TYPES OF READING DIFFICULTIES

As shared in the introduction, The Simple View of Reading (SVR) (Gough & Tunmer, 1986) provides a clear, effective framework for understanding broad categories of reading difficulties. The SVR posits that reading comprehension is the product of language comprehension and decoding. The language comprehension component includes background knowledge, vocabulary, syntax, verbal reasoning and literacy knowledge (Scarborough, 2001) while the decoding component includes both decoding and word recognition (Kilpatrick, 2020). Decoding is the process of connecting letters to sounds and blending the sounds to pronounce a word, and word recognition is the immediate, effortless recall of words that are stored in a person's "sight" word bank (Ehri, 2005).

The graphic below (Oakhill et al., 2020) illustrates the broad categories of readers based on the SVR:

	LANGUAGE COMPREHENSION	
WORD READING	**POOR**	**GOOD**
POOR	Generally poor reader	Dyslexic
GOOD	Poor comprehender	Good reader

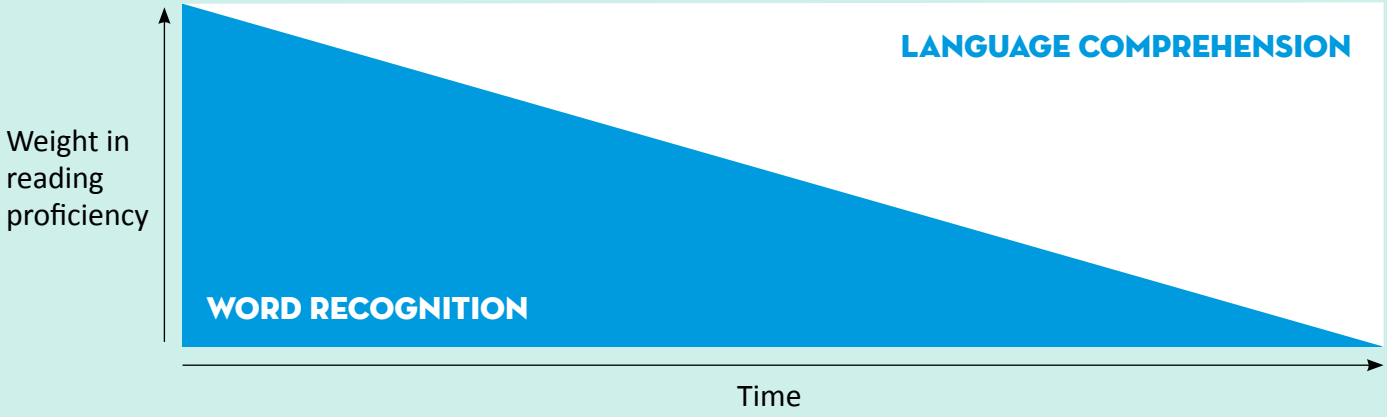
While the word "simple" is part of the SVR, the SVR framework does not imply that reading comprehension is simple. Instead, it means that the variation in reading ability can be "simply" captured by the variation in the two skills, language comprehension and decoding (Oakhill et al., 2019). Indeed, both components of the SVR are necessary for reading comprehension: Strength in one component cannot compensate for weakness in the other; rather, weakness in either area compromises reading comprehension.

The SVR has significant implications for understanding reading difficulties and screening for them. It is important to consider that while the SVR represents reading comprehension as a product with each component contributing equally, the relative contributions of language comprehension and decoding vary across the course of reading development. Among beginning readers, decoding plays a much larger role than language comprehension due the fact that decoding presents a much greater cognitive challenge at this stage and that texts for young children typically do not present complex sentence structures and sophisticated vocabulary. As children become more proficient at decoding and develop a larger sight-word vocabulary or orthographic lexicon, their language comprehension abilities play a larger role in their reading comprehension (Oakhill et al., 2019).

The graphic below illustrates these changes over the course of development (Research to Action, 2020, p. 34):

As students master decoding and start encountering more complex text, reading comprehension becomes increasingly dependent on background knowledge and vocabulary.

Even though reading proficiency in K-3 is heavily dependent on the foundational skills that support decoding, later reading will suffer if students do not also start building the vocabulary and background knowledge they need to comprehend increasingly complex texts they will encounter as they move into the upper grades.



In the early grades, ability to read grade-level texts is largely determined by decoding skill, so decoding instruction often produces immediate gains in reading proficiency. However, those gains may not transfer to later grades if teachers have not simultaneously built student's background knowledge and vocabulary.

"Decoding has a really outsized role on reading comprehension in the early grades. But as students consolidate their decoding, very quickly that equation shifts." (Cervetti, 2019)

Source(s): Schwartz (2019); Cervetti (2019).

These findings lead the following recommendations regarding reading difficulties:

- Because language comprehension and decoding contribute to reading comprehension differently at different points in time, it is important to assess both components independently for the purposes of screening, diagnosis and progress monitoring. For instance, phonemic awareness, decoding and sight recognition should all be assessed independently. Assessing these areas independently allows for greater insight into the source(s) of the student's difficulty.
- The decoding component can be measured with phonemic awareness assessments that include blending and analysis tasks (segmenting and manipulating phonemes), word reading tasks and nonsense word reading tasks. Nonsense word reading tasks are the best way to understand a student's word reading skill (Share, 1995; Kilpatrick, 2015).
- The components of linguistic comprehension can be more difficult to assess due to the fact that these abilities continue to develop throughout the elementary and secondary years, whereas the components that contribute to decoding become fully automatic earlier in development. Nevertheless, it is important to keep in mind oral language development (vocabulary depth and breadth, words per utterance and syntax complexity) as well as the development of background knowledge, as these factors can contribute to specific comprehension deficits (Oakhill et al., 2019).
- Interventions and goals should aim to focus on a child's particular need(s), rather than on comprehension goals or reading levels. Comprehension goals are difficult to measure and comprehension assessments differ greatly in what they measure (Cutting & Scarborough, 2009). Reading level assessments conflate language comprehension and decoding, making it impossible to know the cause of a student's difficulty. Additionally, leveled reading assessments may use predictable text, making it easier for students to guess at words, and may not be nationally normed or matched to grade-level expectations.

Screening

As mentioned earlier, screeners are a type of assessment that are used to predict risk. Screeners for reading difficulties can predict with high levels of accuracy which students may struggle to read proficiently due to dyslexia, developmental language disorder, or another disability. Screening supports a prevention-based approach by allowing students at risk of reading difficulties to receive support and intervention before they start to have difficulty, rather than after they have experienced failure. Indeed, early, frequent screening constitutes a key feature of a prevention model in contrast to a "wait to fail" model (Vaughn & Fletcher, 2020). The "wait to fail" approach (Ozernov-Palchik and Gaab, 2016) is characterized by a diagnosis of a reading difficulty, often dyslexia, as late as second grade, by which the time window for the most effective intervention has passed. Additionally, by second or third grade, the gap between proficient and poor readers has widened, and negative consequences of reading difficulty—including limited vocabulary and background knowledge, lack of interest or motivation to read, and low confidence or self-esteem—are well established (Catts & Hogan, 2021). In a preventive model, students are provided Tier 1 instruction in reading that is evidence-based and code-focused, making it easier to determine which students are at risk and resulting in fewer students needing interventions in the later years, when they are both more costly and less effective (Ozernov-Palchik & Gaab, 2016). The innumerable benefits to children of early screening outweigh any logistical, administrative, or financial cost in the short term (Gaab, 2017).

Early screening should include the following factors (Gaab, 2017):

- Be short, or brief, to administer;
- Be comprehensive, and address key domains: phonological awareness, letter knowledge, rapid automatized naming, vocabulary, listening comprehension and family history;
- Be done early, ideally as early as preschool but no later than kindergarten;
- Be inclusive of language and dialect diversity;
- Be aware of neurobiology and genetics by asking about a family history of reading difficulties.

The factors that are most salient for screening purposes vary across the developmental trajectory. Family history often offers important clues about reading risk, so family history questionnaires should be part of a reading screener. Additionally, when selecting a validated screener, it is important to consider its incorporation and understanding of both language and dialect variation. Students of color are often overrepresented in special education broadly, yet under-represented in the speech and language and specific learning disability categories (Washington & Lee-James, 2020). For information about screening see:

- Multi-Tiered Systems of Supports
- Assessments and Progress Monitoring

Table 5: Suggestions for what screeners should assess at various points in time:

PRE-K 3/4	KINDERGARTEN-SECOND GRADE
• Oral language development • Phonological Awareness • Rapid Naming Skills • Family history of difficulty learning to read	• Oral language development • Phonological Awareness • Rapid Naming Skills • Family History of difficulty learning to read • Correspondence between sounds and letters using at least a Nonsense Word Assessment • Decoding ability using at least a Nonsense Word Assessment • Oral reading fluency
BEYOND SECOND GRADE	
Beyond second grade, students should be routinely screened for reading ability. For a typically developing reader, a silent reading comprehension assessment may be sufficient. However, especially through Grade 5, an oral reading fluency measure may be necessary to determine any weaknesses in word recognition and oral reading ability. Following an oral reading fluency measure, if a student is not reading grade-level texts fluently, additional measures should be administered as part of their regular triannual screening. These would include phonological awareness and phonics measures including correspondence between sounds and letters and decoding ability. Free phonological awareness assessments are available online, including the Heggerty PASA and the Kilpatrick PAST. Free phonics measures are available online, including the Quick Phonics Screener.	

While screeners with a high classification accuracy—that is, those who correctly identify the students in need of support while not incorrectly identifying students who do not need intervention—can predict risk, it is important to not base decisions on only one assessment (Catts & Hogan, 2021). It is also important to keep in mind that screeners are most predictive when the core classroom instruction is strong. In other words, if many or most students are reading below grade level, not only will a screener's utility be compromised, but also it is then necessary to reevaluate the core curriculum and instruction.

When creating a plan for administering screeners, there should also be a plan for how to respond to the data. It may be necessary to set aside time to review the results, make data-based decisions and determine intervention groups. Staff who are providing the intervention should be well-versed in evidence-based strategies and interventions. For more information, see:

- Evidence-Based Practices for Literacy
- Multi-Tiered Systems of Support
- Assessment and Progress Monitoring

Photo by Allison Shelley/The Verbatim Agency for EDUimages

INTRODUCTION

Two foundational skills are required for reading: word recognition and language comprehension as referenced in the Simple View of Reading (SVR). Both are essential for reading, and one cannot compensate for the other. For more information on SVR, see the Introduction to Literacy Instruction.

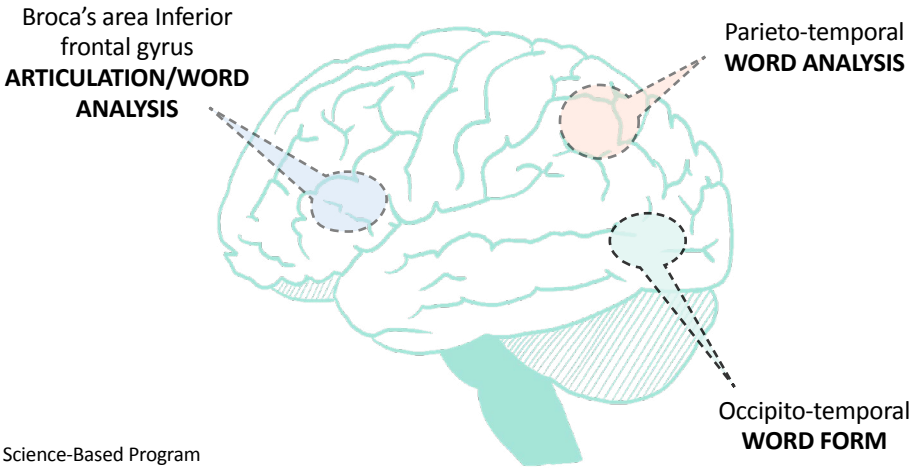
Overwhelmingly, the most common cause of reading difficulty is word identification, or decoding (Barquero et al., 2014; Shaywitz, 2003). Some estimate that more than 90 percent of reading difficulties in grade K-2, and the majority of reading difficulties in other grades, are caused by difficulties with word recognition. As with all difficulties, word recognition difficulties exist on a continuum. A pronounced, diagnosed difficulty with word recognition is dyslexia. A student could present with mild, moderate, or severe effects of dyslexia.

WHAT IS DYSLEXIA?

"Dyslexia is a specific learning disability that is *neurobiological* in origin. It is characterized by difficulties with *accurate and/or fluent word recognition* and by poor spelling and decoding abilities. These difficulties typically result from a *deficit in the phonological component of language* that is often *unexpected* in relation to other *cognitive abilities* and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge." This definition was crafted with the input of leading researchers and scientists by International Dyslexia Association in 2002.

BRAIN SYSTEMS FOR READING

Brain imaging has shown three areas are involved in reading. Broca's area is active when you vocalize words in your mind. The middle "temporal-parietal" area decodes the sounds of letters and words, and is much less active in people with dyslexia; the rearmost area contains the memories of whole words. The better someone reads, the more active it becomes.



Source: Overcoming Dyslexiaa: A New and Complete Science-Based Program for Reading Problems at Any Level by Sally Shaywitz

Looking Deeper at Terms:

- **Neurobiological:** Dyslexia is a brain-based disability. It is not related to environment, speech, or vision. Additionally, it should be noted that family history of dyslexia is correlated (Dehaene, 2009). There is a higher prevalence of dyslexia among children of those who have dyslexia, though there is not a direct gene correlation or causation (Dehaene, 2009). Dyslexia exists in all languages, and can be diagnosed no matter a student's first language.
- **Accurate and/or fluent word recognition:** While the primary source of reading difficulty is a deficit in the phonological component of language (explained below), the student presents with inaccurate or dysfluent reading (Catts & Hogan, 2021).
- **Deficit in the phonological component of language:** Functional Magnetic Resonance Imaging (fMRI) studies have revealed that students with dyslexia have a "deficit in the processing of phonemes – the elementary constituents of spoken words." An area in the left hemisphere involved with the processing of phonemes, or speech sounds, is not sufficiently active during reading (Barquero et al., 2014; Eckhart, 2018; Shaywitz, 2003). This is a neurobiological marker, not caused by environment or prior teaching.
- **Unexpected:** Students with dyslexia are able to perform at expected or above-expected levels on other educational assessments; most notably, language comprehension may be a relative strength. While some educational assessments (i.e., passage comprehension or spelling) may be affected by their causational reading disability, the weakness in reading is unexpected in relation to other cognitive abilities (Dehaene, 2009; Shaywitz, 2003).
- **Cognitive abilities:** Cognitive abilities include planning, memory, visual perception, and more (Morin, 2021).

Scientists and researchers vary on the prevalence of dyslexia, perhaps because dyslexia exists on a continuum. Students could present with very mild, moderate, or severe effects of the disability. However, the most commonly agreed-upon range suggests that 10 percent of all students have dyslexia (Siegel, 2006). It is important to note that a majority of students who have a Specific Learning Disability have a Specific Language or Reading Disability, commonly known as dyslexia (EDFacts, 2021).

DYSLEXIA BEHAVIORS EXAMPLE: GRADE 2 STUDENT		
MILD	**MODERATE**	**SEVERE**
• Uses, but confuses, letter-sound correspondences (i.e., reading /k/ for "ch," or spelling /j/ with a "g") • Able to segment and blend one-syllable words, but may make errors • Difficulty transitioning between syllable types (i.e., reading a short vowel in a long vowel syllable) • Difficulty with multisyllabic word analysis (i.e., does not exhibit word attack skills to break apart multisyllabic words) • Slow or laborious decoding	Behaviors of Mild Dyslexia plus: • Persistent confusion with more elementary letter-sound correspondences, especially vowels (i.e., reading /e/ for "a," or /m/ for "p") • Comprehension of texts read aloud may be affected; student must re-read to understand what they are reading	Behaviors of Mild Dyslexia plus: • Reading significantly below grade level prior to intervention, or would be reading significantly below grade level without intervention • Comprehension of texts read aloud is severely affected; student cannot comprehend what they are reading due to their lack of decoding automaticity

RED FLAGS/SCREENING PROTOCOL

Dyslexia is neurobiological and exists upon a continuum of severity. Thus, dyslexia is typically identified when a student – prior to, upon, or after the onset of formal reading education – presents with specific academic behaviors. Below are behaviors that *may* indicate a student has a deficit in the phonological component of language:

Before the onset of formal reading education (Pre-K 3/4):

- Difficulty with developmentally appropriate rhyming tasks
- Difficulty recognizing distinct sounds within spoken words
- Difficulty producing the speech sounds of the language of instruction (i.e., English, or Spanish and English in a bilingual school)

During early reading education (K-2):

- Difficulty with developmentally appropriate phonemic awareness tasks (i.e., blending speech sounds into words, or segmenting words in individual speech sounds)
- Difficulty recalling all the letter names
- Difficulty recalling letter-sound correspondences (i.e., difficulty recalling that "m" makes the /m/ sound and then the /e/ sound is represented by "e.")
- Difficulty blending three to four sounds together while reading
- Difficulty reading three- to five-letter words
- Lack of automaticity while reading
- Slow or labored reading

After early reading education (Grades 3+):

- Difficulty reading words
- Lack of automaticity while reading
- Slow or labored reading
- Difficulty spelling

For more guidance and information, see the Assessments and Progress Monitoring.

All students should be screened beginning in pre-K 4 at a cadence of three times a year using a validated screener. The screener should be brief, comprehensive, done early, be inclusive of language and dialect diversity, and be aware of neurobiology and genetics. For additional information on screeners, see the reading difficulties section. The table below describes the screening measures needed to adequately determine a student's risk for later reading difficulty and dyslexia:

INTERVENTION BEST PRACTICES

Structured Literacy is a set of principles for how to teach reading that can be used in Tier 1, 2 and 3. Structured literacy is the best practice for students with any reading difficulty, including dyslexia, and is systematic and cumulative, direct and explicit, diagnostic, multisensory, and analytic. The Structured Literacy approach is aligned to Literacy Guiding Principles 2 and 3.

For more information, see:

- K-5 Literacy Instruction
- Multi-Tiered Systems of Support

PRINCIPLES OF STRUCTURED LITERACY	CURRICULUM AND INSTRUCTION GREEN FLAG	CURRICULUM AND INSTRUCTION RED FLAG
Teachers should follow a scope and sequence that introduces new concepts and reviews previously learned concepts.	Each sound, letter and phonics concept taught in a logical manner. Concepts reviewed daily	Concepts are taught in a random (i.e., letter of the week), unclear, or alphabetical order.
Direct and Explicit: Teachers should state clearly and directly the decoding and literacy concepts the student should learn.	Clear, descriptive language about how each sound is made and each letter is formed. Teachers can refer to the curriculum to learn about the English language.	Encourages students to guess sounds and letters. Encourages students to use context, sentence patterns, or pictures to guess words.
Diagnostic: Teachers should adapt lessons in the moment and make diagnostic decisions about student learning between lessons.	Embedded progress monitoring Allows for more or less review based on student response to instruction. Manageable way to adapt lessons to Tier 2 and 3	Moves along in scope and sequence without progress monitoring. Lack of flexibility to review Overly scripted components
Multisensory: Teachers should draw attention to the visual, auditory, kinesthetic, and tactile routes to learning.	Encourages students to connect the oral aspects of language (speech) to the visual aspects of language (print)?	Excessive use of flashcards, worksheets and drills.
Analytic: Teachers should encourage students to analyze the English language to build word-attack skills.	Include information about vowels, syllable types, and strategies for decoding multisyllabic words Encourages students to notice and analyze word patterns, including morphological patterns. Encourages students to decode even high-frequency words and analyze their decodable parts.	Lack of explicit instruction on vowels, syllable types, and strategies for decoding multisyllabic words. Lack of morpheme instruction Discourages students for recognizing word patterns

Structured Literacy includes five key components of instruction for students with dyslexia:

- **Phonemic awareness:** Because dyslexia typically results from a deficit in the phonological component of language, it is imperative that students with dyslexia receive intervention in the phonological component of language; that is, systematic intervention aimed at improving phonemic awareness.

A DEEPER LOOK AT PHONEMIC AWARENESS INSTRUCTION:

Work with phonemes within a word!

Teacher: "Are we ready for some sound work? First up: first sounds! What's the first sound we hear in...mat?"

Students: "/m/"
[repeat for... sat? fat? rat?]

Teacher: "Nice work, students!"

Teacher: "Let's try the same for the final sound in words! What's the last sound you hear in... ram?"

Students: "/m/"
[repeat for... luck, rid, tip]

Teacher: "My students rock! Let's try something a bit harder: Can you break up the sounds in this word: bit?"

Students: "/b/.../i/.../t/!"

Teacher: "Let's do a harder one with more sounds... bliss?"

Students: "/b/.../l/.../i/.../s/"

Teacher: "Nice work! What about...brick?"

Students: "/b/.../r/.../i/.../k/."

Phonemic awareness instruction often gets confused with phonological sensitivity (Brady, 2020). Phonological sensitivity is simply sensitivity to larger units of speech such as syllables and rhymes. Often, children acquire this before phonemic awareness. However, it neither a precursor to nor a requisite for the more advanced skill of phonemic awareness. Phonemic awareness is the "conscious awareness of individual speech sounds (phonemes)" (Brady, 2020) and is essential for learning to read. Many teachers and curriculum spend an unnecessary amount of time teaching rhyming and syllable clapping, but these skills are not essential to later reading ability. Teachers should devote their time starting in late pre-K to phoneme awareness. Examples include phoneme identification, blending, segmenting, deletion, addition, and substitution.

- **Sound/symbol relationships, or phonics:** In addition to phonemic proficiency, students need intervention in the relationship between phonemes (speech sounds) and graphemes (the letters and letter sounds that represent speech sounds). Teachers must teach students the letter-sound relationships, working with a few phonemes at a time. After each short vowel and single consonant have been learned, researchers recommend introducing increasingly complex patterns like consonant blends, digraphs and eventually all of the syllable types. Phonics instruction cannot end at introduction of individual phoneme/grapheme instruction. Teachers must use word-building activities to teach students to blend the sounds together for fluent reading (Foorman et al., 2016).
- **Fluency:** Fluency, or the ability to read with expression, accuracy and smoothness, is an essential bridge to comprehension. Teachers should create experiences for children to read orally, learn to self-monitor and receive feedback (Foorman et al., 2016).
- **Vocabulary:** Vocabulary, which is primarily a language comprehension skill, is an essential skill for students to attain full literacy. Vocabulary not only includes word knowledge, but the full range of semantics: connotations, word relationships, morphology, shades of meaning, synonyms, antonyms, multiple meanings and more. Students can receive direct instruction in Vocabulary through study of word relationships and morphology. Vocabulary instruction can be done orally and then integrated into text-based tasks as the child's decoding develops.
- **Comprehension:** Comprehension, the ultimate goal of reading, can be explicitly taught as well. Students can and should be taught that reading should make sense. As per the K-5 Literacy Instruction section, comprehension is achieved when one is able to accurately read a text and use their background knowledge to construct meaning.

Comprehensive intervention for students with dyslexia would include all five components: phonemic awareness, phonics, fluency, vocabulary and comprehension. Teachers must assess the components of each intervention based on the components present. Teachers can reference this Curriculum Evaluation Tool for more in-depth information.

Misconceptions:

Unfortunately, dyslexia is commonly misunderstood. The section below covers the six of the most persistent misconceptions about dyslexia.

MISCONCEPTION	TRUTH
Classroom teachers cannot meet the needs of students with dyslexia. **FALSE!**	High-quality Tier 1 instruction – provided by classroom teachers – is essential to ensuring students' needs are met. Reading difficulties exist on a continuum, and Tier 1 instruction can strengthen the foundational skills all students need to read (Nelson-Walker, et al., 2013). Code-focused instruction involving phonemic awareness, phonics and fluency are highly effective in addressing any code-based difficulties (Catts & Hogan, 2021). Dyslexia is neurobiological in nature; thus, Tier 1 instruction cannot prevent the brain-based elements of dyslexia; rather, Tier 1 instruction may prevent the severe reading problems characteristic of the disorder. Classroom teachers should also screen students for dyslexia and then provide targeted, effective Tier 2 and 3 instruction in small groups, as is common in elementary literacy blocks. (Gersten, et al., 2008; see also Scanlon, et al., 2008 and Wanzek, et al. 2016)
Students with dyslexia see letters and words backwards. **FALSE!**	Letter reversal is common in many young students as they learn to read and write (Vaughn & Fletcher, 2020). At one time, letter reversal was thought to be a main characteristic of dyslexia, but research suggests that there is no evidence that students with dyslexia reverse their letters more often compared to students without dyslexia (Gaab, 2021). According to Blackborne et al. (2014), one hypothesis for the frequency of letter reversal in young students is that learning to read requires an adaptation of an object recognition process in the brain. This process was not built to adhere to left-right orientation. For example, a chair can be recognized as a chair if it is facing left, right, or is upside down. When it comes to reading and writing letters, a specific left-right orientation is necessary for accurate identification (e.g., b vs. d, or p vs. q). If learning to read and write requires an adaptation of an object recognition process in the brain, then all students (not just students with dyslexia) require time and practice reading and writing letters with a left-right orientation (Blackburne, et al., 2014).
Students benefit from waiting until after second grade to provide reading intervention. **FALSE!**	Intensive interventions are most effective in kindergarten or first grade (Wanzek & Vaughn, 2007). Deficits in phonological awareness have been shown to be robust precursors of dyslexia in students as young as age 3 (Puolakanaho et al., 2007). The brain's ability to change (brain plasticity) decreases throughout the childhood years (Johnson, 2001; Johnston, 2009) and certain skills are harder to acquire after a "sensitive period" (Johnson, 2005). Thus, it is imperative to intervene in a timely manner upon onset of reading difficulty.
Home-based literacy interactions (i.e., "reading with your child every night" and "read-alouds") will improve the performance for children at risk as for dyslexia. **FALSE!**	While the home literacy environment (HLE) is important for improving vocabulary and background knowledge, there is no research-based evidence that it may remediate dyslexia or the phonological deficit, dyslexia's root cause (Hamilton, 2016). The genetic predisposition to dyslexia decreases the efficacy of HLE that is shown with non-dyslexic populations (Powers, 2016). HLE may boost auditory comprehension ability in children during early reading development, but no significant findings show improvement in brain activity at the later stages of reading (Powers, 2016).
Colored overlays improve dyslexia. **FALSE!**	Scotopic Sensitivity Syndrome, more commonly known as Irlen's Syndrome, advocates the use of colored overlays to remediate difficulties in reading rate, accuracy and comprehension for students with dyslexia (Freeze, 2016). While colored overlays are frequently used as an accommodation in many states, there is no research-based evidence that supports their use (Uccula, 2014). In various recent studies not connected with the Irlen Institute, there was no increase in words correct per minute (WCPM) read by subjects using colored overlays (Freeze, 2016).
Dyslexia only occurs in English-speaking students and English learners students cannot be diagnosed with dyslexia. **FALSE!**	There is significant evidence that dyslexia exists in all languages, including those with a less complex writing system than English. For example, Spanish is considered a more transparent writing system. Learning to read can be predicted or at the very least influenced by neurobiological factors such as phonological awareness before the onset of formal schooling; accordingly, dyslexia can exist in students from all language backgrounds (Hoeft, McCardle, and Pugh, 2015). Additionally, students whose first language is not English and are learning English in school should not be overlooked for dyslexia red flags. In fact, their phonemic awareness, letter-sound correspondences and decoding automaticity can be assessed in their first language to determine if they are exhibiting any of the red-flag behaviors for dyslexia.