded by the government.

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