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# The Science of Reading: Key Concepts and Implications for LESLLA

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**Abstract**

In the past few years, a new surge of attention to reading research in primary and secondary education has emerged in the United States. This movement, dubbed "The Science of Reading," aims to promote research-based practices in K-12 literacy instruction. The Science of Reading (SOR) movement also seeks to inform practitioners of strategies commonly seen in K-12 literacy instruction that are not research-based, or that may be contrary to scientific evidence of how the brain acquires the ability to read. Because teaching reading is an essential component of our work as LESLLA practitioners, there is value in examining the research and discussion that is being generated through the SOR movement. Although the large majority of current reading research involves young readers in primary and secondary schools learning to read in their L1s, understanding the processes involved in learning to read for the first time is applicable to the work of LESLLA as well. This paper will provide an overview of key concepts highlighted in the SOR literature, and discuss implications for LESLLA practitioners.

**Keywords***:* LESLLA, science of reading, structured literacy

## Introduction

In March 2021, I stumbled upon a podcast about literacy instruction by Emily Hanford, an investigative journalist with American Public Media. Hanford's three-part audio documentary series (2020; 2019; 2018) reports on the state of reading instruction in U.S. elementary schools, including several aspects of common teaching methods that do not align with cognitive science, and urges teachers and school administrators to take action to improve literacy instruction for all students. Although Hanford's reporting is centered on K-12 reading instruction, I was inspired to take a deeper dive into reading research and consider how the recommendations apply to my work as a teacher and curriculum developer for LESLLA students.

Hanford's reporting has had a similar effect on many others (Petrilli, 2020). Her work is credited as one of the early kick-starters of a new wave of attention to literacy research and practice, dubbed the Science of Reading (SOR). The SOR movement has gained momentum among teachers, administrators, and literacy researchers -- so much so, that the academic journal *Reading Research Quarterly* dedicated special issues in both 2020 and 2021 to "The Science of Reading: Supports, Critiques, and Questions." As I began to see the amount of attention focused in this area and the underlying urgency to improve or replace inefficient and ineffective practices, I was further motivated to continue my learning. I was already familiar with "The Reading Wars" of the past, swinging between "Phonics" and "Whole Language Instruction," with the subsequent recommendation for "Balanced Literacy." I'll be sharing through this paper what I've recently learned about recommendations to "Shift the Balance" to "Structured Literacy."

The purpose of this paper is to bring attention to some recommendations from reading science and share thoughts on implications for LESLLA practitioners. First, I will highlight key concepts that are prominent in the Science of Reading literature. In the second section, I will explain why I believe this information is important for LESLLA practitioners, and suggest several thoughts on how these concepts can frame or influence our work with LESLLA students.

## Research to Practice Disconnect

The Science of Reading movement aims to bridge research to practice in order to improve the efficiency and effectiveness of literacy instruction. The research brief titled *Narrowing the Third Grade Reading Gap* (EAB Global, 2019) reveals that "there is an alarming disconnect between what scientific research recommends for reading instruction and what actually happens in most classrooms (p. 30)" and that due to lack of training in research-based teaching methods, some teachers may "struggle to provide high-quality reading instruction (p. 30)." However, the brief concludes, when schools implement research-aligned practices, including professional development for administrators and teachers, curriculum alignment, and attention to assessment and data, dramatic improvements in student reading abilities can occur (p. 38). *Narrowing the Gap* provides a summary of reading science and suggestions for teachers and programs. I recommend it as one possible resource to provide an introduction and overview of the Science of Reading.

The *Narrowing the Gap* research brief is directed to U.S. K-12 school administrators and teachers, particularly those involved in the early elementary grades. However, I found the information also relevant to my work as a LESLLA practitioner. In the same way that some primary grade teachers may not have received adequate training to provide high-quality reading instruction, it is likely that some teachers and volunteers working with LESLLA learners also

have not been provided information about what scientific research recommends for reading instruction. The phrase "know better, do better," borrowed from poet Maya Angelou, comes up in some conversations around the Science of Reading (SCORE, 2020). As teachers learn new information and shift their instruction to be more efficient and effective, there is sometimes a sense of guilt at not serving past students as well as they could have, but also a determination to improve practice moving forward. Training and knowledge are key; when teachers and programs "know better," they can "do better." The following section will outline some of the basic concepts from the Science of Reading.

## Key Concepts in Reading Science

### The Simple View of Reading

One of the concepts that is regularly referred to in SOR literature is the Simple View of Reading. Introduced by Gough and Tunmer in 1986, the Simple View of Reading describes reading comprehension as the product of two components: Decoding and Language Comprehension (see Figure 1).

It's important to recognize that the SVR equation is a statement of multiplication rather than addition. This matters because when a student's ability is at or near zero in either one or both of the major components, reading comprehension will be at or near zero. In order to be able to gain meaning from reading, a student must be skilled in *both* decoding and language comprehension.

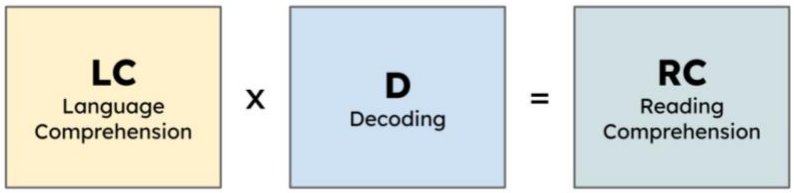


Figure 1. The Simple View of Reading (based on Gough and Tunmer, 1986)

The Simple View of Reading is not new. It has been part of the reading science literature for over 35 years and is well known in the research community. Since its introduction, SVR has been expanded and updated. For example, Duke and Cartwright (2021) offer a newer, more complex "Active View of Reading" to incorporate additional understandings gained by reading science. I've included the Simple View of Reading in this article because it is often highlighted in Science of Reading literature as an introductory model to understanding reading.

### Scarborough's Reading Rope

Another concept often referred to in the Science of Reading literature is Scarborough's Reading Rope (Scarborough, 2001). In the Reading Rope diagram, the two major components of reading are further broken down into multiple sub-strands. A diagram and discussion of the Reading Rope (IDA, 2018) can be seen at the website of the International Dyslexia Association at https://dyslexiaida.org/scarboroughs-reading-rope-a-groundbreaking-infographic/.

The Reading Rope is a useful way to understand the complexities of learning to read. In order to develop strong readers, teachers need to be addressing all of the sub-strands of each

component. The Reading Rope also illustrates that, in the earliest stages of reading, the components and sub-strands are developed more separately, while in later stages of reading, sub-skills are practiced simultaneously.

**The Four-Part Processing Model**

Mark Seidenberg is a neurocognitive psychologist whose work is often cited in Science of Reading discussions. His work has demonstrated that reading happens through four distinct brain processes, which are often diagrammed as a "Four-Part Processing Model" (Seidenberg & McClelland, 1998, p. 526; Seidenberg, 2017, p. 140).

A diagram of the Four Part Processing Model can be seen in Figure 2. The phonological process deciphers sounds. The orthographic process interprets visual symbols, including the squiggles on a page that create letters and words. The semantic process attaches meaning to a word, and the context process considers the word in context to understand the meaning more clearly or adjust meaning if necessary (Seidenberg & McClelland, 1989). The act of reading is a highly complex process, happening in many areas of the brain. For a more detailed understanding of brain activity while reading, see Coch (2021a, 2021b), Seidenberg (2017), Castles, et. al (2018, p. 20), or EAB Global (2021, p. 12-18).

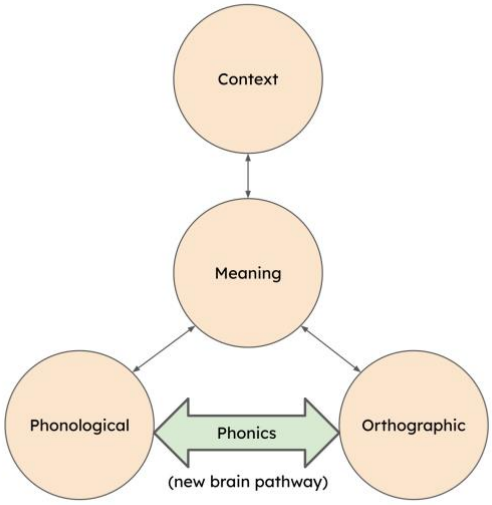


Figure 2. The Four-Part Processing Model (based on Seidenberg & McClelland, 1989)

Learning to speak is a natural process, and children learn to speak without explicit instruction. In contrast, learning to read is not a natural process and requires intentional teaching to create new pathways in the brain (Castles, et. al., 2018, p. 11; EAB Global, 2021, p. 12). An emerging reader is creating new connections between the phonological (sound) and orthographic (symbol) processes in the brain. Brain science underscores the importance of phonemic awareness and the sound-symbol relationship, also known as the alphabetic principle or phonics, in learning to read (Seidenberg, 2017; Coch, 2021a, 2021b). Each of the two-way arrows in the diagram can be developed through natural interactions with language and the environment except for the two-way arrow at the bottom of the diagram between Phonological and Orthographic processing. Explicit teaching of sound-symbol relationships is necessary for most students to develop this new un-natural connection.

**Phonemic Awareness**

Phonemic awareness is the ability to distinguish individual sounds (phonemes) within a word. Training students in phonemic awareness can be completely sound-based, in contrast to phonics, which involves connecting sounds to symbols. As Kilpatrick (2016, p. 15) explained, phonemic awareness activities can be done "with your eyes closed."

According to research shared by Blevins (2017, p. 7), phonemic awareness training is an essential element in the early stages of learning to read and "as few as 11-15 hours of intensive phonemic awareness training spread over an appropriate time" is needed to gain this skill. Heggerty is a commonly used curriculum for developing phonemic awareness in K-2 classrooms, and the Heggerty YouTube channel is a good resource to see examples of young students practicing phonemic awareness activities such as segmenting, blending, and manipulating sounds. Phonemic awareness can also be strengthened by using letters to represent the manipulation of sounds. Word Ladders are a common activity to give students this kind of practice. An example of a Word Ladder slideshow created for LESLLA students can be seen at shorturl.at/cyGNW (Christenson, 2022).

**Explicit Systematic Phonics**

Luisa Moats is another expert regularly referred to in Science of Reading discussions, and is seen as a leading voice asserting the importance of phonics and phonemic awareness instruction. Moats (2017) states that "there is wide agreement among researchers that explicit, systematic, synthetic, code-based instruction works best" (p. 16). She goes on to say that "although most programs used in classrooms have come to pay lip service to the important foundational skills of phonemic awareness, phonics, fluent word recognition, writing and spelling, few actually teach the important concepts about speech-to-print relationship, develop skills systematically, or apply skills to reading itself" (p. 16). The importance of systematic, sequential phonics instruction will be further addressed after introducing the next concept.

**The Three-Cueing Method**

The Three-Cueing Method is also frequently referred to in Science of Reading discourse. However, it is highlighted as a practice that is commonly seen in early literacy instruction, but that is *not* backed by science (Adams, 1998; Hempenstall, 2017). The Three-Cueing system is a method in which students are taught to use various guessing strategies when they come to a word they don't know (see Figure 3). When a student comes to an unknown word while reading, the Three-Cueing System encourages the student to use various guessing strategies. For example, students might be taught to look at the first letter of a word, then guess the rest, or students might be encouraged to look at a picture in order to guess a word. Three-Cueing strategies have been identified as strategies that poor readers rely on. Strong readers, in contrast, solve unknown words by attending to all of the letters and sound patterns in a word (Seidenberg, 2017, p. 300-304).

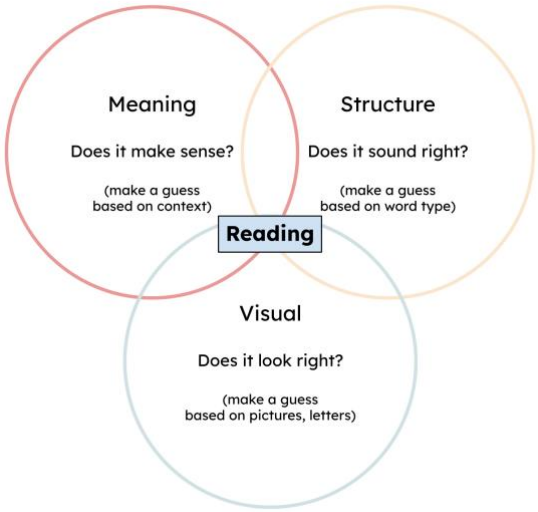


Figure 3. The Three-Cueing Method (based on Goodman, 1973)

Interestingly, eye movement studies reveal that the eye movements of poor readers dart around the page instead of moving smoothly from left to right, line to line (Meltzer, 2020). If students have been taught to use Three-Cueing clues to guess at words, their eyes may dart around the page looking for clues to base their guesses on. Teachers should avoid teaching Three-Cueing strategies as a primary method for figuring out words because it undercuts the creation of strong connections in the brain between the phonological (sound) and orthographic (symbol) processes of the brain.

When I first came across the discussion of Three-Cueing in my exploration of the Science of Reading, it genuinely caught my attention since I have employed these kinds of first-letter and picture-guessing methods with my students in the past. I wanted to understand why this method is less efficient, and could actually be impeding my students' progress toward becoming proficient readers. This is one of the key ideas that motivated me to continue learning about the Science of Reading.

**Decodable Texts**

Decodable texts are a teaching tool used to develop and practice decoding skills within connected text. To understand the importance of decodable texts, consider again the concept of systematic phonics instruction. As emphasized by Moats (2017), phonics instruction should follow a systematic and intentionally sequenced structure (p. 19). According to Blevins (2017), "there isn't a right or perfect scope and sequence" (p. 27) for teaching phonics, but the sequence that you choose should start with the simplest and most common sound/symbol patterns in one-syllable words, then systematically build toward more complex patterns and multisyllable words. The following chart is an example of a systematic sequence for teaching phonics from simple to complex:

| | |
|---|---|
| most-common consonant sounds | ing, ang, ink, ank |
| a, e, i, o, u (short vowel sounds) | easy morphology: -ing, -s; -er, -est |
| VC and CVC words | closed syllables vs. open syllables (men / me) |
| ch, sh, th, qu, x | R-controlled syllables |
| ss, ll | final syllable -tion |
| ee, oo | consonant -le (table, little) |
| 2-consonant clusters: bl, cl, fl, gl, pl, sl | soft c, soft g, ph |
| br, cr, dr, fr, gr, pr, tr | two sounds of final -y (cry, baby) |
| sc, sk, sl, sm, sn, st, sp, sw | more vowel patterns (au, aw, ew, ow, ea) |
| Vowel Teams: ay, igh | consonant trigraph clusters (str, spr, scr…) |
| ai, ea, ie, oa, ue | wr and kn; other silent letters |
| Silent e rule | stressed and unstressed syllables (schwa) |
| ow, ou, oi, oy | three sounds of -ed |
| four sounds of oo (pool, good, door, flood) | common suffixes and prefixes |
| ar, or, er, ir, ur | greek and latin roots |
| all, oll | vowel stress shifts (apply vs. application) |

Table 1. Sample Systematic Sequence for Teaching Phonics

Systematic, sequential phonics instruction focuses on word sets that highlight a certain phonics skill, but also incorporates decodable text as a tool for practicing decoding skills within connected text (Moats, 2017, p. 17). A decodable text contains, as much as possible, words that follow sound/symbol patterns that the student has already been introduced to through the phonics sequence, while also telling a story or sharing meaningful information. There are many options for decodable readers designed for children's K-2 literacy instruction. The Decodable Readers from the Engage New York curriculum, freely available as an Open Educational Resource (OER) at https://www.engageny.org, is one example designed for elementary school students.

**Language Comprehension**

Learning to decode is an essential component of learning to read, but it is not the only essential component. Language comprehension is also a major component in learning to read. Language comprehension includes the skills necessary to understand spoken language, including vocabulary, grammar, and background knowledge. Proponents of the Science of Reading emphasize that early literacy instruction should not focus solely on phonics work, and that early emergent readers should not be held back in their learning of vocabulary and background knowledge due to their limited ability to decode. To accomplish this, K-2 instructors employ "read-alouds" centered on authentic, relevant topics and use structured, teacher-directed discussions to introduce students to vocabulary and background knowledge.

The Engage New York curriculum is one example of how a Structured Literacy approach, based on the Science of Reading, might look in an elementary school classroom. Engage New York splits early-grade Language Arts instruction into two strands, a "Skills Strand" that focuses on phonics and decodable text, and a separate "Listening and Learning" strand that focuses on building vocabulary and background knowledge. According to the Engage New York website, "the goal of the Listening and Learning Strand is for students to acquire language competence through *listening*, specifically building a rich vocabulary, and broad

knowledge in history and science by being exposed to carefully selected, sequenced, and coherent read-alouds." In the Engage New York curriculum, first grade students are practicing decoding skills within Decodable Readers containing text such as "Dad and I went up on top of a path at the pond. Mom got a snap shot of us." In the other part of their literacy instruction, students are engaged in a read-aloud session about the Human Body, in which the teacher explains engaging images and uses rich and deep vocabulary to build students' knowledge about the selected topic, which will be a focus for several weeks. Phrases such as "digestive system," "muscle development," and "nutritious food" would be too complicated for most first-grade students to decode, but can be learned and practiced instead through listening and speaking. Building rich vocabulary and background knowledge should not be constrained by the student's ability to decode. Oral language development activities such as read-alouds and interactive classroom discussions accomplish this, preparing students to have a rich base of vocabulary and background knowledge that will become vital as they enter future stages of reading.

**Stages of Reading Development**

Finally, it can be helpful to understand that there are multiple stages of reading development, and that a different instructional approach is appropriate for each. Jeanne Chall's stages of reading development are diagrammed in Figure 4.

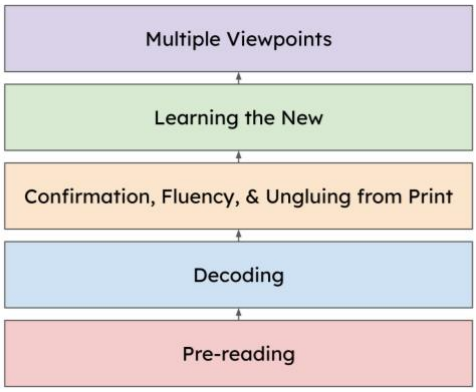


Figure 4. Chall's Stages of Reading Development

Although Chall's stages of reading development were first introduced in 1976, Science of Reading advocates still refer to them today. For example, Semingson and Kerns (2021) suggest that instructors "should draw on a developmental stage model to teaching reading, such as the six-stage model provided by Chall" (p. 157). Chall's earliest stage of reading development is Prereading, when students learn that text conveys meaning, that text has a direction, and that words and symbols represent meaning. Next, in the Decoding stage, students develop an understanding of sound/symbol relationships. This is the stage typically seen in kindergarten and first grade classrooms. In the decoding stage, students are "glued" to the print, and reading is slow and requires a great deal of effort. As students become more automatic in their ability to decode, they enter the next stage of reading, where Confirmation, Fluency, and Ungluing from Print become the target goals, commonly seen in second and third grade classroom instruction. Once a student has gained ability in these areas, the student moves to the final stages of reading development, Learning the New and Multiple Perspectives. Each stage of reading development necessitates different types of instruction. For example, teaching tools such as phonemic

awareness training, systematic phonics instruction, decodable text, and read-alouds are important to the decoding stage, but are tools that would be discarded in subsequent stages.

## SOR: Controversy and Criticisms

Regrettably, the Science of Reading, much like the Reading Wars before, can be a triggering topic for some. During the process of writing this article, I have been genuinely surprised at the degree of emotion that this topic can provoke. My own experience in learning about the Science of Reading has been generally positive. I was introduced to these ideas through an education podcast, found the ideas intriguing, and spent a good deal of time reading up on the source academic articles and books to learn more. I've experimented with adapting my teaching to match some of these ideas, and have seen positive outcomes in my LESLLA students. I'll explain some of my teaching adjustments at the end of this section. First, I'll address the reality of controversy and a few of the criticisms of the Science of Reading.

Teaching reading is complex. Teachers can feel bombarded by conflicting information about how to teach reading effectively. In my own experience over the past several months, it has been somewhat overwhelming and at times frustrating to tackle this broad and complicated topic. I have appreciated the work of others who have consolidated information into readable and usable summaries. One of the more useful summaries I've returned to often is *Ending the reading wars: Reading acquisition from novice to expert* (Castles et al., 2018). Others I have found useful are the books *Reading Above the Fray* (Lindsey, 2022) and *Shifting the Balance* (Burkins & Yates, 2021), and the research brief *Narrowing the Third Grade Reading Gap,* (EAB Global, 2019). I acknowledge that any person's or organization's summary of a broad topic might be incomplete and/or biased. It is important to read critically and consider an author's sources, motivations, and background. With that in mind, I often find myself reading the references lists and then evaluating even more resources and information. One of the major challenges of this topic is that the number of academic articles and books on reading science, as well as the number of interpretations of those articles and books, is vast and continually expanding.

There are several common criticisms of the Science of Reading movement. One common criticism is that it is too heavily focused on phonics, and is simply a "swing of the pendulum" away from Whole Language instruction and back to Phonics. In my opinion, this criticism is not valid as it stems from an incomplete understanding of what the Science of Reading or Structured Literacy approach entails. As explained in both the Simple View of Reading and the Reading Rope, decoding is one of two essential components in learning to read. The other essential component is language comprehension. Attention to both is necessary. A teacher that over-emphasizes decoding skills and neglects language development is not in line with reading science.

Another criticism of the Science of Reading movement is that it is not an appropriate approach for diverse learners. In a 2021 study, Vargas, et al. conclude that the components described in the Simple View of Reading apply to both English learners (ELs) and English monolinguals (EMs). Both ELs and EMs need to develop the two major components of reading (decoding and language comprehension), however, they emphasize that English learners will need extra attention in developing vocabulary and other language development skills relative to their English-speaking peers. It is important for teachers to understand the unique backgrounds of their learners, and specifically to understand the additional support that language learners will need to develop language comprehension skills. Nevertheless, the process that occurs in a human

brain when learning to read an alphabetic language for the first time is similar regardless of age, socioeconomic status, or language background (Coch, 2021a, p. 1).

An additional criticism of the Science of Reading is that Culturally Responsive Teaching (CRT) should take priority when working with diverse students. However, it's simply not necessary to choose between CRT and SOR. A structured literacy approach to teaching reading can and should co-exist with Culturally Responsive Teaching, including Social Emotional Learning, Trauma-Informed Teaching, and Asset-Based Instruction. CRT is about the teaching *environment, attitudes, and relationships* that a teacher creates. SOR is about *content, order, and techniques* for teaching the components of reading with the goal of efficiently moving students to a high level of independent reading comprehension. A high-quality teacher can utilize all of these methods simultaneously.

In the United States, frustrations have also arisen over legislative action mandating K-12 school districts to send teachers to lengthy, in-depth Science of Reading training programs (often the expensive and exclusive LETRS training, authored by Luisa Moats), or replace long-used K-12 curriculum programs that are not deemed SOR-aligned (such as Marie Clay's Reading Recovery, Fountas and Pinnell's Leveled Readers, or Lucy Calkins' Units of Study). For sample discussions on these topics, see Schwartz (2022).

For me, the value in exploring the current discussions around reading science has come from implementing some adjustments in my own teaching habits and observing new increases in positive student outcomes. My phonics instruction is much more systematic and sequential now. I avoid teaching students three-cueing or guessing strategies, and spend a significant amount of effort helping students overcome guessing habits. I have a better understanding of the role of phonemic awareness and the appropriate use of decodable text. I still help students develop their oral language and vocabulary using authentic text and natural language experiences. I create opportunities for students to intentionally practice fluency. When students are ready for it, I utilize informational text, and I explicitly teach academic vocabulary. Anecdotally, I can see that my teaching adjustments are making a positive difference for my students. I was able to learn about the above reading science concepts without attending expensive, legislatively mandated training. In my own experience, journalism and media attention around the Science of Reading served as an intriguing gateway that motivated me to explore reading research much more in depth than I might have otherwise. For LESLLA practitioners who would like to learn more about reading science, I offer this paper and its references section as a springboard to continue learning about the Science of Reading.

## LESLLA and the Science of Reading

In the first half of this paper, I have given an overview of some of the major concepts promoted by the Science of Reading, a movement toward more effective literacy instruction. I've also briefly addressed some of the criticisms of the SOR. Because most conversations surrounding the Science of Reading are presented from a K-12 and L1 perspective in the literature, some extra thought is necessary to apply the ideas to the LESLLA context. In the following sections, I will share some ideas about how the Science of Reading can influence our work as LESLLA practitioners.

LESLLA learners often have limited time to spend on learning since they also juggle significant work and family commitments. As LESLLA instructors, our goal should be to maximize our students' limited time by using efficient and effective instructional strategies. If the

Science of Reading movement claims to offer more efficient and effective methods for teaching literacy, there is value in exploring those methods within LESLLA. The knowledge promoted by the Science of Reading movement is particularly relevant to LESLLA, as teaching literacy is the element that differentiates LESLLA from the broader community of language instruction.

**LESLLA and the Simple View of Reading**

The Simple View of Reading can provide a framework for categorizing different types of beginning level learners. The Simple View of Reading identifies that decoding and language comprehension are the two major components of reading comprehension. Figure 5 diagrams four types of learners based on decoding and language comprehension ability.

Some students are at beginning levels in both decoding and language comprehension, a group labeled Emergent Reader 1 (ER1). In contrast, Emergent Reader 2 (ER2) students are also at beginning levels in decoding ability, but have high language comprehension skills. Other students have learned decoding skills in another language, but have beginning-level language comprehension ability in the target language. Since this type of student is the most typical type of student seen in adult English Language Learner (ELL) classrooms, this group is labeled ELL 1. Finally, ELL 2 are high-beginning students who have higher-level skills in both decoding and language comprehension. Each type of learner has differing instructional needs. Although all four types of students can be considered beginning-level learners, it is extremely difficult to effectively teach all four of the above types of students together in the same class. Whenever possible, programs should be grouping these different types of students separately so they can receive the specific type of instruction they need.

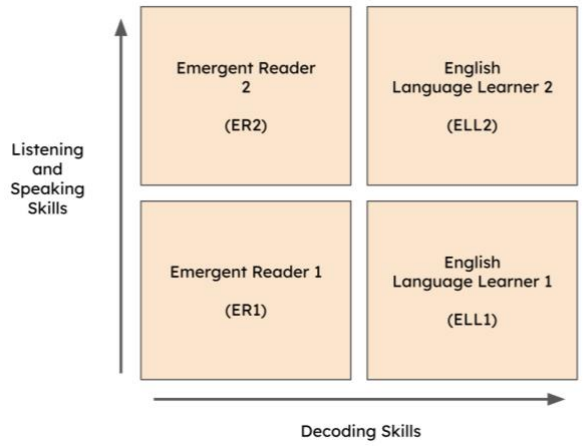


Figure 5. Four Types of Beginning-Level Learners

**LESLLA and Assessment**

The Simple View of Reading designates both decoding and language comprehension as essential components of skilled reading. LESLLA programs in the United States have a variety of options for assessing language comprehension through listening/speaking tests, including the NRS-approved CASAS and BEST Listening/Speaking tests. However, there are few formal

assessment tools for monitoring progress in decoding abilities that are designed for LESLLA students, and none that is widely used throughout the LESLLA community.

In elementary schools in the United States, DIBELS is an assessment tool commonly used to monitor progress in decoding ability (University of Oregon, 2021). The assessment consists of short tests of letter knowledge, word reading, and timed fluency passages appropriate for Kindergarten through 8th grade, and is freely available at https://dibels.uoregon.edu. While the letter knowledge and word reading subtests of DIBELS could be appropriate for any learner, including LESLLAs, the topics featured in the fluency passages are geared toward young children. In addition, the DIBELS assessment system is designed to measure students against benchmark points related to grades K through 8, which is also not relevant to adult literacy students. I have created a prototype of a decoding assessment tool specific to LESLLA (loosely influenced by the structure of the DIBELS test), and invite LESLLA practitioners to use it and share feedback for improvement in future iterations. The assessment, called the Assessment of Basic Literacy for Adult and Adolescent Emergent Readers, or ABLE Test, can be freely accessed at abceng.org/assess (Christenson, 2021).

A decoding assessment tool would enable LESLLA practitioners to screen students for decoding ability for proper class placement, establish a baseline of skills to monitor progress over time, and identify gaps in order to focus instruction. Programs would be able to set a threshold level of basic decoding ability that teachers and students could aim for as a prerequisite to embarking on challenging goals that are important to many students, such as preparing for a driver permit test or for a citizenship test. It would also be valuable to have LESLLA-identified students demonstrate a minimum threshold level of decoding ability before having them begin an assessment track with tools such as the CASAS or BEST Reading Comprehension tests. Doing so would prevent testing frustration for students and provide more useful and reliable testing data to programs.

**LESLLA and Lesson Structure**

A typical Science of Reading lesson structure for students in the decoding stage incorporates both decoding work and language comprehension work. During the decoding stage, the two strands are separated in order to develop phonics skills sequentially, but also to develop rich vocabulary and deep background knowledge without limiting text to students' decoding ability. Table 2 outlines a sample 90-minute lesson structure based on Science of Reading recommendations, and adapted for the LESLLA context. In the outline, you can see two separate strands of teaching - one segment of time focused on developing decoding skills in a systematic manner, and another segment of time focused on language comprehension, working with authentic vocabulary and relevant situations.

Decoding Focus (35 minutes)
*Objective: Develop the next skill in a systematic phonics sequence*
5 minutes - Short review of past phonics pattern(s) (letter / sound correspondences)
5 minutes - Word Ladder activity with past sound patterns (phonemic awareness / phonics)
10 minutes - Teach and practice words with new target sound/phonics pattern (phonics)
10 minutes - Sentences or stories that include review and target patterns (decodable text)
5 minutes - Dictation practice with target pattern (encoding to reinforce decoding)

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|---|
| Language Comprehension Focus (55 minutes)<br>*Objective: Develop vocabulary and language comprehension, with an emphasis on speaking and listening, using topics relevant to students' daily lives. Focus on one topic for 1-3 weeks.*<br>5 minutes - Use engaging images or realia to introduce relevant topic (housing, for example)<br>20 minutes - Listening & discussion activity (rich vocabulary and knowledge building)<br>20 minutes - Interactive speaking activities to practice vocabulary and language patterns<br>10 minutes - Review and retell (oral LEA), to be repeated as an intro for next LC lesson |

Table 2. Sample 90-minute LESLLA Structured Literacy Lesson (Decoding Stage)

The Science of Reading movement calls on school administrators and literacy practitioners to seek out and use High Quality Instructional Materials (Chiefs for Change, 2017). High Quality Instructional Materials (HQIM) free up teacher time to focus on quality teaching. Teachers shouldn't be expected to use their limited planning time to create lesson materials from scratch. Within the LESLLA community, there are only a few high quality teaching resources appropriate to adult emergent readers. Although some practitioners and programs are working hard to develop new teaching resources for the LESLLA community, LESLLA practitioners do not yet have a large variety of HQIM to choose from. For those who are working to create new materials for LESLLA learners, attention to the principles of the Science of Reading within curriculum development and materials design is an effective way to bring research-aligned instruction to programs, teachers, and learners. During the past year, my own work creating resources for LESLLA teachers and learners has been heavily influenced by what I've learned about reading science. Resources for Systematic Phonics instruction designed especially for LESLLA students can be found at abceng.org/library. Feedback from the LESLLA community is welcome as I continue to develop and improve these resources.

**LESLLA Teacher Training and Professional Development**

The Science of Reading movement seeks to bring attention to research-based principles for teaching literacy and calls for improved teacher-training and professional development. Likewise, LESLLA practitioners can more effectively serve learners when they have received training specific to literacy instruction that is informed by current research. Any high-quality TESOL teacher training program would address principles of teaching language comprehension. However, LESLLA is unique in the language-teaching community because LESLLA practitioners also need to understand how to teach the word recognition elements of reading, including phonemic awareness, phonics, and fluency. LESLLA teachers working with learners at the Prereading, Decoding, or Fluency stages of reading need training and professional development opportunities to meet the specific literacy needs of their unique students. Because there are some common literacy instruction approaches that are not research-aligned, it is especially important to become informed in order to provide quality literacy instruction to students.

## Conclusion

The purpose of this paper has been to bring attention to current recommendations from K-12 reading research and discuss how those recommendations can be applied to the work of LESLLA. Concepts such as the Simple View of Reading, Scarborough's Reading Rope, and Chall's Stages of Reading can help frame LESLLA practitioners' understanding of our learners' literacy instructional needs. LESLLA teachers can be better equipped to serve emergent readers by learning about the cognitive science behind reading development, or what needs to happen in the brain to create strong readers, through understanding the Four-Part Processing model. Assertions that some common instructional methods may not align with reading science, such as the Three-Cueing Method, are important for LESLLA teachers to think through. Teaching tools commonly used in early elementary reading instruction such as phonemic awareness training, systematic phonics, decodable text, and language-building activities are useful to look to as models for creating lessons and materials for LESLLA learners. Finally, the call for High Quality Instructional Materials and improved teacher training and professional development in literacy instruction is as applicable for LESLLA as it is for the K-12 context.

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