RESOURCE GUIDE

Collaborative Conversations About the Science of Reading

A Guide for Leaders and Professional Learning Teams

COLLABORATIVE CLASSROOM | Learning Reimagined™

About Collaborative Classroom

Collaborative Classroom is a mission-driven, nonprofit organization committed to ensuring that all students become readers, writers, and thinkers who learn from, care for, and respect one another.

OUR APPROACH

Collaborative Classroom's evidence-based programs help children develop as proficient readers and writers, appreciate the ideas and opinions of others, learn to agree and disagree respectfully, think critically about big ideas, and become responsible citizens of the world

How we teach matters as much as what we teach. Our commitment to continuous, embedded professional learning empowers educators to grow their teaching practices, build the school community, and create the conditions for authentic, student-centered learning.

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Table of Contents

INTRODUCTION

As educators, we all want K–12 reading instruction that is effective and equitable, reaching every student. But how do we get there? Most if not all of us have faced challenges in our learning journeys as teachers of reading.

This guide is intended to support you on your journey. Here you'll find a wealth of resources, including articles, white papers, and interviews about a wide range of topics related to the science of reading. These resources are accompanied by reflection questions to deepen your thinking about reading instruction in your classroom, school, or district and to help you navigate your ongoing learning journey.

The guide is designed to be flexible, allowing you to engage with it in multiple ways, depending on your interests.

- Start in Section 1 with our series of bite-sized, browsable articles, "Structured Literacy: Unpacking Nine Key Topics for Transforming Reading Instruction and Outcomes for Readers," and let our authors—a mix of Collaborative Classroom literacy experts and guest authors—guide you through with engaging examples and practical, research-informed classroom practice.
- For a deeper dive into the research, check out the white papers in Section 2. "What's Settled About the Science of Reading? Connecting Research to Instructional Considerations and Classroom Practice" provides an overview of the current conversation around the science of reading. "Aligning a System of Support to Reach All Readers" focuses on the often-overlooked importance of aligned tiers of instruction in a Response to Intervention/Multi-Tiered System of Support (RTI/MTSS) system.
- Get inspired in Section 3 with our in-depth and wide-ranging interview with literacy expert Dr. Louisa Moats.

No matter what path you take to read this content be sure to have paper and pen with you to respond to questions and reflect on how what you're learning can impact teaching in your school or district.

Supporting educator professional learning is key to our mission as a nonprofit organization. We invite you to continue your literacy learning with us: browse our on-demand professional learning webinars, explore other white papers, and visit our events page.

Section 1

Structured Literacy Series

From Guided Reading to a Structured-Literacy Approach: My Journey as an Educator

By Kim Still

In this introduction to the series "Structured Literacy: Unpacking Key Topics for Transforming Reading Instruction and Outcomes for Readers," classroom teacher and literacy coach Kim Still reflects on her journey from guided reading to small-group instruction with a structured-literacy approach.

IF NOT GUIDED READING, THEN WHAT?

I began my teaching career in the early 2000s, at the height of the guided reading era.

Most days after walking my first-grade students outside for bus dismissal, I would hunker down at my kidney-shaped guided-reading table and analyze the day's running records. It was never a surprise, but always a frustration, that my students were more likely to use meaning and structure—and not visual information—to read unknown words.

Many of my first graders used enough visual information to advance to the reading level benchmark set by the district. The whole-group phonics lessons and small-group guided-reading lessons gave them enough traction with print to read with a sufficient level of accuracy to fully comprehend the text.

Other students were so disconnected from the print on the page that I had to question whether guided reading was an appropriate model. *But without guided reading, what would small groups look like in my Readers' Workshop?*

I didn't know, so I continued on the guided-reading path and tried to learn more in the hopes that it would have an impact.

It was never a surprise, but always a frustration, that my students were more likely to use meaning and structure—and not visual information—to read unknown words.

TRYING SOMETHING DIFFERENT: STRUCTURED, EXPLICIT SMALL-GROUP INSTRUCTION

Fast forward to 2016. After years of classroom teaching and training and serving as a Reading Recovery teacher, I became a literacy instructional coach.

I still spent many hours analyzing running records, this time alongside the teachers I worked with. In much of our analysis, we found that the use of visual information remained a challenge for a good number of students.

Around this same time, my school district was piloting a reading comprehension program (*Making Meaning*®), loving it, and wanting to try more Collaborative Classroom resources. In 2017, the publication of the first edition of *Being a Reader*™ prompted us to try that, too.

I was part of that new pilot, serving as the district literacy coordinator. At first, I wasn't a fan of the small-group instruction. The structured lessons focused on phonological awareness, phonics, and high-frequency word learning.

With very little experience in teaching these skills with explicit instructional routines, I was at a bit of a loss for what the instruction should look like. The instructional routines and their clear, concise, consistent nature weren't obvious to me at first.

It was only when I saw the power of these routines in minimizing teacher language and getting students actively engaged and doing the work in the lessons that things started to click for me. Our students' participation in the phonological-awareness activities and blending of decodable words allowed them to own their learning in these areas and demonstrate a level of mastery that I hadn't seen in the past.

My other initial reservation was about the texts that were used for the lessons. Although the texts in the later lessons looked very similar to those I was used to in guided reading, the decodable texts used early on went against everything I had learned through guided-reading professional development. It had been ingrained in me that decodable text was boring and lacked the rich meaning and language to which students should have access.

Quite the opposite of being bored, however, our students devoured these books, attended to print, and solved words like I had never seen before. Students were far less likely to miscue with words that had almost no visual resemblance to the words on the page. They were now actively blending the sounds to solve the words, attending to the parts of words more thoroughly, and only using meaning in their decoding if their self-monitoring alerted them to an error.

This careful attention to print was what had been missing for many of our students, and we came to see more students meeting grade-level benchmarks than in previous years.

The full thrust of the science of reading hadn't yet emerged, but I was beginning to see its potential through the impact of our shift in curriculum.

It was only when I saw the power of these routines in minimizing teacher language and getting students actively engaged and doing the work in the lessons that things started to click for me. Our students' participation in the phonological-awareness activities and blending of decodable words allowed them to own their learning in these areas and demonstrate a level of mastery that I hadn't seen in the past.

INTRODUCING "STRUCTURED LITERACY: UNPACKING NINE KEY TOPICS FOR TRANSFORMING READING INSTRUCTION AND OUTCOMES FOR READERS"

Back in the early 2000s when I was just beginning my teaching career, I never could have imagined that I would find a small-group instructional model to replace guided reading, but I am so happy that I did.

The shift from guided reading to small-group instruction with a structured-literacy approach was transformative for me, my teachers, and our students.

Over the past few years, I've learned more about the elements and research behind this model. It wouldn't do justice to the model to unpack it all here, so my Collaborative Classroom colleagues and I, along with some additional experts in the field, have written a series of pieces (first published as a blog series on our website) entitled "Structured Literacy: Unpacking Nine Key Topics for Transforming Reading Instruction and Outcomes for Readers."

I am convinced that it is through our collective struggle and the resulting knowledge we gain that we can move forward with reading instruction that is more effective and equitable for all students.

CONCLUSION

It can be difficult to share so openly about the confusions and challenges I encountered on my journey as an educator. However, as I hear from others who share a similar story, I am convinced that it is through our collective struggle and the resulting knowledge we gain that we can move forward with reading instruction that is more effective and equitable for all students.

Maybe your story is similar to mine, or maybe you've had different challenges and insights along your journey. Either way, I hope you'll enjoy this series and learn alongside us.

TIME TO REFLECT

1. What has brought you to this guide?
2. **Connect to Practice:** How were your experiences as an educator similar to or different from Kim's?

Foundational Skills Instruction: Whole Group? Small Group? What's Best?

By Wendy Seger & Marisa Ramirez Stukey

DOES ONE SIZE FIT ALL?

Pretend with us for a minute. This past year, the school board in the town of We-Care decided to support the newcomers to public school in a very special way. They provided each incoming kindergartener with a new pair of well-constructed, durable sneakers.

The sneakers sported a cheerful neon-orange color, heel-activated sparkling lights, and Velcro® closures. Initially, the students loved the sparkling lights, the teachers loved the Velcro® closures, and the parents loved the relief to their budgets.

However, there was one major caveat: the sneakers only came in size 12.

The drawback soon became abundantly clear. On kindergarteners with much smaller feet, the shoes were so loose they flopped around and slipped off, sometimes becoming lost. For the children with larger feet, the sneakers were so tight they were painful to wear, and the students began to discard them and go sock-footed or barefoot in the classroom. Recess became a real problem.

In the end, this sneaker program worked only for about one-third of the students—the ones who just happened to fit into a size-12 shoe.

For the other kindergarteners, this well-intentioned support was completely ineffective and a waste of time and resources.

REFLECTING ON OUR PHONICS INSTRUCTION

This "one-size-fits-all" story seems a bit far-fetched, right? Or is it?

We would contend that in the past, most teachers of reading took the same stance when it came to phonics instruction. Our students all received identical—usually whole-group—instruction.

> *Given the wide variations in students' literacy development, "one-size-fits-all" phonics instruction is unlikely to succeed.*

And yet, when we consider the reality of a class of incoming kindergarteners, we know that some students come struggling to form their letters and are insecure in most of their sounds.

Meanwhile, others arrive ready for more complex phonetic and lexical knowledge, having figured out or been taught some of the systems of decoding English. Given the wide variations in students' literacy development, "one-size-fits-all" phonics instruction is unlikely to succeed.

WHAT DOES THE RESEARCH SAY?

There is a clear path to becoming a fluent reader who decodes accurately and automatically. The path includes explicit instruction on a continuum of foundational skills: the simple alphabetic phase, the spelling-pattern phase, and the more sophisticated polysyllabic and morphemic phase.

Students come to school with a variety of literacy experiences and knowledge about letters, sounds, books, and vocabulary. They can and will enter this continuum at varying points, and our instruction should move them from that entry point on to the next.

Research has shown us that the traditional whole-class phonics lesson is not the way to develop fluent readers—not for kindergarteners or, in fact, for students in any grade level. Whole-class phonics instruction assumes our students all have the same instructional needs, but we know this is not the case.

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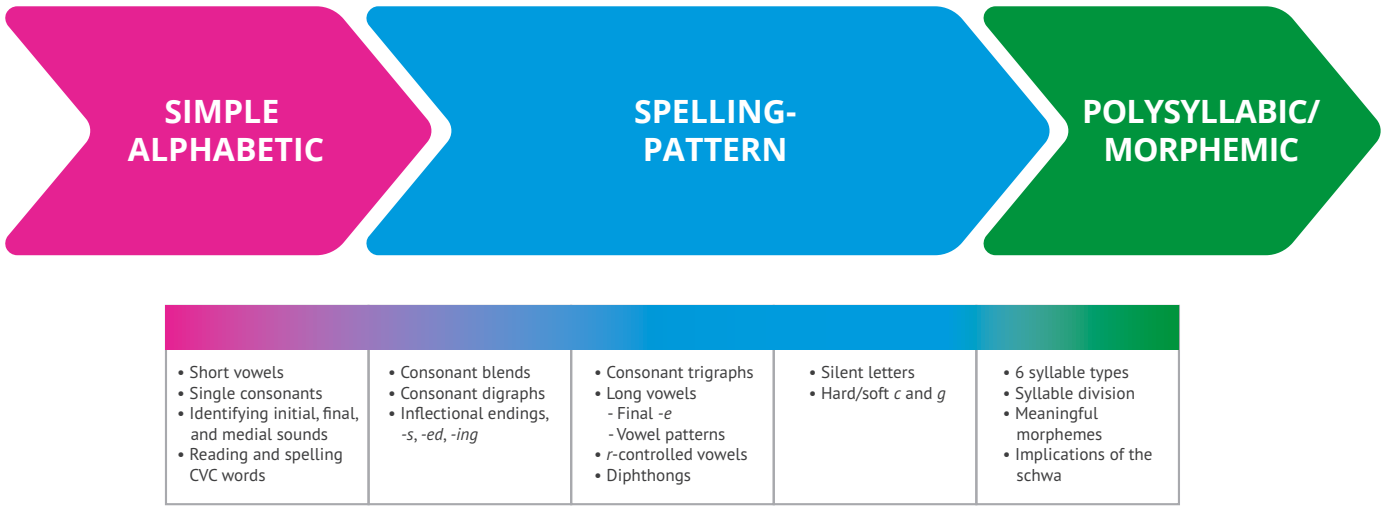
Whole-class phonics is an:

> instructional misstep [that] means that fewer children will develop strong word-reading skills. In addition, ineffective phonics instruction is likely to require more class time and/or later compensatory intervention, taking time away from the growth of other important contributors to literacy development. (Duke & Mesmer, 2019)

PHONICS CONTINUUM



Snow et al. (1998, 321) assert that "...intensity of instruction should be matched to children's needs. Children who lack these understandings should be helped to acquire them; those who have grasped the alphabetic principle and can apply it productively should move on to more advanced learning opportunities."

MOVING FROM A DATA-INFORMED POSITION

The first step in providing differentiated foundational skills instruction is moving from a data-informed position. We must use data to determine the students' instructional needs along the foundational skills continuum, never assuming that all students need to start at the beginning.

Then, we must use this same data to group students for small-group differentiated phonics instruction. In their article, Duke & Mesmer (2019) affirm that "some children are able to develop letter-sound knowledge more quickly and efficiently than others" and advise providing differentiated phonics instruction.

THE IMPORTANCE OF A CLEAR SCOPE AND SEQUENCE

If we consider a continuum of foundational skills instruction to be a progression of more complex skills, we must also follow a clear scope and sequence. A scope and sequence allows us to place students at their instructional points of need, teach in a systematic way, and adjust the intensity of instruction.

As Duke & Mesmer (2019) assert, "across decades, evidence has accumulated to suggest that systematic phonics instruction with a scope and sequence will produce better outcomes than instruction that does not follow a scope and sequence."

OBSERVING, ASSESSING, AND RESPONDING TO STUDENTS' NEEDS

Lastly, we must respond to the needs of our students. On-going observational and assessment data allow us to respond to the students' needs and support their word-reading development (Duke & Mesmer, 2019).

Snow et al. (1998, 7) further clarify, "because the ability to obtain meaning from print depends so strongly on the development of word recognition accuracy and reading fluency, both of the latter should be regularly assessed in the classroom, permitting timely and effective instructional response where difficulty or delay is apparent."

NO MORE "ONE SIZE FITS ALL": A VITAL INSTRUCTIONAL SHIFT

Providing targeted phonics instruction in a small-group setting with a systematic process for monitoring learning allows us to be responsive to our students' needs. We can adjust the pace, frequency, and focus of our instruction, reteaching and reviewing when necessary.

While the shift away from whole-group instruction may be challenging for many of us as educators, it can be life-changing for our students, especially as they encounter the increasing demands of more complex texts in the intermediate grades.

While the shift away from whole-group instruction may be challenging for many of us as educators, it can be life-changing for our students, especially as they encounter the increasing demands of more complex texts in the intermediate grades.

As we plan and prepare for the next school year, we're wondering how we might score an invitation to speak to the school board at We-Care.

We'd encourage them to let go of their "one-size-fits-all" approach and instead discover how differentiated, small-group phonics instruction provides a more effective way to support all of their students and ensure their success.

TIME TO REFLECT

1. **Connect to Practice:** Consider your own foundational skills instruction. To what extent is it driven by data? Is there an explicit scope and sequence for foundational skills instruction in your classroom? On your grade level? Within your school? Across your district/network?
2. What are the benefits of providing foundational skills instruction in a small-group setting rather than a whole-group setting? What can you do to bring this practice into your classroom?

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Lesson Structure: What Components Lead to Foundational Skills Mastery?

By Margie B. Gillis

LESSON STRUCTURE: WHAT COMPONENTS LEAD TO FOUNDATIONAL SKILLS MASTERY?

Thinking about lesson structure immediately brought me back to my days as a special education teacher in a resource room. I read research about the importance of phonemic awareness in learning to read and I understood, long before the National Reading Panel published its report, that children benefited from systematic and explicit phonics instruction that included reading decodable text. However, I wasn't as steeped in the lesson structure that would support students' acquisition of foundational skills as I knew I needed to be.

I spent the next 10 years working with individuals and small groups of students of all ages and honed my teaching skills. The luxury of working in focused settings that included at least 45 minutes of instruction 3 to 5 days per week set me and my students up for success. Every day I spent time planning for each group based on the formative data that I gathered, and I charted my students' progress with both word-recognition skills and reading comprehension.

After spending 25 years instructing students, I shifted my focus to teacher training. I naively assumed that most teachers had knowledge about evidence-based practices and quickly realized that was not the case.

A mind shift needed to occur, and the most powerful method of bringing that about was illustrating for teachers how to analyze screening and diagnostic data to drive targeted instruction in foundational reading skills. This data analysis was used to form, manage, and teach small, differentiated groups of children to ensure mastery of foundational skills.

I naively assumed that most teachers had knowledge about evidence-based practices and quickly realized that was not the case. A mind shift needed to occur, and the most powerful method of bringing that about was illustrating for teachers how to analyze screening and diagnostic data to drive targeted instruction in foundational reading skills.

Evidence-based reading instruction has been a primary focus of our Literacy How coaching for K–3 teachers since classroom teachers are expected to deliver powerful instruction for all of their students. For students with identified word-recognition difficulties, the small-group instruction must focus on teaching phonemic awareness, phonemic decoding, encoding, reading fluency, and writing (National Reading Panel, 2000). Each lesson must also include time for guided and independent practice and focus on language and reading comprehension.

LESSON STRUCTURE: THE "BONES" OF AN EVIDENCE-BASED LITERACY APPROACH

I consider the lesson structure to be the "bones" of an evidence-based literacy approach. Each part of the lesson should build and lead to the next, supporting student independence and foundational skills acquisition. The lesson structure outlined below follows a carefully designed sequence of activities that build from one to the next, incorporating elements of review, small chunks of new learning, and time to apply and practice. These are strong, research-based elements of a lesson (Rosenshine, 2012).

Phonemic Awareness and Phoneme-Grapheme Relationships

Each lesson begins with a phonemic awareness (PA) activity that is focused on the phonetic element(s) and level that a student is working on. Following the PA activity, students review phoneme-grapheme correspondences to work on automaticity. Special attention is paid to newly learned sound-letter associations as well as those that students haven't mastered.

Explicit Instruction in Decoding and Encoding

The next step in the lesson structure is decoding, which begins with explicit instruction in a new phonetic or morphological element (e.g., digraph /sh/, suffix -ed) or concept (e.g., the floss rule). The research is clear that explicit and systematic instruction in decoding is essential (Snow et al., 1998). Since decoding and encoding are reciprocal skills, students practice spelling those sounds and writing words with those patterns (Møller, Mortenson & Elbro, 2021). Structured decoding and encoding practice is included in each lesson so students see how sounds are spelled with different letters and letter patterns and sequences.

High-Frequency Word Learning

The lesson should also include time building automaticity with high-frequency words, many of which are phonetically irregular (Ehri, 2014). There are many clever and motivating activities that will engage students as they practice reading these words that are instrumental in building reading fluency.

Applying Skills in Connected Text

The next step is to practice applying all of these previously described elements in reading connected text and writing words and sentences with the patterns that have been explicitly taught (Foorman, et al., 2016). The writing portion of the lesson may include explicit instruction in letter formation as well as structured dictation of sentences. It is also important that students have time to write in response to what they've read so they practice writing independently as well.

FREQUENCY OF INSTRUCTION

The aforementioned sequence of an evidence-based literacy lesson may vary across a week's time. Ideally, students who need focused instruction in word-recognition skills will engage in lessons on a daily basis. However, the length of the lesson may not be sufficient to include all of the elements that have been described here.

For example, it is important that students read connected text daily, and equally as important, that the teacher is listening to them read while informally assessing their accuracy and automaticity. Since this portion of the lesson can be the most time-consuming, the time spent on reading connected text will vary so that the other lesson elements can be covered throughout the day and week. Explicit instruction in writing may only occur in three out of five weekly lessons.

> *It is also important that students have time to write in response to what they've read so they practice writing independently as well.*

MOVING TOWARDS THE ULTIMATE GOAL

The ultimate goal of an evidence-based literacy lesson focused on word-recognition skills is to improve reading fluency so that the student's cognitive energy can be used to construct meaning of any text that is put in front of them (Rasinski, 2019).

Teachers who adopt this approach follow a clearly articulated scope and sequence and use a gradual release of responsibility to scaffold students' learning and time needed to practice to mastery. The best way to know when and how to increase the difficulty of the task is to monitor students' progress using both formal and informal measures—for example, by moving from simple monosyllabic words to multisyllabic words with varying phonetic and morphological elements, and moving from very controlled decodable text to authentic text.

For the teacher learning the approach, understanding how one element of the lesson structure supports the rest allows them to better respond to student needs. The more experiences teachers have with strong lesson structures that apply the elements of evidence-based literacy and the pedagogical principles of instruction, the more adept they will become. Each student will be provided the requisite practice that leads to mastery.

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TIME TO REFLECT

1. **Connect to Practice:** How are the "bones" of your lesson structure? Draw a chart like the image below and detail where your current instruction matches the evidence-based literacy approach.

FULLY IMPLEMENTING	PARTIALLY IMPLEMENTING	NOT YET IMPLEMENTING

2. **Connect to Practice:** Which of your current practices are affirmed by the research? What might you need to incorporate next?

Phonological and Phonemic Awareness: How Do We Bridge Research to Practice?

By Valentina Contesse

Although I learned about *phonological awareness* and *phonemic awareness* during my teacher preparation program, I didn't truly put this knowledge into practice until I began my career as a special education teacher in the primary grades. I didn't fully understand the connection between phonological and phonemic awareness skills and students' reading development.

Now, as a teacher educator, I work to help preservice and practicing teachers feel prepared to apply research in this area in effective classroom practices. Understanding the research and putting it into practice is really hard work. Many of us continue to grapple with how to actualize what the science of reading shows are best practices for students.

> *Many of us continue to grapple with how to actualize what the science of reading shows are best practices for students.*

So, with that in mind, let's start at the beginning.

First, let's get clarity about the terms we're using. Sometimes *phonological awareness* and *phonemic awareness* are spoken about in ways that might lead us to infer that they are interchangeable—but they are not.

WHAT IS PHONOLOGICAL AWARENESS?

Phonological awareness is the awareness of or sensitivity to the sound structure of language. Phonological awareness is an umbrella term used to describe awareness at different levels of spoken language (Lane et al., 2002).

Phonological awareness includes activities at different units or levels of language, including the word level, syllable level, intrasyllabic level (e.g., onset-rime), and—most critically for this discussion—the phoneme level.

WHAT IS PHONEMIC AWARENESS?

Phonemic awareness is the capacity to attend to and manipulate phonemes. Phonemes are the smallest units of speech that make a difference in the meaning of a word. For example:

> The word 'cat' has three phonemes, /k/ /ă/ /t/.
>
> The word 'fish' has three phonemes, /f/ /ĭ/ /sh/.
>
> The word 'sheep' has three phonemes, /sh/ /ē/ /p/.

Phonemic awareness is the most sophisticated and most important level of phonological awareness.

WHY IS PHONEMIC AWARENESS SO IMPORTANT?

Children typically develop awareness of larger sound units (words, syllables, intrasyllabic units) before they start attending to phonemes, but instruction focusing on these larger units should not be thought of as a prerequisite for instructional activities that support children's phonemic awareness (Brady, 2020). There's not really any evidence that working on syllables or onsets and rimes helps children read better. It's phonemic awareness that supports word reading skills.

Research has confirmed this. The National Reading Panel (NRP, 2000) examined the impact of phonemic awareness instruction. The meta-analysis conducted by the NRP, which included 52 research studies, identified that phonemic awareness instruction, under various teaching conditions, supported children's decoding (reading) and encoding (spelling) development.

The most important phonological skills are blending and segmenting at the phoneme level (NRP, 2000). These phoneme level skills contribute directly to decoding and encoding. As the research indicates, primary grade teachers should target phonemic awareness skills during instruction (Gillon, 2018).

PHONEMIC AWARENESS ALONE ISN'T ENOUGH: WE NEED EXPLICIT PHONICS INSTRUCTION, TOO!

A popular saying in teacher workshops is that "phonemic awareness activities can be done in the dark." We need to remember that just because we *can* do something doesn't mean we *should*!

This saying probably came about as a way to help educators understand the concept of phonemic awareness (i.e., the processing of sounds). But, somewhere along the line, it turned into the idea that adding letters was somehow wrong.

It's true that adding letters makes it phonics instruction, but that doesn't mean it isn't still *also* phonemic awareness instruction. In fact, with letters, it's *better* phonemic awareness instruction!

As always, we must keep the end in mind and phonemic awareness instruction is a means to an end. The ultimate goal of phonemic awareness instruction is to improve word reading skills.

It's also important to acknowledge that oral phonemic awareness instructional activities alone are not sufficient for helping students understand the alphabetic principle, or the understanding that graphemes (letters or letter combinations) and phonemes work together in systematic ways to form words. Instruction targeting foundational reading skills should include both phonemic awareness and explicit phonics instruction (NRP, 2000).

Explicit phonics instruction includes instruction that is direct, precise, and unambiguous and is built on the foundation that phonemic awareness provides. The NRP report also supports explicitly teaching children how to apply phonemic awareness skills in decoding and encoding tasks. In fact, NRP findings indicate that phonemic awareness instruction is most effective when children are taught to manipulate phonemes with letters. You can do this through activities with Elkonin boxes or manipulative letters or tiles.

As always, we must keep the end in mind and phonemic awareness instruction is a means to an end. The ultimate goal of phonemic awareness instruction is to improve word reading skills.

PHONEMIC AWARENESS: ESSENTIALS FOR INSTRUCTION

Now that we've established the importance and relevance of phonemic awareness instruction, let's consider the instructional routines that support acquisition of this essential set of skills.

While this list is just a sample of instructional strategies, the listed aspects are essential for student growth.

The Importance of Correct Pronunciation of Sounds

It is important for teachers to model correct pronunciation of sounds during instruction. If students do not pronounce sounds correctly (e.g., pronouncing /b/ with a schwa, as /buh/), this impacts their ability to accurately blend these sounds to form words.

Students also benefit from learning about articulatory gestures, or how sounds are produced (Boyer & Ehri, 2011). Helping students attend to how sounds are produced supports their phonemic awareness and knowledge of grapheme-phoneme correspondences.

This University of Florida Literacy Institute video provides a quick review of how to pronounce sounds while teaching reading.

Phoneme Blending

Phoneme blending activities require students to put phonemes together to form words. Instructional activities targeting blending at the phoneme level support decoding. When students decode a word, they must blend the sounds together.

> Teacher: 'sheep'
>
> Students: /sh/ /ē/ /p/

A practice called "connected phonation" can make blending activities more effective (Gonzalez-Frey & Ehri, 2020). Conncted phonation means holding out sounds to make blending easier. Instead of modeling /m/+/ă/+/p/, try holding out the sounds to model /mmmăăăp/. This topic will be further discussed in the next article in this series.

Phoneme Segmenting

Phoneme segmentation activities require students to break apart the individual phonemes in a word. Instructional activities targeting segmenting at the phoneme level support encoding. When students encode a word, they must break apart the word to hear each individual sound and then match each sound with the corresponding grapheme.

> Teacher: 'sheep'
>
> Students: /sh/ /ē/ /p/

CONCLUSION: BRIDGING THE RESEARCH-TO-PRACTICE GAP

Research helps identify effective classroom practices, however, knowledge gained from research is purposeless if it isn't used by those most able to directly impact student outcomes—educators! Understanding the research and how phonemic awareness and phonics instruction are inextricably linked would have been so helpful to me as a teacher and of course, to my students.

I'm grateful that the conversation about the science of reading and how that science impacts student learning is so robust right now. We are all working so hard to improve our instructional practices to ensure that the robust research base makes its way into our classrooms.

TIME TO REFLECT

1. **Connect to Practice:** Have you seen the connection between phonological and phonemic awareness skills and students' reading development in your classroom/district?
2. What are some strategies or routines from this article you plan to implement?

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The Power of Continuous Blending: How Do We Use Connected Phonation to Support Decoding?

By Valentina Contesse

In my previous article—"Phonological and Phonemic Awareness: How Do We Bridge Research to Practice?"—I discussed some essential instructional practices that support students' phonemic awareness and word reading skills. In this article, we will home in on one of these practices: connected phonation.

As a teacher and tutor, I have seen firsthand the power of connected phonation in helping students who are learning to read. Even when my students were able to correctly identify all grapheme-phoneme correspondences in a word, many continued to have difficulty blending these phonemes together to read the word. By modeling and encouraging the use of connected phonation, I've been able to support the decoding skills of many students. It's always a good thing when a simple tweak to our instruction can make such a difference in the decoding progress of our students!

Before we delve into connected phonation, let's foreground this discussion by talking briefly about continuous sounds versus stop sounds.

CONTINUOUS SOUNDS VERSUS STOP SOUNDS

Continuous sounds can be stretched out without distortion. Stop sounds cannot be stretched out without distortion.

> Continuous Sounds: all vowels, /f/, /l/, /m/, /n/, /r/, /s/, /v/, /w/, /y/, /z/
>
> Stop Sounds: /b/, /k/, /d/, /g/, /h/, /j/, /p/, /t/

WHAT IS CONNECTED PHONATION?

Connected phonation is a decoding, or word reading, strategy that teaches students to stretch out continuous sounds to support their blending. This practice is also referred to as *continuous blending* (CORE Teaching Reading Sourcebook, 2018).

The goal of connected phonation is to avoid pauses between sounds. This decoding strategy helps students learn to blend individual phonemes together when reading a word by not pausing between phonemes. By continuously blending phonemes, students that use connected phonation are less likely to forget the beginning sound of a word they are reading (Weisberg & Savard, 1993).

Connected Phonation Examples:

/mmmăăăp/, "map" instead of /m/ + /ă/ + /p/, "map"

/sssŭŭŭnnn/, "sun" instead of /s/ + /ŭ/ + /n/, "sun"

/fffllllĭĭĭp/, "flip" instead of /f/ + /l/ + /ĭ/ + /p/, "flip"

While we commonly see words like "cat" or "big" used as practice for early decodable words, these examples are bookended by stop sounds, making it difficult for students to continuously hold the sounds across each phoneme. This in turn can make it difficult for some students to blend the sounds to decode the word. In early decoding practice, it is beneficial to use words that begin with continuous sounds. This is one reason why the sequence in which sounds are introduced is such an important aspect of instruction.

Although the practice of connected phonation is taught with words that begin with a continuous sound, the benefits of this practice extend further. Research has shown that skills learned from this decoding strategy can transfer to support students' decoding of words that begin with stop sounds (Gonzalez-Frey & Ehri, 2020).

USING CONNECTED PHONATION IN DECODING ACTIVITIES

Connected phonation can be used by students during various decoding activities, one of which is a blending drill. During a blending drill, students practice decoding words presented by the teacher. The goal of this instructional activity is decoding automaticity.

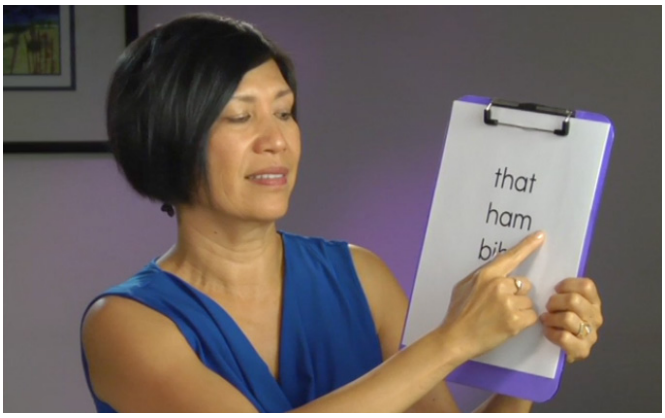
During a blending drill, it is helpful for the teacher or student to use their finger while decoding using connected phonation.

First, the teacher or student moves their finger from left to right while tracking underneath each grapheme-phoneme correspondence in the word: /mmmăăăp/

Then, the teacher or student sweeps their finger from left to right underneath the word while blending all the sounds to read the word: "map"

In the video seen here, the teacher is supporting the students with their connected phonation using the finger sweep technique. In addition, you can see an example of a practice word with a stop sound. Students immediately connect that stop sound to the vowel (which is a continuous sound) to support their blending.

Word chains can be used during blending drill activities. In order for students to use the connected phonation strategy, word chains should include words that begin with continuous sounds. When developing word chains, it is important to only change one phoneme at a time like in the examples on the next page.



Word Chain Examples:

mat ⇢ sat ⇢ fat ⇢ rat ⇢ rap ⇢ lap

flap ⇢ flip ⇢ slip ⇢slap ⇢ snap ⇢ snip

CONCLUSION

Connected phonation is an effective strategy for supporting students' decoding and is one of the many practices that can help develop strong foundational reading skills. It is important to use a gradual release of responsibility while teaching students to use connected phonation. Along with explicit teacher modeling of the decoding strategy, students need various opportunities to practice this strategy with activities like a blending drill. With some simple adjustments to our instruction, we can make a big difference for our students.

TIME TO REFLECT

1. **Connect to Practice:** Have you or your teachers used continuous blending drills with students before? If you have, describe the impact it had in their decoding automaticity. If you haven't, reflect on how you can incorporate this strategy into your upcoming lessons.

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Multisensory Instruction: What Is It and Should I Bother?

By Holly B. Lane

With all the buzz about the science of reading, you have probably heard about the characteristics of effective phonics instruction. Most experts agree that phonics instruction should be explicit and systematic and that intervention for struggling students should be intensive. Some experts also suggest that it should be multisensory. Let's unpack each of those characteristics.

- **Explicit** instruction includes clear explanations and demonstrations, scaffolded guided practice, and sufficient independent practice to ensure mastery. Explicit instruction is unambiguous and leaves nothing to chance.
- **Systematic** instruction is carefully sequenced to ensure that the student has the necessary prior knowledge and skills on which to build the new skill. This includes using a carefully planned scope and sequence that moves from easier to more complex skills.
- **Intensive** intervention includes many more practice opportunities than core instruction. This is usually accomplished by providing instruction in small groups or one-on-one and providing additional time for practice.
- **Multisensory** instruction uses multiple sensory pathways to enhance learning. This usually means that activities include visual (seeing), auditory (hearing), kinesthetic (moving), and tactile (touching) elements. The idea behind a multisensory approach is that connections between the symbols the student sees, the sounds the student hears, and the movements the student feels are consistently reinforced.

Research to support the first three features of instruction is convincing, and you'd be hard-pressed to find a serious researcher that disagrees with using phonics instruction that is explicit and systematic or intervention that is intensive.

Multisensory instruction is the only one that seems to be controversial. This is due, at least in part, to disagreements about what is considered "multisensory." Reading is innately multisensory, always involving visual and auditory processes—seeing letters, hearing sounds. However, when proponents of multisensory instruction use the term, they generally mean that tactile and kinesthetic methods should be used as well.

RESEARCH ABOUT MULTISENSORY METHODS: MACRO-LEVEL AND MICRO-LEVEL

The Orton-Gillingham (OG) approach is explicit, systematic, and intensive, but it also emphasizes multisensory techniques. Unfortunately, despite the fact that the OG approach has been around for nearly a century, no published research has isolated the multisensory aspect of the approach in a study.

In other words, there are studies that demonstrate positive effects for OG interventions, but as far as we know that could be entirely because they are explicit, systematic, and intensive. In fact, given that a recent meta-analysis (Stevens et al., 2021) found that OG approaches are no more effective than other methods of reading intervention, this could very well be the case.

That said, there is research that supports the use of some specific types of multisensory methods. Remembering that reading always involves visual and auditory senses, the distinctions lie in the kinesthetic/tactile elements, or the movement and touch involved in reading and writing words. The terms I came up with to help make this distinction are "macro-level" and "micro-level" movements.

[T]here is research that supports the use of some specific types of multisensory methods. Remembering that reading always involves visual and auditory senses, the distinctions lie in the kinesthetic/tactile elements, or the movement and touch involved in reading and writing words. The terms I came up with to help make this distinction are "macro-level" and "micro-level" movements.

Macro-level multisensory methods include large muscle movements. This kind of instruction may involve clapping or marching syllables, "skywriting" words in the air, tracing letters on sandpaper or in sand or shaving cream, or moving letter tiles.

Micro-level multisensory methods focus on the small muscle movements of the vocal tract. This instruction might include saying a sound, watching the mouth in a mirror, and attending to the placement of lips and tongue. Micro-level multisensory activities emphasize the articulatory gestures, or how the mouth looks and feels when producing specific sounds. This includes noticing the placement of the lips and tongue and whether the vocal folds are vibrating.

Micro-level multisensory methods have been found to promote phonemic awareness (Pieretti et al., 2015) and decoding skills (Boyer & Ehri, 2011; Castiglioni-Spalten & Ehri, 2003), while macro-level multisensory methods are thought to increase student engagement and promote letter knowledge (Birsh & Carreker, 2018).

Linnea Ehri (2014) explains why these micro-level movements may be helpful:

> It is common for teachers to direct students' attention to the sounds that are heard in words. However, there is reason to believe that sounds processed by the ear are less central than articulatory gestures produced by mouth movements in saying words. According to the motor theory of speech perception (Liberman, 1999), articulatory gestures rather than acoustic features represent phonemes in the brain. Also, ease of processing favors gestures. Whereas sounds are ephemeral and disappear as soon as they are heard, mouth positions are tangible and can be felt, viewed in a mirror, and analyzed by learners. (p. 10)

So, if a phoneme is represented in the brain by its articulatory gestures, having "phonemic awareness" would mean being aware of those movements. The motor theory of speech perception would then seem to provide theoretical support for the use of micro-level instructional methods. In addition to using the natural senses involved in reading—seeing and hearing—this view suggests that attention to the place and manner of articulation is potentially worthwhile (Roberts, 2005).

Several studies have explored micro-level multisensory methods. Some programs, such as Lindamood Phoneme Sequencing (LiPS), incorporate attention to articulatory

gestures as an integral part of intervention, and studies of these programs show positive effects (e.g., Torgesen et al., 1999; Truch, 1994).

Some studies have actually isolated this variable (e.g., Boyer & Ehri, 2011; Castiglioni-Spalten & Ehri, 2003), comparing instruction with and without attention to articulatory gestures, and the results of these studies are compelling.

WHAT DOES THIS MEAN FOR CLASSROOM PRACTICE?

As a result of well-intentioned advocacy efforts, multisensory methods have been mandated in numerous locales. Typically, these mandates are instituted without any accompanying professional development for teachers.

So, sandpaper letters, skywriting, clapping, and hopping have become a common sight during reading lessons. I've even heard silly suggestions for incorporating other senses, such as smell (writing with scented markers) or taste (spelling words with alphabet cereal), and calling it "multisensory" instruction. To be clear, there is no evidence that such methods make any difference at all!

Until researchers isolate macro-level methods as a variable and demonstrate them to be effective, mandating the use of this approach seems misguided.

In contrast, there is enough evidence that micro-level methods support literacy development to suggest that using them during reading instruction is probably a good idea. The main take-away from all of this, however, is that more research is needed on the role of and need for multisensory methods of reading instruction.

TIME TO REFLECT

1. **Connect to Practice:** How has your understanding of *systematic* and *explicit* instruction been affirmed or added to with the inclusion of multisensory instruction?
2. What in this article affirmed your thinking and what added to your understanding of the research?

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The Use of Pseudowords: The Importance of Being Earnest About the Science of Reading

By Holly B. Lane & Linda Diamond

Oscar Wilde, in *The Importance of Being Earnest*, wrote "The truth is rarely pure and never simple" (Wilde, 1898/1990, p. 10).

We can say the same thing about science. To arrive at absolute truth in science is rare because scientific knowledge constantly evolves, but we do know there are certain essential findings that constitute sufficient causal evidence to guide us to make decisions about health, the environment—and also about reading instruction.

THE IMPORTANCE OF EVALUATING RESEARCH

In reading instruction, educators want to know what practices they can trust that will improve reading outcomes. This means we want confirmed research that makes causal connections clear between "treatment practices" and the outcomes.

However, to understand statements of causal relationships for effective practices in reading research, we need to be certain of the methods used. Dr. Keith Stanovich explained that "the experimental method provides the critical support for making causal claims" (Stanovich, 2003).

So, what do we look for in evaluating research? The *Science of Reading: Defining Guide*, recently released by the Reading League (2022), provides a detailed chart explaining each of the three important components one should look for in examining research studies:

❶ **A study design that is experimental or quasi-experimental.** Experimental designs include random assignment to treatment and control groups; quasi-experimental designs do not use random assignment but participants are usually compared to groups with similar characteristics.

❷ **A detailed description of the methodology, the population, and any assessment instruments used**. Detail is necessary for replication and generalizability because one study alone is not sufficient to have confidence in the findings.

❸ **Acceptance in a peer-reviewed journal.** This last component is the quality check done by multiple, independent scientists well versed in the nature of the content of the study.

As reading educators, we often hear about inherently appealing ideas that sound promising but then turn out not to be supported by evidence. Examples include suggestive articles indicating the use of specialized fonts for children with dyslexia or special, colored lenses to improve reading. Despite numerous studies of their efficacy, neither of these approaches has been supported experimentally. Close reading, while emphasized in the Common Core State Standards, also has not been proven in empirical, peer-reviewed studies.

Many of us also remember the ubiquitous influence of learning styles that took hold in education despite the lack of any evidence to its effectiveness, and even after studies showed matching instruction to students' learning styles did not improve reading outcomes. Just because a practice sounds good does not mean it is effective.

We have spent our careers dedicated to guiding teachers' professional learning about reading—Linda as co-founder and past president of CORE and Holly as the founder of the University of Florida Literacy Institute. As a result, we have closely followed advances in reading science, and we've done our best to separate the effective from the simply appealing.

WHAT DOES THE RESEARCH SAY?

This brings us to the central question of this article: Is there research that confirms the efficacy of pseudowords, which some refer to as nonwords, when used during instruction, not just for assessment?

The idea seems to make sense because if children can decode pseudowords, we can make the conclusion that they have developed grapheme-phoneme correspondences. Or can we?

Often **pseudowords** (or **nonwords**) and **nonsense words** are used interchangeably even though they are not quite the same. We define these terms as follows:

Pseudoword (or nonword): a string of letters that mimics a real word both orthographically and phonologically but is not a real, meaningful word that exists in the language (e.g. gom)

Nonsense word: orthographically and phonologically random and does not match known orthographic patterns (e.g. qif)

On January 27, 2022, during a webinar, "The Science of Reading and English Language Learners," with colleagues Drs. Elsa Cárdenas-Hagan and Claude Goldenberg, Linda asserted with a high degree of certainty that while the use of pseudowords in assessment is well documented, using them in instruction is not.

Then Linda saw Holly's comments on the utility of teaching with pseudowords on the "Science of Reading—What I Should Have Learned in College" Facebook group. She cited the findings from a dissertation study (Cardenas, 2009), in which phonics instruction that included the use of pseudowords turned out to be more effective than instruction with only real words.

Having read that dissertation, Linda wondered about the nature of the assessment used. If children were tested using only pseudowords in the measure then it would be a close measure of what was taught rather than a general measure of phonics skills.

One of Holly's own doctoral students (Madsen, 2014) had conducted a similar study, building on Cardenas's findings. Her study did not find significant differences between instruction with and without pseudowords, but the kids in both intervention groups did better than the controls.

Madsen drew on a theory called recombinative generalization. This is a linguistics concept, which suggests that learning is supported when language units are combined in novel arrangements. The idea is that using pseudowords gives students additional opportunities to practice with new grapheme-phoneme correspondences arranged in novel ways, so a student who has learned that m represents /m/, i represents /ĭ/, and p represents /p/, would benefit from the practice afforded by decoding the pseudowords "mip" and "pim."

Another argument in favor of using pseudowords is that it can serve as practice for reading multisyllabic words, since most syllables are essentially pseudowords (e.g., tas, tic).

REACHING OUT TO THE RESEARCH COMMUNITY

After seeing Holly's post, Linda proceeded to reach out to reliable and well-known experts in the science of reading research community to get a clearer picture of the use of pseudowords instructionally.

Not surprisingly, most responded by saying they knew of no confirming research to justify the use of pseudowords for instruction.

Dr. Wesley Hoover explained that a nonword (some use pseudoword and nonword interchangeably) is "a property of whether it is known by the person encountering it and not an exclusive property of the letter sequence encountered" (personal correspondence January 28, 2022). What this means is that when children are decoding words that are not in their vocabularies during phonics instruction, the word is a nonword to them.

Dr. Hoover went on further to explain that "in learning to read, *set for variability* is important." Set for variability is the mental flexibility that allows a reader to discern the mismatch between a decoded word and its actual pronunciation. This is because a word may have multiple pronunciations, but having the word in a child's vocabulary will facilitate correct pronunciation, which can lead to the ability to make other grapheme-phoneme correspondences and generalize to other words. Pseudowords, according to Dr. Hoover, do not necessarily afford this opportunity. Furthermore, Dr. Hoover indicated "in using real words teachers have the opportunity to advance competencies in both word recognition and language comprehension, the two critical components of reading comprehension" (personal correspondence January 31, 2022).

Dr. Claude Goldenberg, a prominent researcher on English language learners, pointed out that just because it may not be wrong to teach with pseudowords, it doesn't mean it is helpful and may even be counterproductive in particular for English learners.

Dr. Elsa Cárdenas-Hagan, another prominent researcher focusing on English learners, is also concerned about using such words when teaching English learners who need to grow their English vocabularies.

Having heard all these counter arguments, Linda reached out to Dr. Linnea C. Ehri, because if anyone knows decoding instruction, it is Dr. Ehri.

Sure enough, she responded with two research studies. The most recent study with Brazilian students focused on decoding grapheme-phoneme subunits as well as two-letter CV pattern words of low frequency and missing diacritics (Sargiani, Ehri & Maluf, 2021). In addition, in an earlier study, Dr. Ehri used pseudowords in instructing young children and found positive effects (Ehri & Wilce, 1987).

Dr. Ehri generously sent Linda a set of real words and pseudowords by way of example when training children to practice reading units composed of CVCs: "bat, bet, bit, bot, but, tab, teb, tib, tob, tub." Meanings were not included in this type of set; instead, the purpose focused on processing grapheme-phonemes "to map spellings to pronunciations" (personal correspondence January 31, 2022).

However, Dr. Ehri also stated that when the central purpose is to connect meanings to spellings and pronunciation, it is not necessarily appropriate to include pseudowords. Furthermore, in the earlier 1987 study, Ehri and Wilce stated the following:

> Although our training method worked with a number of kindergarteners, it may not be the best way of designing instruction. Rehearsing nonsense syllables over and over is boring and tedious, especially for young children. Our method was selected mainly for experimental purposes. More interesting ways of teaching deciphering skill need to be identified and evaluated for their effectiveness. (p. 12)

Dr. Tim Odegard at Middle Tennessee State University's Tennessee Center for the Study and Treatment of Dyslexia also concurred with Dr. Ehri but with a caveat. Dr. Odegard explained that the need for pseudowords is "born out of the necessity for readers who need a lot of repetitions to consolidate learning." However, he went on to say with regard to English learners, "not all ELL students will require as much practice as others. The rate of learning and the need for considerable practice to consolidate learning is an individual difference" (personal correspondence January 31, 2022). At his center, the goal is to have children learn to read with real words.

From a practical consideration, mixing real words with pseudowords could provide extra practice with grapheme-phoneme decoding while children are progressing to the point when many more words become available for decoding practice. Dr. Odegard indicated that too often children do not get sufficient practice decoding so adding pseudowords could augment the real words. Thus, from a design standpoint, there is logic to this approach. However, when children are reading words in sentences and in decodable or connected texts, which should be a regular part of decoding instruction, using real words is preferred. Furthermore, more time reading texts and more interleaving (mixed practice) as children learn more grapheme-phoneme correspondences may resolve the sufficiency of practice concern.

Dr. Stephanie Stollar recently published a blog post about the use of pseudowords in assessment. In it, she cautioned against using them in instruction. She said, "The instant word recognition required for reading comprehension depends on the synthesis of graphemes, phonemes, and word meanings. Instruction that uses nonwords works against this goal."

Dr. Stollar goes on to suggest that assessing English learners with pseudowords is appropriate because "for students to become accurate and fluent readers of English, an underlying awareness of the phonics structure of English words is necessary in order to apply word attack skills when encountering unfamiliar words in text."

FURTHER RESEARCH NEEDED

It would be worthwhile to see a study examining instruction using pseudowords compared to instruction using real words, both with and without increased connected text reading. Some curricula, such as *SIPPS* and *Being a Reader*, to name two, provide a large amount of practice with words, sentences, and encoding and

reading connected texts, but also provide work with syllable parts (see the *SIPPS* Challenge Level Scope and Sequence) that are themselves pseudowords (e.g., *mem* or *ber* from *remember*).

Until further peer-reviewed research is conducted, we may not have a complete answer to the appropriate use of pseudowords in instruction. But Dr. Ehri's cautionary conclusion—that it depends on purpose—makes the most sense.

Finally, one consideration is the tyranny of time. Schools have limited time with children and what time does exist for literacy should include both developing automaticity with word recognition and the development of strong language comprehension, including vocabulary knowledge, oral language and background knowledge.

If we want children to improve both word recognition and language comprehension, we should maximize the instructional time that produces both outcomes. This alone is an argument to teach decoding as much as possible with real words, assess using pseudowords, and ensure application to texts to acquire the meanings of the words. In this way, children will bond grapheme-phonemes correspondences to spellings and to meanings for later automatic retrieval.

Unlike the prior examples about specialized fonts, colored lenses, and learning styles, which have been disproven by reliable research studies, the use of pseudowords in teaching reading will benefit from further research. Since this idea has taken hold, especially in some circles for children with dyslexia, more complete peer-reviewed studies could either advance or dispel the use of this practice except in certain situations.

REFLECTING ON THE IMPORTANCE OF BEING EARNEST ABOUT THE SCIENCE OF READING

This exchange about pseudowords reminds us to be cautious in asserting something with certainty before we have exhausted as much research as possible. To address this topic carefully, we followed the guidance provided in the *Science of Reading: Defining Guide* by the Reading League (2022):

1. Disagree respectfully
2. Identify best practices from multiple studies
3. Dig deeper and seek clarification
4. Have courage to reconsider

Holly's post started Linda down this path of exploration and once she read Dr. Ehri's studies, the use of pseudowords, with cautions, can make sense. It's important to take into account what Dr. Hoover and Dr. Odegard said, in particular because we have the urgent job of helping children become both automatic with word recognition and build their language comprehension as well.

We are also mindful of what Dr. Cardenas-Hagan and Dr. Goldenberg have said, and the importance for English learners to have enough English words in their oral vocabularies to be able to bond the spellings to the pronunciations and to meanings.

Finally, we are incredibly grateful to Dr. Ehri who responded to multiple emailed questions in order to provide clarity and nuance to this discussion.

We are all still on a journey, and to paraphrase Algernon in *The Importance of Being Earnest* when he explained further why the truth is "rarely pure and never simple": "Modern life would be very tedious if it were either, and modern [science] a complete impossibility."

TIME TO REFLECT

1. What did you think before reading this? What are you thinking about now?
2. How has it informed your understanding of the research around the use of pseudowords during instruction?

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What Is Orthographic Mapping and How Does It Link to Comprehension?

By Marisa Ramirez Stukey & Susan Vincent

As early readers embark on their journey toward fluent reading, they have a wide variety of skills to learn and apply. Teachers understand this all too well, as we work hard to teach all the science-based skills necessary for accurate decoding and active comprehension.

Sometimes these skills seem disconnected, but what if there were a special glue that could help readers hold together some of these seemingly separate components of reading?

Good news! There *is* a special glue and it's a process called orthographic mapping.

WHAT IS ORTHOGRAPHIC MAPPING?

While the concept of orthographic mapping is not new, it may be new to teachers.

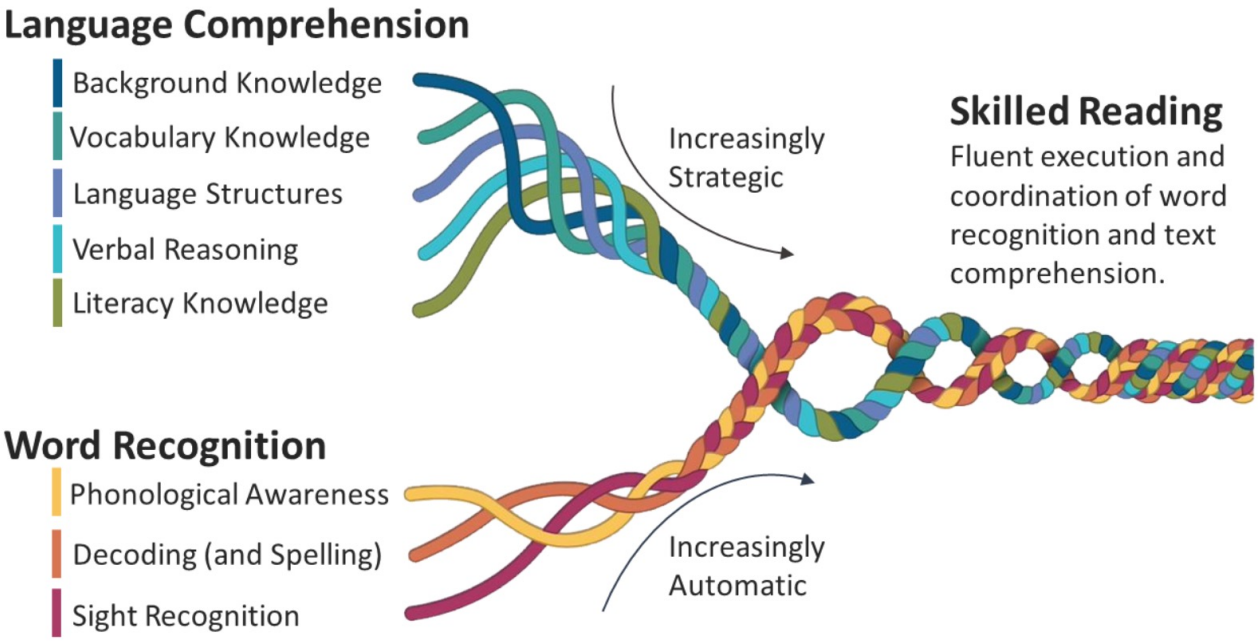
Over the last few years as a greater understanding of the science of reading has made its way into more and more classrooms, orthographic mapping has become a frequently heard term.

In a nutshell, orthographic mapping refers to the process in the brain where one connects sounds to letters and then connects those letter sounds to words they have in their oral vocabulary. Those words and their meanings become instantly recognizable and understood when read.

ORTHOGRAPHIC MAPPING REDUCES THE READING BRAIN'S WORKLOAD

This process is essential for students as they free up their working memory to focus on the meaning and comprehension of what they are reading rather than working hard to decode each word they encounter.

While orthographic mapping is clearly a goal of phonics instruction, and phonics instruction is a means to the end of making meaning from text, what isn't always so clear is the link between orthographic mapping and comprehension monitoring.



Source: Scarborough, H. (2001). Connecting early language and literacy to later reading (dis)abilities: Evidence, theory, and practice. in S. B. Neuman & D. K. Dickinson (Eds.). *Handbook of Early Literacy* (pp. 97–110). NY: Guilford Press.

Often when we discuss orthographic mapping, we immediately think of the "Word Recognition" strands of Scarborough's Reading Rope (see image above). While there is clearly an aspect of orthographic mapping that is connected to word recognition, it is essential to the further "weaving" of skilled reading that is depicted further down the framework.

WHEN SHOULD READERS START THINKING ABOUT MEANING?

As beginning readers work to connect phoneme-grapheme correspondences, they must also monitor their comprehension to ensure the decoding work they are doing makes sense and is accurate.

Students often work in decodable text to practice their burgeoning skills, and it's essential that those decodable texts also provide students with plausible scenarios so that they can monitor their comprehension while practicing their decoding skills.

Let's explore why even early readers should be monitoring meaning as a safeguard not just for comprehension but also for accurate decoding.

MEANING SUPPORTS ORTHOGRAPHIC MAPPING: AN EXAMPLE

Duke, Ward, and Pearson (2021) provide a clear example of how orthographic mapping can be influenced by meaning in their article "The Science of Reading Comprehension Instruction." Take the following decodable sentence:

"I can get the dog."

With the exception of the word "the," all of the words within the sentence are decodable. While a student is reading, they may miscue the word "get." It's not unusual for students to confuse the hard and soft sounds for /g/, so it's possible that the student may read the sentence as:

"I can jet the dog."

When students are also taught to monitor their comprehension while reading, hopefully, the students will recognize that "jet" is an unlikely pronunciation for that word. They will correct themselves and map the correct sounds to the word "get." This brings the word "get" one step closer to being an automatically recognized word.

Alternatively, if a student has not been taught explicitly to monitor their comprehension while reading, the word "get" could accidentally begin to be mapped as the word "jet." The child now has begun to consolidate an incorrect mapping, which will at some point need to be untangled and re-mapped.

This simple example helps illustrate the importance of comprehension monitoring for beginning readers. As Duke reminds us, the research does not support a sequential approach of holding off on comprehension instruction until word-recognition skills are mastered.

ORTHOGRAPHIC MAPPING AND VOCABULARY

Another important aspect of orthographic mapping and its connection to comprehension is vocabulary.

Without a word being a part of a student's oral vocabulary, orthographic mapping cannot occur since word meaning is part of the mapping. The more words a student has in their oral vocabulary, the more likely they are to solidify the words they are decoding into their sight word memory.

Again, monitoring comprehension while reading is of paramount importance as students encounter words with multiple meanings and/or pronunciations. Consider this sentence:

"I read newspapers."

How is the word "read" pronounced? It depends! Mapping the correct pronunciation and meaning of "read" depends heavily on the context in which it's used.

Ensuring that students are constantly monitoring and thinking about "what makes sense" deepens the orthographic mapping connections.

ORTHOGRAPHIC MAPPING AND FLUENCY

We sometimes think of fluency as the final destination of readers at the end of their journey. But fluency is being developed from the beginning, as orthographic mapping allows fast recognition of words and their meanings.

All the components of fluency (accuracy, automaticity, and prosody) are supported as words become mapped in readers' brains. Teachers, however, know juggling the teaching of all these processes can be complex work.

What if there were an instructional strategy that scaffolded orthographic mapping and its role in fluency development? Good news! Shared Reading is one such technique.

Shared Reading includes the opportunity for students to keep eyes on print while their reading is scaffolded by their teacher and classmates. Consider this lesson example from *Being a Reader* in Grade 1. Students are reading the poem "Bulldozer" for the second day. "Bulldozer" contains contractions in several lines. Think about which components of this shared reading lesson support orthographic mapping, fluency, or both.

Bulldozer

by Hope Vestergaard

1 The bulldozer isn't sleepy.
2 He's always in a rush.
3 He pushes piles of dirt and junk,
4 and levels trees and brush.
5 He's not a bully, either,
6 although he's big and tough.
7 He waits his turn, plays well with friends,
8 and pushes just enough.

1. The teacher **explicitly teaches** how contractions work with two words repeated in the poem: isn't and He's. The children **chorally read** part of the poem and the teacher circles these words. The teacher then **writes the contractions clearly** where everyone can see, explicitly teaching how these words work. The children **read the words**.
2. The class **chorally reads** the poem, with the teacher **sliding a pointer under each word**.
3. The teacher now passes out individual copies of the poem and the **class chorally reads** again, from their copy, with each child sliding their finger under the words.
4. The class forms partnerships, and partners **chorally read** the poem one more time.

In this shared reading lesson, these children have the opportunity to carefully map sounds to print as they examine contractions. These new words are on their way to becoming recognized words as they read the poem three times in this lesson. They also receive scaffolded practice in reading in a natural, prosodic way, aided by their growing automaticity with words.

CONCLUSION

Teachers know that understanding the connections between concepts helps learners. The same is true for us, as we learn more about how children learn to read and write. We can be even more effective in our teaching when we understand orthographic mapping and its many connections to critical areas of literacy such as comprehension, vocabulary, and fluency.

TIME TO REFLECT

1. **Connect to Practice:** Have you seen this happen with your students? What was the impact?
2. **Connect to Practice:** How has reading this synthesis of comprehension research helped you understand what was happening with that student?
3. **Connect to Practice:** How are you including orthographic mapping in your instruction?

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Reading Comprehension: What Does the Research Say?

By Lenora Forsythe & Marisa Ramirez Stukey

What does research say about reading comprehension, its synergistic relationship with word recognition instruction, the role of knowledge in comprehension, and effective practices for supporting students in building a body of knowledge?

Comprehension is at the heart of being a proficient reader. Despite this, it can seem like comprehension instruction is often shortchanged in public conversations about research-based reading instruction. The need for phonics instruction usually takes center stage.

Even as we wholeheartedly agree about the critical importance of explicit and systematic instruction in word recognition, we recognize the equally vital role that comprehension instruction plays in building readers. As literacy educators, we hold the respective importance of word recognition and language comprehension instruction in our minds as "both/and," not "either/or."

READING COMPREHENSION AND WORD RECOGNITION INSTRUCTION: EQUAL AND INTERTWINED

Acknowledging that equal importance is just the first step. According to Duke, Ward, and Pearson (2021), the relation between word recognition instruction and reading comprehension instruction is more synergistic than competitive.

This synergy is apparent in commonly referenced models, such as Gough and Tunmer's Simple View of Reading and Dr. Hollis Scarborough's Reading Rope Model. Both models identify the interconnectedness of language comprehension and word recognition to build skilled readers. The work of language comprehension is not separate from that of word recognition (as illustrated by the Reading Rope model); instead, both strands simultaneously intertwine as readers become more skilled.

The relation between word recognition instruction and reading comprehension instruction is more synergistic than competitive.

There is a body of evidence that helps us know which practices, figuratively speaking, "tighten the strands of the reading rope" and thereby build critical readers who comprehend what they read and build knowledge from their reading experiences. In this article, we'll consider what the research says and unpack key practices.

DON'T HOLD OFF ON COMPREHENSION: THE NEED FOR SIMULTANEOUS, NOT SEQUENTIAL, INSTRUCTION

Let's start by noting that research supports simultaneous instruction rather than sequential, meaning that students benefit from instruction in both word recognition and language comprehension (Duke, Ward, & Pearson, 2021). There's our "both/and" mindset again!

This important point about the need for simultaneous instruction is often missed amid the not uncommon belief that we ought to "hold off on comprehension instruction" until students reach a certain point of development in the trajectory of word recognition. Instead, oral language development and listening comprehension should be significant parts of early literacy instruction, alongside foundational skills development.

Oral language development and listening comprehension should be significant parts of early literacy instruction, alongside foundational skills development.

In an earlier article in the Structured Literacy series, "What Is Orthographic Mapping and How Does It Link to Comprehension," we identified orthographic mapping as an overlapping skill—in other words, a skill with the means to support both word recognition and language comprehension. Orthographic mapping supports students in building their sight vocabulary, which frees up their working memory while reading and allows for greater attention to meaning and comprehension. For specific examples of the relationship between orthographic mapping and comprehension for emerging readers, read the article (see page 31).

"READING TO LEARN" STARTS RIGHT AWAY: THE ROLE OF KNOWLEDGE IN COMPREHENSION

Educators often hear the following saying: "In kindergarten through second grade, students 'learn to read' and from third grade on, students 'read to learn.'" But it's time to retire this idea.

In actuality, reading to learn—reading to build knowledge—can start immediately upon students' exposure to text, assuming we give students the opportunity.

To successfully access this learning and build their bodies of knowledge, all students need comprehension instruction. The converse is true as well: without a body of knowledge, it's infinitely harder for readers to make sense of text.

Controlling for other factors, knowledge plays the largest role in comprehension (Cromley & Azevedo, 2007; Ozuru, Dempsey, & McNamara, 2009). In other words, the more a reader knows about a topic, the more likely they are to successfully comprehend a text about it.

In addition, the knowledge a student brings when they read a text for the first time supports their ability to add to their body of knowledge and retain that new learning. According to Hammond (2021), "For instruction to be truly liberatory and for learning to be sticky, it has to help students expand what they know, make deep connections across disciplines, and integrate new content into their existing funds of knowledge."

BEYOND CONNECTED TEXT SETS: WHAT ARE OTHER KNOWLEDGE-BUILDING PRACTICES?

Connected text sets are often portrayed as the only way that knowledge building occurs. However, when we limit our thinking like this, students miss out on other powerful ways to add to their body of knowledge.

Connected text sets are often portrayed as the only way that knowledge building occurs. However, when we limit our thinking like this, students miss out on other powerful ways to add to their body of knowledge.

In fact, research indicates that there are multiple knowledge-building practices that both increase comprehension of the current text and build students' knowledge base in order to positively impact comprehension (Cervetti & Heibert, 2019). Here are a few examples:

- **Wide reading.** Reading volume has long been associated with general world knowledge (Stanovich & Cunningham, 1993). The more children read, the more they learn about the world (Sparks, Patton & Murdoch, 2014). Rather than rigidly prescribing the content that students read, educators need to encourage wide reading, leveraging students' curiosity, cultural competencies, and intrinsic motivation to explore topics they care about.
- **Read-alouds.** Among multiple benefits, teacher read-alouds introduce students to new topics and vocabulary (e.g., Hennessy, 2020). They also afford students the ability to build their listening comprehension, a skill that is a critical stepping stone to the goal of reading comprehension. In addition, read-alouds are accessible: they allow every student to access grade-level text and sophisticated content they may not be able to decode themselves.
- **Access to complex text.** Exposure and access to engaging and conceptually rich texts, especially nonfiction, are essential for students to build knowledge of the world (Anderson & Guthrie, 1999) and support students in both a deeper and wider view of particular topics. Students who are exposed to informational texts through read-alouds are often more likely to choose those kinds of texts for their independent reading (Dreher & Dromsky, 2000). Narrative nonfiction and even some historical fiction also provide opportunities for students to add to funds of knowledge.
- **Incorporate higher-level questions and dialogue.** When students have regular and ample amounts of time to engage in both teacher-led and peer-to-peer discussions involving sophisticated texts and tasks, they deepen their knowledge and comprehension (Driver, Newton, & Osborne, 2000; Pappas, Varelas, Barry, & Rife, 2002). A recent study indicated a shockingly low amount of time devoted to students talking, listening, reading, and writing about text (Jeong, Gaffney, & Choi, 2010).
- **Strategies.** Explicit comprehension strategy instruction is clearly connected to building a body of knowledge. Research shows that students improve their comprehension when they experience effective instruction around proven strategies (Armbruster, Lerh, and Osborn, 2006; Hennessy, 2020; Duke et al., 2011).

While all of these knowledge-building practices are important, comprehension strategy instruction is often given short shrift. For that reason, we'll explore it in more detail in the next section.

For instruction to be truly liberatory and for learning to be sticky, it has to help students expand what they know, make deep connections across disciplines, and integrate new content into their existing funds of knowledge.

— Zaretta Hammond

REMEMBERING THE "WHY" BEHIND COMPREHENSION STRATEGY INSTRUCTION

Some educators have expressed concern about how explicit comprehension strategy instruction has been implemented in classrooms—namely, that we mistakenly treat the use of strategies as the end goal, rather than remembering that strategies are simply tools in service of learning from text.

However, just as poor implementation of phonics instruction (e.g., Duke & Mesmer, 2018) does not justify *not* teaching phonics, poor implementation of comprehension strategy instruction does not justify a decision to abandon this important knowledge-building practice (Duke, Ward, & Pearson, 2021).

Just as poor implementation of phonics instruction (e.g., Duke & Mesmer, 2018) does not justify not *teaching phonics, poor implementation of comprehension strategy instruction does not justify a decision to abandon this important knowledge-building practice (Duke, Ward, & Pearson, 2021).*

HOW DOES COMPREHENSION STRATEGY INSTRUCTION SUPPORT KNOWLEDGE BUILDING?

Readers use their knowledge of the world in many ways to comprehend text. A significant body of research links students' knowledge with comprehension of text (Langer, 1984; Long, Winograd, & Bridget, 1989; Stevens, 1980). Strategies support students in making sense of the text as they read. Coupling the successful use of strategies with strong knowledge is further supportive of meaning making while reading. This also results in students' ability to learn, or expand their knowledge base, as they read.

For example, the strategies of making connections and inferring rely on existing knowledge and integrating that knowledge with new information from a text to build deeper understandings. Teaching students to use their prior knowledge to make inferences about text can help them recall information.

Explicit strategy instruction teaches students how to deepen their comprehension by using their existing knowledge and marrying it with the text they are reading. The leveraging of a strategy is the difference between a surface-level understanding and a deeper understanding of the text a student is reading.

Visualizing—the direct action of making a mental image while reading—provides another example of how strategy use and knowledge are mutually supportive. Visualizations, or mental images, are supported by the prior knowledge the reader brings to the task. Students who visualize while reading are better able to make inferences about, predict, and recall both literal and implicit information from the text—which in turn serves their knowledge building.

Comprehension strategy instruction supports students in several important ways. It guides them in learning how to think about a text before, during, and after reading. It also helps students learn to monitor their understanding and notice when their meaning-making skills break down, and then figure out what to do about it (Duke, Ward, & Pearson, 2021). Some students may need minimal instruction in comprehension strategies; however, providing explicit strategy instruction is critical to the success of many readers.

IN CONCLUSION: WHAT RESEARCH TELLS US ABOUT READING COMPREHENSION

Comprehension instruction is integral to building strong readers. This instruction is synergistic, not competitive, with the equally important work of explicit, systematic instruction in word recognition. These strands are interconnected, intertwining as readers become more skilled, and we must not "hold off" on comprehension instruction for early readers. Oral language development and listening comprehension must be significant parts of early literacy instruction, occurring alongside foundational skills development.

The research base of comprehension instruction also tells us that students need to continually build a body of knowledge, and educators should support students in this work via multiple knowledge-building practices—not just the use of connected text sets. Finally, research shows that identifying the knowledge and integrating it with comprehension strategy instruction is a powerful part of comprehensive reading instruction. Knowledge and building on that knowledge using comprehension strategies are linked.

TIME TO REFLECT

1. **Connect to Practice:** What knowledge-building practices are in place in your classroom? Which practices might you add?

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Section 2
White Papers

What's Settled About the Science of Reading?

Connecting Research to Instructional Considerations and Classroom Practice

By Marisa Ramirez Stukey, Gina Fugnitto, Valerie Fraser, and Isabel Sawyer




INTRODUCTION

For decades educators have been discussing the "right" way to teach reading. While "balance" was called for over 20 years ago, dissension has reared its head again among teachers of reading. At the heart of the disagreement is the dichotomy between phonics instruction (the explicit teaching of letters and sounds) and a whole language approach (a focus on discovery and making meaning). While "whole language" as a term is rarely used now, many educators view the term "balanced literacy" as simply a euphemism for whole language.

Despite the ongoing dissension, research has demonstrated that significant aspects of effective reading instruction are in fact well established. Castles, Rastle, & Nation (2018) have conclusively shown that there is a clear progression to effective literacy instruction. First and foremost, children need to understand the principles of spelling-sound correspondences and to solidify a store of high-frequency words to read words and phrases fluently. Most children need explicit teaching to build this knowledge and master these foundational skills. As decoding skills and a bank of instantly recognizable high-frequency words are established, attention can increasingly be devoted to comprehension with a focus on making meaning.

Castles et al. (2018) offer a logical and research-based model. Even so, it has frequently been challenging for educators to translate this research about the science of reading into clear and actionable practice. Many classroom educators remain without consensus about what to prioritize when teaching reading—phonics instruction or comprehension.

In addition, educators are vigorously debating the role of knowledge in learning to read. While the importance of knowledge has been clear for over 40 years (see Cervetti & Wright, 2020), current curriculum-focused conversations have included demands to "build a body of knowledge." Frequently these conversations only acknowledge one way to build that knowledge: by using connected text sets around specific topics. Research tells us, however, that there are many ways to build a body f knowledge, and the use of connected text sets is only one of them.

While these debates continue unabated—some more constructively than others—too many teachers are often left unsure about how best to apply what they are learning, and our students experience the impact of that uncertainty. Our goal in this white paper is to get past the soundbites and instead outline the actual science of teaching reading. We hope to shed light on the issues and offer guidance and instructional considerations—all based on research. While we certainly won't address all the issues, we will tackle two topics in particular that have surfaced recently—explicit and systematic phonics instruction and building a body of knowledge.

REVISITING AND RETHINKING THE "FAB FIVE"

The National Reading Panel (NRP) report in 2000 identified the "fab five" of reading. The NRP identified instruction in Phonics, Phonological Awareness, Fluency, Vocabulary, and Comprehension as the elements research indicated were necessary for proficient reading.

Unfortunately, the NRP did not prioritize the elements. While each of the five is essential, they are not equal. Comprehension is always the ultimate goal of reading, and all of the other elements are *in service* of making meaning from text.

Explicit and systematic instruction in decoding (phonics, phonological awareness, and fluency) and vocabulary building are critical in achieving comprehension. Inherently misunderstood in the NRP report is that the purpose of instruction in phonological awareness, phonics, and fluency is to ensure that these processes become so automatic that students will not need to devote significant amounts of cognitive energy to them while reading. This automaticity allows students to focus their cognitive energy on making meaning from the text.

While reading the words on the page has been a goal of early elementary instruction for some time, the role of vocabulary and comprehension has often been minimized in the early grades. Teachers are frequently told to teach kindergarten, first-, and second-grade students to "learn to read," and after third grade, students "read to learn." In fact, research tells us that children should be reading to learn from the very beginning of their school career (Houck & Ross, 2012). Building knowledge and amassing an expansive and rich vocabulary are critical elements of comprehending text, and they develop early through oral comprehension of written language (Cervetti, 2020).

Another important element to consider here is the significant relationship between decoding and comprehension. If a word is not already part of a student's oral vocabulary, orthographic mapping cannot occur. Word meaning is part of the mapping, and those meanings must become bonded to the spelling in order for the words to become automatic (Ehri, 2022).

Lastly, the National Reading Panel identified comprehension monitoring to ensure accurate decoding as an effective practice for early readers. Unfortunately, that finding was often interpreted as an endorsement of comprehension monitoring as a stand alone practice rather than making the vital connection between comprehension monitoring and word identification. Today we recognize that ensuring that decoding instruction clearly links to comprehension is an essential practice (Duke, Ward, & Pearson, 2021) and that the work of decoding and reading comprehension are inextricably linked.

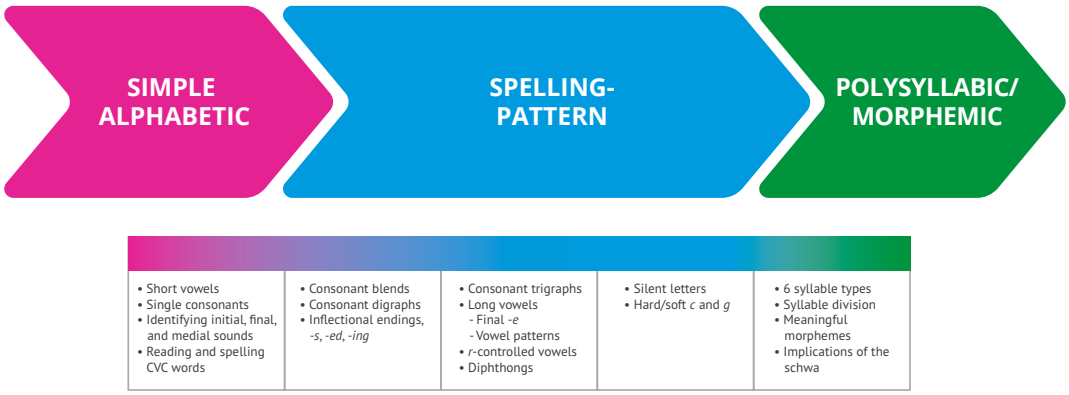
EXPLICIT AND SYSTEMATIC INSTRUCTION IN DECODING

There is no question that instruction in decoding leads to better readers. To develop as readers, students need instruction in the foundational skills to decode text and comprehension skills to make meaning of text. In her widely publicized article, Hanford (2018) states, "The basic assumption that underlies typical reading instruction in many schools is that learning to read is a natural process, much like learning to talk. But decades of scientific research has revealed that reading doesn't come naturally." In fact, it is so conclusively established that prominent journals will no longer publish studies testing the effectiveness of phonics instruction (Hanford, 2018).

In their seminal work, Snow, Burns & Griffin (1998) state, "there is converging research support for the proposition that getting started in reading depends critically on mapping the letters and the spellings of words onto the sounds and speech units that they represent. Failure to master word recognition impedes text comprehension." Students must learn that words are made up of sounds, that letters represent sounds, and that there is a relationship between letters and the sounds they represent. They must also learn to rely on that knowledge in order to decode effectively so that they are able to read fluently and make sense of the text they are reading.

Learning to read seems effortless for approximately 5 percent of the population (Young, 2018). These "spontaneous readers" can give teachers a false sense of security. The terms "Third Grade Wall" or the "Fourth Grade Slump" arose because by third and fourth grade, "spontaneous readers" often struggle because they can no longer rely on other means to support their decoding.

PHONICS CONTINUUM



An additional 35 percent of the population is able to learn to read relatively easily. This group of students can also give teachers a false sense of security. These students may be able to decode "cat" easily but when they encounter a complex, polysyllabic word like "catastrophic," they have no strategies or knowledge for how to decode it. This situation points to the need for explicit instruction in polysyllabic decoding. Unfortunately, phonics instruction often ends at the simple alphabetic and spelling-sound phase of the continuum.

In polysyllabic decoding, sounding out words from left to right and recognizing basic sight words are not successful strategies in unlocking text (Just & Carpenter, 1987; Shefelbine, Lipscomb, and Hern, 1989). Students need instruction in the third phase of reading development, the polysyllabic-morphemic phase, in which they learn to read by syllables and morphemic units (Adams 1990; Shefelbine 1990). Students who are unable to decode polysyllabic words effectively pronounce fewer affixes and vowel sounds correctly, disregard large portions of available letter information, and are two to four times as likely to omit syllables as they read (Shefelbine & Calhoun, 1991).

Instruction at this more sophisticated phase includes:

- Morphemes
- Syllable types
- Syllable division rules
- Implications of the schwa

This instruction also needs to incorporate the flexible application of all that a student knows to decoding. Students "must strategically apply and broaden their knowledge base to accommodate the increase in complexity that comes with multisyllabic words" (Heggie, 2017). Students' increased ability to analyze and read polysyllabic words along with opportunities to read frequently and widely will impact their ability to comprehend text (Shefelbine, 1990).

Ultimately, the goal of reading instruction is not phonics proficiency. It is "to get students to the point where most of the words they encounter are automatically recognized so that their attention can be devoted to making meaning" (Rasinski, 2019). We do a disservice to students when we do not provide effective phonics instruction that allows them to develop the word-recognition strategies necessary to develop as fluent, automatic, proficient readers.

SMALL-GROUP, DIFFERENTIATED INSTRUCTION

There is a clear path to becoming a fluent reader who decodes accurately and automatically. As already discussed, the path includes explicit instruction on a continuum of foundational skills—the simple alphabetic phase, the spelling-pattern phase, and the more sophisticated polysyllabic and morphemic phase. But what is the optimal way of delivering this instruction?

The science has shown us that the traditional, whole-class phonics lesson rarely succeeds in developing fluent readers. As educators, we all know that students come to school with a variety of literacy experiences and varying amounts of knowledge about letters, sounds, books, and vocabulary—and yet whole-class phonics instruction treats our students as if they all have the same instructional needs.

In short, whole-class phonics is an "instructional misstep [that] means that fewer children will develop strong word-reading skills. In addition, ineffective phonics instruction is likely to require more class time and/or later compensatory intervention, taking time away from the growth of other important contributors to literacy development" (Duke & Mesmer, 2019). Snow et al. (1998) also assert that "...intensity of instruction should be matched to children's needs. Children who lack these understandings should be helped to acquire them; those who have grasped the alphabetic principle and can apply it productively should move on to more advanced learning opportunities."

How should we teach phonics, if not whole class?

1. **Use data to determine the students' instructional needs along the foundational skills continuum**; not all students need to start at the beginning.
2. **Use this same data to group students for small-group differentiated phonics instruction.** In their article, Duke & Mesmer (2019) affirm that "some children are able to develop letter-sound knowledge more quickly and efficiently than others" and advise providing differentiated phonics instruction.
3. **Follow a clear scope and sequence**. Both the content and sequence are essential in phonics instruction. A scope and sequence allows us to place students at their instructional point of need, teach in a systematic way, and adjust the intensity of instruction. As Duke & Mesmer (2019) assert, "across decades, evidence has accumulated to suggest that systematic phonics instruction with a scope and sequence will produce better outcomes than instruction that does not follow a scope and sequence."
4. **Rely on explicit instruction**. "There is evidence that explicit instruction that directs children's attention to the phonological structure of oral language and to the connections between phonemes and spellings helps children who have not grasped the alphabetic principle or who do not apply it productively when they encounter unfamiliar printed words" (Snow et al., 1998). "[E]xplicit instruction is direct, precise, and unambiguous (e.g., telling children what sound the letters /sh/ represent together, rather than making the connection indirectly or asking them to figure it out themselves)" (Duke & Messmer, 2019).
5. **Respond to the needs of the students**. On-going observational and assessment data allows us to respond to the students' needs and support their word-reading development (Duke & Mesmer, Winter 2018-2019). Snow et al. (1998) further clarify, "because the ability to obtain meaning from print depends so strongly on the development of word recognition accuracy and reading fluency, both of the latter should be regularly assessed in the classroom, permitting timely and effective instructional response where difficulty or delay is apparent."
6. **Give students the opportunity to apply their learning immediately in connected text.** The National Center for Education Evaluation and Regional Assistance (NCEE) recommends students practice reading new and familiar words or word parts in text "as soon as students can decode simple words" (Foorman, et al. 2016). Duke & Mesmer (Winter 2018-2019) affirm, "the evidence is clear that young children benefit from opportunities to read text that emphasizes letter-sound relationships they have learned to date. This reinforces the value of their hard work and of using decoding to read words."

The research is clear: students need differentiated, explicit, and systematic decoding instruction that is connected to text.

THE ROLE OF KNOWLEDGE IN COMPREHENSION: WHAT THE RESEARCH SAYS

As with explicit and systematic phonics instruction, the role of knowledge in comprehension is also clearly supported by science. Without a body of knowledge, it's infinitely harder to make sense of text and, in fact, controlling for other factors, knowledge plays the largest role in comprehension (Cromley & Azevedo, 2007; Ozuru, Dempsey, & McNamara, 2009). In addition, the knowledge one already has supports the ongoing process of learning and the ability to retain new knowledge.

In many classrooms, teachers utilize "activating prior knowledge" as a part of the reading process. However, activation of prior knowledge is significantly different from building a body of knowledge. Activation presumes the student already has background knowledge that needs to be brought forward. Building a body of knowledge, on the other hand, supports students in learning and deepening knowledge in topics they may or may not have been exposed to in the past. Building knowledge systematically adds to students' knowledge base and supports their comprehension.

How do we help students build knowledge, beyond the use of connected text sets?

Current conversation around this topic may lead one to believe that there is only one way to build knowledge: through connected text sets. Cervetti & Heibert (2019), however, offer multiple knowledge-building practices that both increase comprehension of the current text and build students' knowledge base to increase comprehension in the future.

1. **Wide reading encourages knowledge-building**. Reading volume has long been associated with general world knowledge (Stanovich & Cunningham, 1993). The more children read, the more they learn about the world (Sparks, Patton & Murdoch, 2014). Plenty of time for independent reading is one way for students to increase their knowledge base. Teacher read-alouds are an equally important way to introduce students to new topics and vocabulary. Wide reading also contributes to augmenting students' vocabulary, which, in turn, increases their capacity to learn more from texts they read (Stanovich, 1986).
2. **Ensure that students have exposure and access to engaging and conceptually rich texts, especially non-fiction**. Informational texts are essential for students to build wide knowledge of the world (Anderson & Guthrie, 1999) and support students in both a deeper and wider view of particular topics. Students who are exposed to informational texts through read-alouds are often more likely to choose those kinds of texts for their independent reading (Dreher & Dromsky, 2000).
3. **Higher-level questions and dialogue should be a guaranteed part of reading instruction to ensure that students use their knowledge to comprehend texts.** A recent study indicated a shockingly low amount of time is devoted to students talking, listening, reading, and writing about text (Jeong, Gaffney, & Choi, 2010). When students have regular and ample amounts of time to engage in both teacher-led and peer-to-peer discussions involving sophisticated texts and tasks, they deepen their knowledge and comprehension (Driver, Newton, & Osborne, 2000; Pappas, Varelas, Barry, & Rife, 2002).
4. **Explicit comprehension strategy instruction is clearly connected to building a body of knowledge.** A significant body of research links students' knowledge with comprehension of text (Hwang, McMaster, & Kendeou, 2022; Langer, 1984; Long, Winograd, & Bridget, 1989; Stevens, 1980). Students' schematic knowledge base is activated when reading similar representations of familiar concepts in text (Pressley, 2000). Building on the schematic representations that students have as well as activating and linking those representations to text comprises the strategy of making connections.

   Readers use their knowledge of the world in many ways to comprehend text. The strategies of "making connections" and "inferring" rely on existing

knowledge and integrating that knowledge with new information from a text to build deeper understandings. Making inferences about the text requires students to leverage their existing knowledge and when strong inferences are made, students better recall information that is both literal and inferential (Pressley, Johnson, Symons, McGoldrick, & Kurita, 1989). A significant number of studies demonstrate the effects of training students to use their prior knowledge to make inferences (Brown, Smiley, Day, Townsend, & Lawton, 1977; Hayes & Tierney, 1982; Omanson, Warren, & Trabasso, 1978; Pearson, Hansen, & Gordon, 1979).

Another significant strategy that contributes to comprehension is visualizing—the direct action of making a mental image as one reads. Prior knowledge is essential to being able to visualize, and students who are taught to visualize while reading are better able to make inferences, predict, and recall both literal and inferential information from the text (Center et al., 1999; Gambrell & Bales, 1986; Gambrell & Jawitz, 1993; Pressley, 1976; Sadoski, 1985; Truscott et al., 1995). Making a mental image contributes to retaining new learning since the information is stored as an image rather than words (Pressley et al., 1989; Sadoski, 1983).

The science of comprehension instruction tells us that students need to continually build a body of knowledge and that they build that knowledge through various avenues. In addition, identifying the knowledge and integrating it with comprehension strategy instruction is a powerful, evidence-based part of comprehensive reading instruction. Knowledge and the act of building on that knowledge using comprehension strategies are linked.

NEXT STEPS: CONNECTING RESEARCH TO PRACTICE

Current conversations about the science of teaching reading are frequently reduced to sound bites, unfortunately. Many times, the conversation devolves into "sides" where instructional approaches are relegated to an "either/or" choice.

We advocate that there is no either/or. There is absolutely an AND. Students need explicit and systematic instruction in decoding. Full stop. They also need ample amounts of time to read and be read to so their knowledge, vocabulary, and confidence around reading builds. Full stop. Students need a wide range of knowledge about the world. This knowledge is essential to their growth as readers and thinkers. There isn't only one way to build that knowledge. There are many ways, and as educators, we should take advantage of them all. Full stop.

Given what we know, our efforts should be devoted to ensuring that teachers have access to the research results and are given the tools that allow them to actualize this research with their students. Instructional time in classrooms should be supportive of the developmental process of reading on a continuum of learning—with more time devoted to decoding in the early grades and more time devoted to comprehension in the upper grades. That said, comprehension instruction is still absolutely necessary in our early grades—once again, it's not an either/or, it's an AND.

While we continue to learn more about the nuances of the development of reading in our students, we are fortunate in already having a considerable amount of research to inform our practice. It's time to ensure that all students are able to benefit from what is settled about the science of reading.

TIME TO REFLECT

1. **Connect to Practice:** Review the recommended suggestions for teaching phonics on page 44. What are you currently doing? What strategies could you start incorporating now?
2. **Connect to Practice:** Review the recommended suggestions for helping students build knowledge on page 45. What are you currently doing? What strategies could you start incorporating now?

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Aligning a System of Support to Reach All Readers

Lenora Forsythe, EdD, and Marisa Ramirez Stukey, PhD

INTRODUCTION

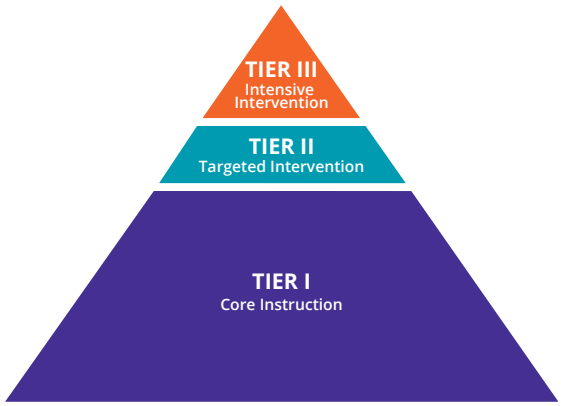
Learning to read is an intricate process that can be cumbersome for many children. This fact has led to many different approaches to reaching all readers, but none has been as clearly defined as the Response to Intervention/Multi-Tiered System of Support (RTI/MTSS) efforts over the last 15 years.

The RTI framework is a multi-tiered approach to the early identification of and support for students with learning and behavioral needs (RTI Action Network, n.d.). Most models of RTI/MTSS include three tiers of support. The three tiers are often represented graphically by a triangle divided into three horizontal bands. Each band represents the rough percentage of students who will learn to read, given increasingly intensive instruction.

The lowest band of the triangle represents Tier I, or core instruction that all students receive. With high-quality Tier I instruction, the majority of students (approximately 80%) will meet grade-level targets.

The second band shows that many students who need more than Tier I instruction will reach grade-level targets with appropriate intervention (generally 15%). Tier II instruction is more intensive than Tier I, and is designed to accelerate learning so that students can fully access and benefit from Tier I instruction (Fuchs & Fuchs, 2017). Tier II intervention is often taught in smaller groups so that students benefit from a more intimate setting and closer contact with the teacher.

The top band of the triangle represents Tier III intervention. Tier III intervention is the most intensive and personalized. Students in need of Tier III instruction (generally 5%) often have severe skill deficits that require a more individualized approach. Collectively, the tiered supports provide a framework for high-quality instruction that reaches all learners.



Many studies have explored the effectiveness of the RTI/MTSS model in achieving higher outcomes for students (e.g., Grapin, Waldron, & Joyce, 2018; O'Conner, Harty, & Fulmer, 2005; Vaughn et al., 2009; Vellutino, Scanlon, Zhang, & Schatschneider, 2008). We know that a data-based, problem-solving approach supports our learners robustly. This paper provides research support for the components of a strongly aligned RTI/MTSS system with the goal of supporting schools and districts as they make decisions that meet the needs of all their learners. While the RTI/MTSS framework attends to many aspects of academics and behavior, this paper will focus on the RTI/MTSS implications for reading instruction. We identify alignment across tiers as a piece that is missing from many current RTI/MTSS implementations, and we draw attention to the need for districts and schools to consider alignment as a key tenet in their choice of systematic and explicit curricula.

THE NEED FOR HIGH-QUALITY TIER I INSTRUCTION

When it was first developed, the RTI/MTSS approach was a significant departure from the general way of supporting the needs of all students in learning to read. For the first time, emphasis was placed on quality core instruction that is robust and differentiated, rather than the "within-child" variables that had previously been focused on as the initial step in supporting students who had difficulty learning to read. Many students who were (and still are) targeted as needing additional support have, in fact, been "instructional casualties." Learning to read would not necessarily be difficult for them; they have not learned because they simply haven't had robust core instruction.

Ensuring robust core instruction that includes ample amounts of reteaching when needed and frequent opportunities for student practice is the most effective way to prevent and remediate reading difficulties. Currently, renewed interest in the science of reading has provided a basis for Tier I instruction that includes an early, systematic, and explicit approach to foundational reading skills as essential for students learning to read (Rose, 2006; Torgesen, 1998). Research demonstrates that students need explicit and systematic instruction in mapping the sounds of words onto letters and speech units and that instruction is essential for comprehension (Snow et al., 1998).

While Tier I instruction is designed to meet the needs of the majority, it is not intended to be "one size fits all." Tier I instruction can and should be differentiated to meet the needs of students (Rose, 2006; International Literacy Association, 2019). High-quality formative and summative assessments allow teachers to tailor core instruction to the needs of their specific students and class. High-quality core instruction includes ample opportunity for students to practice new skills, such as reading and rereading controlled-vocabulary text that includes recently learned phonics elements in addition to reading words in isolation. High-quality core instruction also includes reteaching opportunities teachers can utilize as needed, based on assessment and observation. For example, when the teacher notices that some students are unable to read controlled-vocabulary text, she may conclude that the students have not had enough practice with newly taught material and reteach as appropriate.

When high-quality, robust Tier I instruction is in place, the need for intervention is greatly reduced (Rose, 2006). The RTI/MTSS diagram on page 49 is a visual reminder that Tier I instruction should meet the needs of approximately 80% of students. Often, schools and districts are faced with an inverted triangle, meaning that Tier I instruction is not meeting the needs of the majority of students, and as a result more than 20% of students are identified as requiring intervention. When this occurs, school and district leaders should consider how to strengthen core instruction as a first step. It is ineffective and inefficient to continually attempt to intervene to account for poor Tier I instruction.

THE NEED FOR ALIGNED TIER II SUPPORT

When students struggle to read despite strong Tier I instruction, Tier II interventions are necessary. One goal of the RTI/MTSS framework is that students who receive support in Tier II eventually transfer what they are learning into Tier I instruction and cease to need intervention. In order for that to happen, Tier II intervention must be explicit and systematic, and aligned with Tier I instruction (Fuchs, Fuchs, & Compton, 2012). Instructional coherence between the two tiers has been shown to be associated with stronger student outcomes (Newmann, Smith, Allensworth, & Byrk, 2001).

All too often, students are receiving Tier II intervention that is unrelated to their classroom instruction. This model is less successful than an intervention where there is alignment across the two tiers. There are several ways in which Tier II interventions can and should be aligned with Tier I instruction. First, an aligned scope and sequence of skills is beneficial for students in a Tier II intervention. When Tier II instruction increases the instructional intensity of a particular skill that a student has learned in Tier I, students have more time and more opportunity to learn that essential content (Baker, Fien, & Baker, 2010). An aligned scope and sequence also improves efficiency of instruction by allowing for a seamless shift from Tier I to Tier II, saving effort and time in determining placement. When there is no align-

ment, variations in the sequence of instruction across curricular programs may result in situations where a skill is instructed for the first time in Tier II.

A second benefit to aligned curricula is the ability to maintain consistent instructional routines and language. Consistency is essential for students to make associations between what they are learning in Tier I instruction and the intervention support they receive in Tier II instruction. For example, students often have difficulty keeping up with the pace of learning new sight words as they are introduced and taught during core instruction. An aligned Tier II program would provide repeated and more intense instruction for the same sight words. Other crucial consistencies are the ways the teacher explains tasks and provides feedback to students as well as how expectations for student responses are aligned across the tiers. Students are more likely to make connections and understand content when routines and expectations are aligned. For example, when continuous blending is introduced and used in Tier I instruction to support the accurate decoding of words, and then used again in Tier II, there may not be a need to introduce continuous blending unless the support is warranted. Consistency in materials, content, and language is highly desirable to support our fragile learners (Baker, Fien, & Baker, 2010; Carnine, 1992).

An aligned Tier II intervention does not necessarily mean the program was designed by the same developer that designed the Tier I program. Even when the same publisher provides both core and Tier II instruction, the scope, sequence, instructional language, or routines may not be aligned. It is important to consider that the first criterion for selecting a Tier II intervention to support decoding deficits is that it is explicit and systematic. From there, leaders and teachers can work to align the important pieces to their core instruction.

Tier II interventions are designed to be used in addition to Tier I instruction, not to supplant it. The increased intensity and additional time devoted are intended to ameliorate the reading difficulty. Several meta-analyses of small-group interventions found moderate to strong effects of daily Tier II instruction (Elbaum, Vaughn, Tejero Hughes, & Watson Moody, 2000). In addition, an Institute for Education Science panel found strong evidence for the effectiveness of providing small-group interventions as supplemental instruction to support the Tier I core curriculum (Gersten et al., 2008). According to the panel, small-group Tier II instruction should:

a) target the components of reading instruction in which the student needs additional support

b) be implemented three to five times each week for approximately 20 to 40 minutes each session

c) build skills gradually with high student-teacher interaction and frequent opportunities to practice the specific skill and receive feedback

It is also important to note that the instruction in Tier II needs to focus on a particular aspect of reading, for example decoding, and be targeted to students who need to practice that specific skill (Burns, 2010).

INDIVIDUALIZED (YET STILL ALIGNED) TIER III SUPPORT

When quality Tier I and II efforts are exhausted and a student continues to demonstrate deficits in the skills already taught, Tier III supports are warranted (Denton et al., 2013). Tier III interventions are the most intense, and are often personalized to meet the individual student's specific need(s) (Burns, 2010). For example, intensity might be added in Tier III foundational skills intervention by incorporating elements of multisensory instruction. These multisensory elements add layers of auditory, visual, and/or kinesthetic cues to support learning. Other types of considerations include decreasing group size, increasing the time spent in intervention, increasing the frequency of intervention, and slowing the pacing of instruction (Denton et al., 2013). Tier III supports should only remain in use for as long as the child exhibits the need.

Tier III interventions typically happen outside of the child's regular classroom; however, it is still critical for Tier III work to be coordinated with the instruction in Tiers I and II (Rose, 2006). Tier III should take into account what the student did and did not learn in previous instruction. While the goal of Tier III is narrowing the scope of skills to teach them at one time, ensuring a common instructional language and building

from the work done in Tiers I and II are essential for supporting these fragile readers. If a student experiences disconnected learning, skill gaps are not likely to be closed (Batsche, 2013).

IMPLICATIONS FOR PRACTICE

A successful RTI system is well planned, coordinated, and carefully monitored across all three tiers (Rose, 2006). Schools and districts should consider the alignment (or lack thereof) of instruction across tiers (Bean, 2008; Hill et al., 2012). Careful side-by-side examination of the core and supplemental scopes and sequences, instructional routines, and teacher language will provide a clear indication as to whether or not the instruction will be complementary.

A large-scale, systematic analysis of research by Marzano (2003) and DuFour and Marzano (2011) posited a coherent, content-rich curriculum as the probable single largest factor affecting levels of achievement in school. By itself, curriculum has the potential to alter a school's academic trajectory. Students benefit greatly when they receive instruction that guarantees that certain important agreed-upon content and literacy skills are actually taught and learned (Marzano, 2003; DuFour & Marzano, 2011). In closing, we suggest that schools and districts reflect on their current RTI/MTSS implementation and consider the following guiding questions:

- **Q** *Do the instructional materials provide a systematic scope and sequence?*
- **Q** *Does the scope and sequence from each tier align to provide complementary instruction?*
- **Q** *How are the instructional routines similar across tiers? Different?*
- **Q** *How does instruction intensify across tiers without creating confusion for students who struggle?*
- **Q** *How does pacing need to be adjusted in Tiers II and III?*
- **Q** *How will high-quality implementation of Tier I be ensured?*
- **Q** *How will inconsistencies be addressed as part of the overarching RTI/MTSS implementation?*

In order to reach all readers, we must consider the implications of the entire system of support that we provide to students. Many well-designed studies have shown the positive impacts that a high-quality RTI/MTSS framework can provide (Gersten, Newman-Gonchar, Haymond, & Diminio, 2017); however, considerations beyond the intervention programs used in the system are important. As many researchers have shared, "how implementation occurs matters just as much as what is being implemented" (Arden et al., 2017, p. 217). A thoughtful, coherent, aligned system of support can help us achieve our goal of reaching all readers.

TIME TO REFLECT

1. To reflect on your own RTI/MTSS implementation, use the questions listed on this page.

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Section 3
Interviews

A Conversation About the Science of Reading and Early Reading Instruction with Dr. Louisa Moats

By Kelly Stuart & Gina Fugnitto

Collaborative Classroom is dedicated to developing curricula aligned with the research that informs the "science of reading" conversation.

We had the great pleasure of sitting down with Louisa C. Moats, EdD, the nationally recognized researcher and authority on literacy education who has written widely on topics including reading instruction, the professional development of teachers, and the relationships among language, reading, and spelling.

In this interview, Dr. Moats shares her insights about the current discussion of the science of reading, her reflections on the Common Core State Standards (CCSS) for early reading, the types of training that teachers of reading need, and her assessment of how the *SIPPS®* *(Systematic Instruction in Phonological Awareness, Phonics, and Sight Words)* program aligns with the research about successful reading instruction. We hope that you find this interview stimulating and helpful for your own practice.

Collaborative Classroom: For decades, you have played a central role in growing the body of knowledge around how children learn to read. To frame this conversation for our audience, could you begin by defining the science of reading?

Dr. Louisa Moats: The body of work referred to as the "science of reading" is not an ideology, a philosophy, a political agenda, a one-size-fits-all approach, a program of instruction, nor a specific component of instruction.

It is the emerging consensus from many related disciplines, based on literally thousands of studies, supported by hundreds of millions of research dollars, conducted across the world in many languages. These studies have revealed a great deal about how we learn to read, what goes wrong when students don't learn, and what kind of instruction is most likely to work the best for the most students.

Collaborative Classroom: What is your perspective on the current national discussion about the science of reading? For example, Emily Hanford of American Public Media has done significant reporting that has really elevated the conversation.

Dr. Louisa Moats: These days I have moments when I feel more optimistic. Emily Hanford's reports have been the catalyst sparking our current national discussion. A growing number of states are confronting what is wrong with the way many children are being taught to read. I'm inspired by the dialogue and courage of the people who know enough about the science of reading to offer a vigorous critique of those practices, programs, and approaches that just don't work for most children.

I am also optimistic about the recent report out from the National Council on Teacher Quality. There's an increasing trend of new teachers being trained in the

components of reading, and I think that many veteran educators are open to deepening their learning.

However, there's still a long way to go. In general, our teaching practice lags far behind what the research tells us. We consolidated the research on what it takes to teach children to read way back in the early 1990s, and yet today a majority of teachers still haven't been given the knowledge or instruction to effectively teach children to read.

Collaborative Classroom: You were asked to weigh in on the Common Core State Standards (CCSS) when they were being created. However, I have recently heard you say publicly that, in the end, the final published standards are not well aligned with the research on how children acquire reading competency. Could you please share your thinking about the disconnect between the research and the Common Core Standards for early reading?

Dr. Louisa Moats: There is so much in the Common Core State Standards that just doesn't square with how the majority of children learn to read. For instance, there are incorrect assumptions made about pacing, some of which are simply wrong and others that reflect the needs of only a fraction of students in any given classroom.

Because the standards demand an instructional pace that is developmentally too fast for a majority of students, there is tremendous pressure on teachers to move extremely quickly through instruction; as a result, many students cannot keep up. Their reading growth becomes fragmented. It's an artificial acceleration of reading growth.

Research has taught us a great deal about the optimal rate of instruction, yet the standards basically ignore what a large number of students need. There are unintended outcomes of this accelerated pace of instruction, namely an increased use of rote instruction, such as piles of flash cards; kids are getting drilled on words, without a clue of how to actually look at a word and accurately decode it. And this rote instruction simply doesn't work.

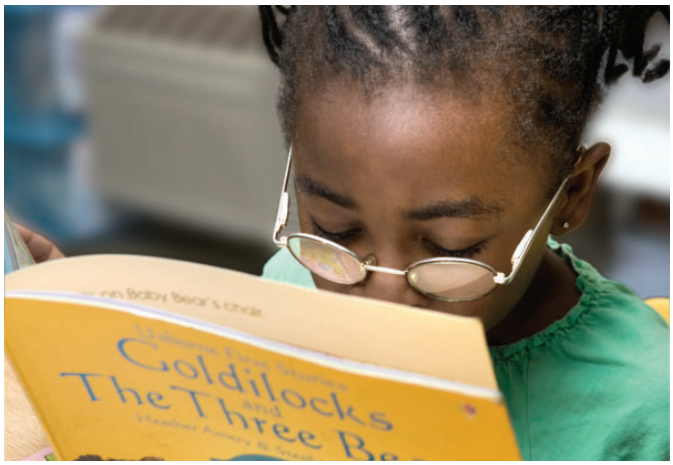
Unfortunately, some of the people who led the development of the CCSS were more well versed on research pertaining to middle and high school and didn't have

a strong grasp of beginning reading instruction. They didn't understand the complexities of teaching young children to read. They didn't know all the data about the pace of learning, the individual differences kids bring, and the sheer volume of practice that most children need to consolidate reading skills.

These are things that those of us in the research community have understood since the early 1990s. For example, researchers have known for a very long time how many times a struggling reader needs to look at a word in order to form a mental map between the print and speech. It can take children as many as 40 times before they recognize it as a whole word. It takes a while for the cognitive pathways to build up.

There was little appreciation for this, unfortunately, when the standards were being written. The desire to have a consistent thread running up through the ELA standards, with elements in kindergarten that would continue through the grades, took precedence over the idea that learning to read the words is, by its nature, qualitatively different from learning to comprehend the words that have been recognized.

This is problematic; the nature of reading changes at every stage of a student's reading development, so grade to grade we cannot approach instruction the same way. We have significant research about this (for example, from Frank Vellutino at SUNY Albany and a group at the Florida Center for Reading Research) in which the researchers actually mapped out how the nature of reading changes over time, grade by grade.



Collaborative Classroom: In light of what is known about the science of reading, what do you think about the reviews currently being conducted by groups such as EdReports?

Dr. Louisa Moats: I am skeptical about the quality of those reviews. EdReports is making a sincere effort to offer constructive reviews, but the people who volunteer to do reviews are not necessarily as knowledgeable as they should be.

A good review should emphasize the accuracy, organization, and methodology of language instruction, and it is very common that people with a general reading background may not be as well informed as would be optimal. For example, it is quite common in today's instructional programs that phonological skills and phoneme awareness are not well taught and that orthographic concepts are poorly explained.

Collaborative Classroom: Let's shift our conversation to pedagogy and programs. At the January 2020 meeting of the Council of Chief State School Officers, the training that you and Dr. Carol Tolman developed, Language Essentials for Teachers of Reading and Spelling (LETRS®), was highlighted as a key tool to help teachers learn about the science of reading. Could you tell us a bit about LETRS and how it supports educators?

Dr. Louisa Moats: LETRS empowers teachers to understand the what, why, and how of scientifically based reading instruction.

We focus on teaching priority skills such as phonology, phonics, vocabulary, fluency, and comprehension that need to be taught during reading and spelling lessons to obtain the best results for all students.

The reason we focus on those priority skills is that effective reading instruction is complex, with several related key components that are informed by scientific research. The way we help teachers apply this knowledge is by demonstrating instructional routines, activities, and approaches that will allow them to address the needs of all their students.

After going through the LETRS training, educators generally have a better sense of what they should be looking for in a reading curriculum and are much more critical consumers. For example, in one state we had a strong group of teachers who learned a tremendous amount about early reading through LETRS. When the state pushed to adopt a particular program, these educators could immediately identify the program's significant deficits in early reading, based on what they had learned from LETRS. They were amazingly articulate about the program's deficits in serving early readers.

Collaborative Classroom: What would you recommend that school and district leaders consider when evaluating programs that support what is known about the science of reading?

Dr. Louisa Moats: Here are a few important things for leaders to consider when evaluating programs. First, ideally, there should be explicit instruction in foundational skills for approximately 45 minutes daily that follows a lesson routine: review, explain the concept, provide guided practice, provide more (independent practice); spell and write to dictation; read decodable text.

Then, determine if the instruction in phoneme awareness, phonics, and text reading is informed by knowledge of both the speech-sound system and the orthographic system.

Third, examine the scope and sequence for order and pacing of concept introduction. Intervention materials should be aligned with [Tier I] classroom instructional materials but provide more intensive practice. AVOID any program that includes drawing shapes around words, making alphabetic word walls, teaching the "cueing systems" approach of appealing to context to guess at unknown words, or that does not follow a clear scope and sequence where one skill is built upon another.

Collaborative Classroom: Thank you for sharing your expertise with us by reviewing our *SIPPS*® *(Systematic Instruction in Phonological Awareness, Phonics, and Sight Words)* program. Could you share some of your specific feedback from your review of *SIPPS*?

Dr. Louisa Moats: My initial reaction was that the missions of our respective programs are very complementary. In short, *SIPPS* and LETRS are well aligned. (In my review, I focused mostly on *SIPPS* Beginning Level.)

Something very unusual stood out for me in *SIPPS* instruction: the authors, the late Dr. John Shefelbine and his co-author Dr. Kit [Katherine] Newman, really understood the content. I could not find anything in the program's examples or the order of instruction that I would consider to be misinformed about language structure. That is so unusual.

It is terrific to see this alignment—what we are teaching in LETRS is so complementary with *SIPPS*.

SIPPS has something that I'm always looking for in programs: The authors understand phonology and the distinguishing features of classes of phonemes, which is so important because certain speech sounds can be easily confused with other speech sounds, and the instruction needs to teach children how to distinguish these sounds without overloading them with too much information.

For example, the *SIPPS* instructor is cued to contrast /p/ and /b/, /k/ and /g/, and other consonants differing only in voicing. Vowels are treated as sounds with articulatory properties instead of as a limited set of letters. In lesson after lesson in *SIPPS*, I saw examples of the authors' understanding of the content as well as a deep appreciation for explicit instructional techniques.

Collaborative Classroom: What were areas of instruction you noticed in *SIPPS* that might seem subtle, but which are vitally important in your opinion?

Dr. Louisa Moats: There are a few key areas I want to highlight. First, the *SIPPS* sound-symbol cards, the reference point for learning the connections between phonemes and graphemes, are the way I like them. For example, /f/ is a sound; "fish" can be a key word; and the sound can be spelled with f, ff, or (later) ph or gh. This is how the SIPPS cards are organized: Here is the sound, and here are the ways that sound can be spelled. This might seem subtle, but it's extremely important.

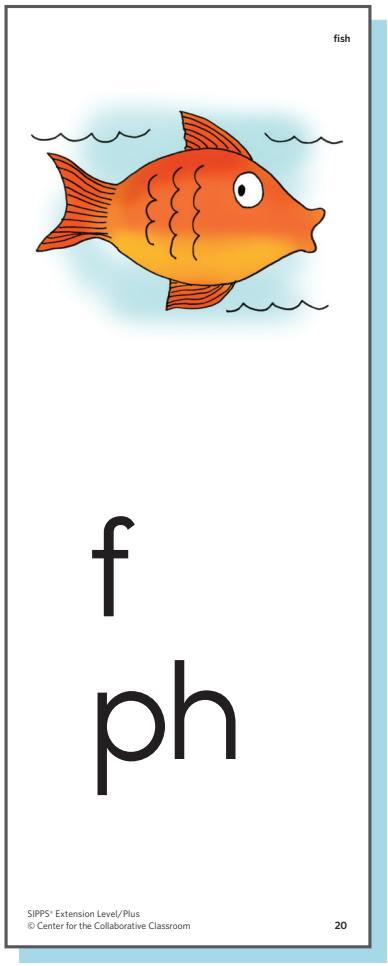
Second, many other programs show children letters and say, "This letter makes this sound," and that is simply not true. If you approach instruction that way, children are never going to fully grasp the connection between oral language and written language, and that to me is the origin of so much confusion in textbooks and materials. Many people brush these details aside because they themselves don't have a deep knowledge of phonemes, and this lack of understanding prevents educators from anticipating the type of corrective feedback students will need.

Educators who have the necessary knowledge are able to anticipate where students will struggle and can give effective corrective feedback. This is another strength of the *SIPPS* program; I see that kind of enlightenment throughout *SIPPS*. John [Shefelbine] and Kit Newman have a real understanding of what is confusing for students, and in the program they provide great clarity about what to directly teach to minimize confusion. You can tell that they truly understand the basics of language.

Third, the *SIPPS* scope and sequence is really well informed from a linguistic standpoint, and everything is as clear as can be. I just think it is wonderful.

Collaborative Classroom: What is one piece of advice or guidance that you might offer to district or school leaders who are working to change how reading is being taught in their classrooms?

Dr. Louisa Moats: Invest in teacher education before investing in specific programs. In the case of an excellent program like *SIPPS*, at least support the implementation with professional development. Any program will be more powerful if knowledgeable, confident teachers are using it.



Section 4
About the Authors

ABOUT THE AUTHORS

Dr. Valentina Contesse is a clinical assistant professor of special education in the School of Special Education, School Psychology, and Early Childhood Studies at the University of Florida. She works for the University of Florida Literacy Institute (UFLI) and helped develop the UFLI Virtual Teaching Resource Hub. Dr. Contesse supports the coordination of professional development for preservice and practicing teachers focused on evidence-based reading instruction and provides school-based implementation support.

Dr. Contesse began her teaching career after earning her undergraduate degree in elementary education and graduate degree in special education. She has previous elementary teaching experience as both a special education and general education teacher in inclusive K–4 classrooms.

Her research interests include early literacy intervention, implementation of evidence-based instructional practices, teacher preparation in reading, and the effects of performance feedback on teacher practices. Through continued research and teacher training efforts, Dr. Contesse hopes to build stronger connections between research and practice, to ultimately help improve academic and social outcomes for all students. Follow her on Twitter at @ValContesse.

Linda Diamond has dedicated her career to teaching children to read, particularly those with word reading difficulties like dyslexia.

A long-time partner of Collaborative Classroom, Linda co-founded the Consortium on Reaching Excellence in Education (CORE) alongside former California Superintendent of Public Instruction Bill Honig in 1995. After serving as CORE's president for 26 years, Linda stepped down from that role in December 2020 but continues to serve on CORE's Advisory Board.

Linda has also worked as a public school teacher, principal, Director of Curriculum and Instruction for a K–12 school district, and Senior Policy Analyst with an emphasis on school-to-career, charter schools, and school reform.

Linda is the co-author of the textbooks *Teaching Reading Sourcebook*, *Assessing Reading: Multiple Measures* and *Vocabulary Handbook*. The National Council on Teacher Quality 2020 Teacher Prep Review listed the *Teaching Reading Sourcebook* as one of ten textbooks that comprehensively and rigorously cover the scientific basis and instructional elements of the five essential components of effective reading instruction. The report also found that it is used by more teacher prep programs than any of the other ten textbooks. Learn more about Linda's work.

Dr. Lenora Forsythe is Senior Manager of Educational Proposals and Pursuits at Collaborative Classroom. She earned her Ed.D. in Curriculum and Instruction with a concentration in Reading from the University of Central Florida (UCF). Her research emphasized professional learning for elementary school literacy coaches. She earned her master's degree in reading education from Nova Southeastern University and her bachelor's degree in early childhood education from UCF. Lenora has ten years of teaching experience at the elementary school level that includes literacy coaching and teaching first and third grades. Additionally, Lenora has spent five years teaching undergraduate elementary education courses that focus on literacy at UCF.

Dr. Gina Fugnitto is the Vice President of Implementation at Collaborative Classroom. She received her Ed.D. in Curriculum and Instruction at the University of Central Florida with an emphasis on analysis of literacy coach trends. She has worked as a classroom teacher, interventionist, and instructional coach. She has extensive experience coaching and providing professional learning at the state and national levels. As Associate Director of Literacy for Response to Intervention Teaching Learning Connection (RtI TLC), she supported the scale-up efforts of RtI within literacy. Gina is passionate about coaching and working alongside educators to deepen professional practices that inspire student learning. Follow Gina on Twitter at @gfugnitto.

Valerie Fraser serves as Senior Vice President of Program Development and Publishing Services and has twenty years of experience at Collaborative Classroom, holding management positions in both the program development and publishing areas of the organization. She was the lead editor on the original *Making Meaning* project, worked with John Shefelbine and Kit Newman in the development of all three editions of *SIPPS (Systematic Instruction in Phonological Awareness, Phonics, and Sight Words)*, and most recently led the conceptualization and development of Collaborative Classroom's *Being a Reader* program. Prior to joining the team at Collaborative Classroom, Valerie was a developmental editor in elementary educational publishing at Prentice-Hall and in graduate-level textbooks at Allyn and Bacon (Pearson). She has also volunteered as a reading coach in public schools. Valerie has a BA in modern languages and literatures from the University of Toronto.

Dr. Margie B. Gillis is a nationally recognized literacy expert and a Certified Academic Language Therapist who has been teaching children of all ages to read for over 40 years. In 2009, she founded Literacy How to provide professional development opportunities and coaching for teachers on how best to implement evidence-based reading practices in the classroom.

Dr. Holly Lane is the Director of the University of Florida Literacy Institute (UFLI) and the Irving and Rose Fien professor of special education.

Her research focuses on effective reading instruction and intervention and helping teachers develop the knowledge and skills they need to teach reading effectively, especially using evidence-based practices to promote the development of foundational reading skills.

Dr. Lane has provided professional learning experiences for thousands of teachers, she has directed numerous grants to support reading research and the development of teachers and researchers, and she is the author of many publications related to literacy. She was recently recognized for this work by the International Literacy Association with the 2021 Leaders Inspiring Readers Award.

Dr. Marisa Ramirez Stukey is the Senior Director of Research and Engagement at Collaborative Classroom. She received her PhD in Curriculum and Instruction with an emphasis in teacher education and professional learning and a master's degree in reading education, both from the University of Florida.

Marisa is a Nationally Board Certified Teacher with over fifteen years of experience teaching in both elementary and higher education contexts, instructional coaching, and professional learning systems development. Her research interests focus on reading comprehension instruction and designing literacy professional learning. She has consulted with numerous school districts in developing change models and collaborative professional learning structures, particularly to shift literacy instruction. She lives in Gainesville, Florida with her husband and young daughter.

Dr. Isabel Sawyer is Senior Vice President of Dissemination at Collaborative Classroom. She leads the Collaborative Classroom field team in the national dissemination efforts. In addition, Isabel presents keynotes, workshops, presentations, and professional development for teachers, literacy coaches, and administrators across the country.

Previously, she worked as a lead instructional coach for Albemarle County Public Schools and as an instructional coordinator for an inner-city school in Charlottesville, Virginia. Isabel's role in both school environments was to coordinate curriculum and to provide focused, high-quality professional development for teachers. Isabel has also served as an instructor at the University of Virginia, James Madison University, and Longwood College.

Isabel holds her PhD from the University of Virginia. Her doctorate examined gender and literacy acquisition in emergent readers and writers. She has presented at local, state, and national conferences and worked with schools across the country as an independent consultant. Isabel serves on the board of Learning Forward Virginia.

A Corwin author, Isabel recently published a new book, *Professional Learning Redefined*, with co-author Marisa Ramirez Stukey. She has also authored several articles and has been published in the National Reading Conference Yearbook.

Wendy Seger is a curriculum writer at Collaborative Classroom. With more than 35 years in educational service, she has served as a primary and intermediate classroom teacher, district instructional leadership specialist, and an educational consultant. Wendy received her BS in elementary education from Bethel College in Kansas and M.Ed. from the University of Massachusetts, Amherst, Department of Literacy, Language, and Culture. Her classroom work has been published in *Language Arts* and in the *TESOL Classroom Practice Series, Authenticity in the Language Classroom and Beyond: Children and Adolescent Learners*.

Kim Still is the Director of Sales Enablement at Collaborative Classroom. She has 15 years of teaching, coaching, and speaking experience in the areas of literacy, teaching diverse learners, social-emotional learning, and classroom management. Kim has trained and taught as a Reading Recovery teacher. She has a BA in Child Study from St. Joseph's College and an M.Ed. in Education, specializing in Literacy and Language Learning from the University of Massachusetts, Amherst.

Dr. Kelly Stuart serves as President and Chief Executive Officer at Collaborative Classroom. In earlier roles at Collaborative Classroom, Dr. Stuart worked as Chief Operating Officer, Vice President of Dissemination and Implementation, and Assistant Director of Dissemination.

Previously, she served as the senior research associate at WestEd, where she led dissemination for the Doing What Works (DWW) website, which developed practical tools and videos to support educators in their understanding and use of proven research-based practices. Also while at WestEd, Dr. Stuart launched the U.S. Department of Education's School Turnaround Learning Community (STLC), an online community for states, districts, and schools involved in turnaround efforts. Prior to WestEd, she was the director of special programs at the Success for All Foundation.

Since beginning her career as an elementary school teacher, Dr. Stuart has worked with educators in schools and after-school sites in every state. She has a BS in liberal arts, a teaching credential, an MA in education administration, and an EdD in education leadership.

Susan Vincent has 30 years of experience in a variety of teaching roles. She has served as a classroom teacher, reading specialist, literacy coach, Reading Recovery teacher leader, and university faculty member.

She has a BA in speech communication and an MAT in Elementary Education from Miami University in Ohio. Her Ohio Teacher Leader and Reading Endorsements are from the University of Cincinnati.

Susan presents at local, state, and national conferences on a variety of literacy topics. She recently co-authored a book, *Intentional from the Start: Guiding Emergent Readers in Small Groups*. Connect with her on Twitter at @ssvincent.

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