California Speech-Language-Hearing Association

Position Paper and Resource Guide

Roles and Responsibilities of Speech-Language Pathologists

with Respect to Literacy in Children and Adolescents in

California

Developed by the CSHA Literacy Task Force

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Foreword

Language-learning disabilities may significantly impact all components of reading and writing. Educators, special educators, and parents in California have placed increasingly more focus on this fact in recent years. The Common Core State Standards, adopted by California in 2010 for implementation in the 2013-14 academic year, emphasize the critical relationship between oral language development, specifically listening and speaking, and the successful acquisition of reading and writing. A review of the standards clearly reveals that students who struggle with prerequisite language-based skills for reading and writing will be at-risk for decreased academic success in a variety of curriculum-based areas that are not limited to the language arts, but also include history, science and technical subjects, and mathematics. In short, students are expected to learn to read in the first years of school so that they can "read to learn" later on. The standards also stress the importance of developing students' ability to work with and comprehend informational text at all grade levels and with increasing levels of complexity as they progress through school.

California Assembly Bill No. 1369 (AB 1369) was approved by the Governor on October 8, 2015. AB 1369 recognizes that existing law defines a "specific learning disability" as a disorder in one or more of the basic psychological processes involved in understanding or in using language, and includes in that definition dyslexia and other specified conditions. The bill requires that Section 56334 and 56335 be added to the California Education Code. Section 56334 states that the state board include "phonological processing" in the description of basic psychological processes. Section 56335 requires the Superintendent of Public Instruction to develop program guidelines for dyslexia by the beginning of the 2017-2018 academic year to be used to assist regular education teachers, special education teachers, and parents in the identification and assessment of students with dyslexia and to "plan, provide, evaluate, and improve" educational services to these students. Educational services are defined in this section as "evidence-based, multisensory, direct, explicit, structured, and sequential" approaches to instruction for students with dyslexia. The program guidelines, which are to be developed in consultation with teachers, school administrators, parents, and other educational and medical professionals involved in the identification and education of students with dyslexia, are required to include characteristics typical of dyslexia and strategies for their remediation, as well as information to assist educators in distinguishing between dyslexia and normal development. The guidelines, which are to be disseminated through the department's Internet Web site, will provide technical assistance regarding their use and implementation to parents, teachers, school administrators and faculty members in teacher training programs of higher education.

It is evident that speech-language pathologists (SLPs) working in school settings in the coming years, by virtue of their training and expertise, will have the unique opportunity to provide input at state and local levels regarding the appropriate identification and treatment of language-based

literacy disorders, including dyslexia. Our unique understanding of the systems of language (phonology, morphology, syntax, semantics, and pragmatics) and their use in oral and written forms lends itself to consultation and collaboration with interdisciplinary team members in a variety of language-literacy service delivery models and in Response to Intervention (RTI). Further, our unique understanding of phonological processing, or the ability to encode and retrieve sounds to process oral and written language, lends itself to collaboration with school psychologists and resource specialists in the interpretation of assessment results, identification of language-based reading disorders, including dyslexia, and the development of remedial goals. In summary, this position paper, while long overdue, is timely in that it is designed to provide SLPs with a review of their roles and responsibilities with respect to literacy and to provide them with a resource guide as they work on these teams to help children with language-based literacy problems access the curriculum.

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Section 1. Introduction/Rationale

Language disorders and language-learning disabilities may significantly impact all components of reading and writing. Educators, special educators, and parents in California have placed more emphasis on this fact in recent years. With increased national and state legislative focus on literacy, speech-language pathologists (SLPs) have both a challenge and opportunity to contribute to literacy development. This position paper and resource guide addresses the SLPs' roles and responsibilities with respect to literacy development in children and adolescents in California.

SLPs are highly trained in both spoken language (listening and speaking) and written language (reading and writing). Our unique understanding of the systems of language (phonology, morphology, syntax, semantics, and pragmatics) and their use in oral and written forms is the foundation for our consultation and collaboration with interdisciplinary team members through a variety of language-literacy service delivery models. SLPs play a critical role in literacy development in children and adolescents through providing direct assessment and intervention services and through collaborating with families, teachers, and other professionals in special education and general education settings.

With the passing of the California Assembly Bill No. 1369 regarding dyslexia approved by Governor Jerry Brown on October 8, 2015, it is very timely to clarify the role of SLPs as members on literacy teams. The law requires the Superintendent of Public Instruction to develop program guidelines for dyslexia by the beginning of the 2017-2018 academic year to be used to assist regular education teachers, special education teachers, and parents in the identification and assessment of students with dyslexia and to "plan, provide, evaluate, and improve" educational services to these students. The program guidelines are to be developed in consultation with teachers, school administrators, parents, and other educational and medical professionals involved in the identification and education of students with dyslexia. They are required to include characteristics typical of dyslexia and strategies for their remediation. In addition, the guidelines will include information to assist educators in distinguishing between dyslexia and normal development.

This position paper and resource guide outlines SLPs' key roles and responsibilities and is designed to be utilized as a guide in supporting literacy development in school-age children and adolescents with language disorders and language-learning disabilities (LLDs). It is loaded with charts and lists for easy access to useful resources, references, tips, and strategies. This document covers the impact of LLDs on reading and writing, prevention and early identification of risk factors, assessment, and intervention. We hope that this sparks more conversations,

sharing of information, and inter-professional practice as we combine our strengths with other team members to support children and adolescents in developing literacy skills.

Section 2. Impact of Language-Learning Disabilities on Reading and Writing

Language deficits can have a significant effect on all components of reading and writing. The U.S. Department of Education (2002) estimates that 80% of children with learning disabilities have their primary difficulties in the language-based skills of reading, writing, and spelling. Students with LLDs often have average to above average intellectual ability, yet they typically struggle to acquire adequate reading and writing skills as a result of the language-based deficits that characterize their LLD. This section provides a table that differentiates typical readers from those with language deficits associated with dyslexia and other types of reading disabilities.

- Table 1. Simple View of Reading

An LLD in the area of writing can involve the physical act of writing and/or the mental activity of synthesizing and expressing information. A basic writing disorder refers to a physical difficulty forming letters and words. An expressive writing disability indicates a struggle to organize thoughts and express them on paper. Signs and symptoms of LLDs are of concern if they consistently interfere with a student's ability to master certain academic and daily living skills. Key signs and symptoms are listed to help identify LLDs with regard to oral language and reading and writing development for students from preschool through early adolescence.

Section 3. Early Predictors and Prevention of Literacy Problems

Research indicates that at least 50% of children with language impairments in Kindergarten are found to have reading disabilities in the primary and secondary grades. Many students initially diagnosed as having a speech or language impairment are later re-labeled with a LLD in the area of reading in the 2nd through 4th grades. The risk is greatest for the children with a history of problems with both articulation and receptive/expressive language and specific weaknesses in either oral language comprehension or phonological processing. It is critical to recognize the symptoms of children who are at-risk for language-based reading disabilities. Although no single deficit indicates a potential problem, those children who have a number of these descriptors and limited mastery of related skills may need to be referred for a complete assessment by the end of Kindergarten or the beginning of the first grade. This section provides the following tables to assist with prevention and early identification of literacy problems.

- Table 2: Developmental Milestones for Pre-Literacy and Literacy Skills in Typically Developing Children Birth - 9 Years of Age
- Table 3: Early Identifiers for Language-Based Reading Disabilities

Section 4. Best Practices in Assessment of Language-Literacy Skills

Much of what SLPs are already doing with respect to assessing and identifying language impairments in children and adolescents supports the assessment and identification of literacy problems in this population. Assessment of spoken language skills can be incorporated, extended, and applied to the assessment of written language skills. Best practices include focusing on curriculum-relevant assessments and the impact of language impairments on academic achievement and literacy. A well-designed language assessment battery should include both formal and informal assessment measures of spoken language (listening and speaking) and written language (reading and writing) with a focus on language-based literacy skills. Information about all the systems of language (i.e., phonology, morphology, syntax, semantics, and pragmatics) is necessary as part of a team assessment to effectively determine and describe a student's impairment.

A comprehensive speech/language assessment should build in components that examine not only the student's oral language abilities across the five systems of language but also their language-based literacy skills; this includes the prerequisite skills necessary to both decode and understand written language and the ability to write and spell fluently. It is important to not under-assess the phonological core and basic reading and writing skills.

The following appendices are referred to and include both formal and informal assessment measures that will allow an SLP to design an efficient and effective testing battery across all areas of language:

- Appendix B: Selected formal language-literacy diagnostic/assessment tools that meet psychometric standards
- Appendix C: Selected informal, qualitative, supplemental, and non-standardized measures of literacy development

It is important to remember that the information needed to determine the existence of a language-based reading problem or a writing problem will be compiled through both direct SLP assessment and though consultation/collaboration with other members of the IEP team. Key areas of reading that need to be addressed include listening and reading comprehension, oral language skills, decoding/spelling, reading nonsense words, phonological processing, and cognitive ability. Different reading profiles are illustrated in the following table:

- Table 4: Comparing students with Dyslexia, a Specific Comprehension Deficit, and a Mixed Decoding/Comprehension Deficit to their Typically Developing Peers

Section 5. Best Practices in Intervention to Support Language-Literacy Skills in Children and Adolescents

Best practices are focused on providing intervention based on the individual student's needs. Choices of service delivery models presented emphasize that a range of options need to be considered for each child as an individual to support serving the student in the least restrictive environment. Curriculum-relevant intervention must be provided to allow the student to participate in his/her school program to the greatest extent possible. A range of intervention models are presented that consider the location, schedule, and intensity of services. Ways to approach collaboration and consultation are also discussed including Response to Intervention. SLPs need to work closely with classroom teachers to align intervention with the demands of the curriculum and the Common Core State Standards. In addition, the utilization of technology can allow adaptations that allow struggling learners to achieve a greater level of success and begin to produce spoken and written language with increased accuracy and efficiency. Technology specialists have an important role to play on any educational team involved with promoting literacy development.

Section 6. Primary Areas of Literacy

This section covers the primary areas of literacy that may be considered when SLPs are developing intervention plans for students with language-literacy needs. Descriptions are presented for the following:

- Phonological and phonemic awareness/phonological processing
- Decoding
- Spelling (Orthography)
- Vocabulary knowledge
- Fluency
- Comprehension
- Written expression (Writing and Spelling)

Section 7. Evidence-Based Practice (EBP) Intervention for Supporting Language-Literacy Development

Effective reading and writing instruction and intervention for children with language-based reading and writing difficulties should include the following components:

- Systematic and direct instruction in phonemic awareness
- Systematic and direct instruction in phonics
- Practice applying phonics in reading and writing
- Fluency training
- Enriched language experiences

Although it is beyond the scope of this position paper to provide detailed descriptions of all of the existing evidence-based treatment techniques and strategies, a list of resources was compiled for SLPs to consider which can be found in the appendix. This list includes commercially available materials, research articles, and books that will be helpful for SLPs who are providing intervention to support language-literacy development.

- Appendix D: Language-Literacy Resource List

Section 8: Conclusion

The position paper and resource guide provides a substantial amount of information and resources for SLPs in California to consider. It is intended to guide and support SLPs in their extremely important work with children and adolescents who have language-learning disabilities and other types of speech/language disorders affecting their literacy development. In addition, this document may be used to increase awareness of the unique skills and experience that SLPs possess and bring to their educational teams. SLPs are poised to play an increasingly significant role in supporting the language and literacy needs of children and adolescents in California. It is our hope that this position paper and resource guide will serve as a catalyst for sharing and gathering more information and recognizing that supporting literacy is a critical role that we play as SLPs.

Introduction/Rationale

What roles do speech-language pathologists (SLPs) play with respect to literacy development? Why should an SLP be included on an educational team for students with reading and writing problems? The California Speech-Language-Hearing Association (CSHA) Literacy Task Force has been charged with the task of addressing these questions and clarifying the roles and responsibilities of SLPs with respect to literacy development in students in California (CA). The primary purpose of this position paper is to provide guidance to SLPs in CA regarding their roles and responsibilities in supporting literacy development in children and adolescents. This position paper is intended to serve as a supplement to ASHA's (2001) position statement on the "Roles and Responsibilities of SLPs with Respect to Reading and Writing in Children and Adolescents" and specifically pertains to SLPs working with students in CA.

Speech-language pathologists (SLPs) have a major responsibility in supporting literacy development in school-age children and adolescents with language disorders and language-learning disabilities (LLDs). Given the fact that SLPs possess a great deal of knowledge of both spoken language (listening and speaking) and written language (reading and writing), we are well equipped to perform a critical role in literacy development in children and adolescents through both providing direct assessment and intervention services and through collaborating with families, teachers, and other professionals in special education and general education settings (ASHA, 2001). In addition, our knowledge of metalinguistics, language acquisition, the relationship between oral and written language, cognitive development, individual differences, and related associated conditions also provides us with the necessary background information for supporting literacy development (Ward-Lonergan, 2014).

SLPs support literacy development through the prevention, assessment, and treatment of literacy problems. Appropriate roles and responsibilities for SLPs working with students with reading and writing difficulties as identified by ASHA (2001) include the following:

- preventing reading and writing deficits by supporting spoken language and emergent literacy
- identifying children at risk for reading and writing deficits
- evaluating and assessing reading and writing skills
- providing individual and group instruction and intervention for reading and writing difficulties
- providing assistance to general education and special education teachers through consultation and collaboration regarding literacy
- training parents and others to help support children's reading and writing success

ASHA provides additional information and resources related to written language disorders in their Practice Portal at http://www.asha.org/Practice-Portal/Clinical-Topics/Written-Language-Disorders.

The strong reciprocal relationship between spoken language (listening and speaking) and written language (reading and writing) is considered to be undeniable. Although there are many similarities between spoken and written language, there are also some distinct differences. For example, spoken language involves universal abilities that humans are biologically predisposed to acquire naturally, whereas written language requires explicit instruction. Likewise, in spoken language contexts, listeners typically have the benefit of being able to use facial expressions and tone of voice to help interpret messages which are cues that are generally not present in written language contexts. Despite the differences between the way spoken and written language are acquired, there is a tremendous amount of evidence that links early childhood spoken language problems with reading and writing difficulties in school-age children and adolescents (Burns, 2013; Nelson, 2010; Paul & Norbury, 2012; Wallach & Miller, 1988).

Literacy development is a predominant focus of Education Departments at the federal (National Reading Panel, 2000) and state levels, as well as in all local school districts across the state of California. California school districts with students who have failed to acquire proficient reading and writing skills have been publicized through the press and the news. Currently, many school districts are scrambling to "re-tool" and find ways to resolve their literacy problems. As per the CA Education Code, Section 56333 (Amended by Stats. 1980, Ch. 1353, Sec. 56. Effective September 30, 1980), a "language or speech disorder" (see Appendix A) is the label used to describe a student who has "difficulty understanding or using spoken language" and does not specifically mention understanding or using written language (reading and writing). This omission can lead to confusion regarding the SLP's role in literacy development. It is important to note that this section of the CA Education Code was last amended over 35 years ago in 1980, which was long before ASHA's (2001) position statement on the roles and responsibilities of SLPs with respect to reading and writing. Therefore, this education code should be interpreted in the context in which it was written and needs to be revised in order to be consistent with this national position statement and with current knowledge and best practice in the field of speech-language pathology.

Students in the CA public schools may currently not be eligible for speech/language therapy under the primary category of a "Language Disorder" (see Appendix A), but may qualify for special education services under other categories such as, but not limited to, "Specific Learning Disability" (SLD) (see Appendix A), where the definition includes the understanding and use of spoken or written language. When thoroughly evaluated, many students meet the eligibility criteria for both a Language Disorder and a SLD [i.e., these students may also be described as having a "language-learning disability" (LLD)], however, they may receive direct

services from either an SLP, a special education teacher, or from both professionals for these conditions. When the specialized services of an SLP are provided, we become an important and integral part of the educational team supporting the student's academic and social success. A "language disorder" pertains to a significant impairment in the "comprehension and/or use of a spoken, written, or other symbolic system. The disorder may involve (1) the form of language (phonology, morphology, and syntax), (2) the content of language (semantics), and/or (3) the function of language in communication (pragmatics), in any combination" (ASHA, 1993, Pg. 40). SLPs in CA public schools may initially need to qualify a student for treatment services for a spoken language disorder, per the current CA Educational Code, and then subsequently provide intervention that addresses both the child's spoken and written language needs in order to engage in best practice and be in accordance with ASHA's (2001) position statement on the roles and responsibilities of SLPs with respect to reading and writing.

Impact of Language-Learning Disabilities on Reading and Writing

The U.S. Department of Education (2002) estimates that 80% of children with learning disabilities have their primary difficulties in the language-based skills of reading, writing, and spelling (Paul & Norbury, 2012). This is the largest sub-type of a learning disability, and it is typically referred to as a LLD. Students with LLDs are at a distinct disadvantage with respect to their ability to acquire proficient literacy skills when compared to their typically developing peers. Although students with LLDs often have average to above average intellectual ability, they typically struggle to acquire adequate reading and writing skills as a result of the language-based deficits that characterize their LLD. These deficits may have a significant impact on all components of the reading process (i.e., decoding and comprehension) and the writing process (i.e., mechanics, content, structure, organization, and spelling).

A LLD may affect any one or any combination of the sub-components of language form (phonology, morphology, syntax), content (semantics), and use (pragmatics/discourse) (ASHA, 1993, 2001; Paul, & Norbury, 2012) which results in the individual struggling to master adequate spoken language (i.e., listening and speaking) and written language/literacy (i.e., reading and writing) skills. The following summarizes some of the major aspects of reading and writing that are negatively impacted as a consequence of deficits in these areas of language (Paul & Norbury, 2012; Wallach, 2008;; Ward-Lonergan, 2014):

Phonology

- Print Awareness
- Phonological Awareness
- Phonemic Awareness
- Word Attack Skills
- Sight Word Recognition Skills

- Phonics/Phoneme-Grapheme (Sound/Symbol) Correspondence
- Alphabetic Letter/Print Knowledge
- Book Handling Skills
- Phonological Processing (including Phonological Memory, Perception, and Complex Production)

Morphology

- Morphological Awareness (Root Words, Suffixes, and Prefixes)
- Comprehension and Production of Later Developing Morphemes
- Comprehension and Use of Plurals, Possessives, and Third-Person Singular Verb Forms
- Comprehension and Production of Comparative and Superlative Forms
- Comprehension and Production of Irregular Forms
- Comprehension and Production of Advanced Prefixes and Suffixes
- Pronoun Reference
- Subject-Verb Agreement
- Use of Syllabication Rules

Syntax

- Comprehension and Production of Complex Syntax/Rate of Subordination (e.g., sentences with relative clauses, passive voice, or negation)
- Comprehension and Production of Compound, Complex, and Compound-Complex Sentences
- Elaboration of Noun Phrases with Multiple Modifiers, Prepositional Phrases, and Relative Clauses
- Elaboration of Verb Phrases with Adverbs or Combinations of Auxiliary Verbs
- Fluency, Flexibility, and Productivity of Grammatical Forms
- Advanced Academic or Disciplinary Specific Literate Forms
- Proofreading/Editing

Semantics

- Vocabulary Development
- Understanding and Use of Context Clues
- Multiple Meaning Words
- Word Association and Categorization Skills
- Word Retrieval
- Use of Specific Language and Terminology
- Comprehension and Production of Semantic Relational and Abstract Words
- Comprehension of Complex Directions
- Comprehension and Production of Figurative Language

- Paraphrasing Main Ideas and Important Details

Pragmatics/Discourse

- Narrative Discourse
- Expository Discourse
- Persuasive Discourse
- Text Comprehension Strategies
- Integration of Meaning Across Clauses and Sentences/Cohesion
- Literal, Inferential, and Evaluative Comprehension
- Discourse Organization of Paragraphs and Essays/Themes

Types of Reading Problems

The "Simple View of Reading" (Catts & Kamhi, 2005; Hoover & Gough, 1990; Kamhi & Catts, 2012) provides an excellent model for differentiating typical readers from those with language deficits leading to dyslexia or other types of reading disabilities. It suggests that reading comprehension is dependent upon both intact decoding and comprehension abilities. Table 1 illustrates four types of readers based upon their word recognition and language comprehension abilities according to the Simple View of Reading:

Table 1. Simple View of Reading

LLD Areas	Dyslexia	Mixed Decoding/ Comprehension Deficit	Specific Comprehension Deficit	Typical Reading
Language Comprehension	Good	Poor	Poor	Good
Word Recognition	Poor	Poor	Good	Good

It is important to note that not all students exhibiting reading problems have dyslexia. As noted above, dyslexia is one specific type of reading disability that may be exhibited by students with LLDs. The specificity of dyslexia has to do with "a basic problem in how the brain encodes the phonological features of speech…..early oral language problems involving the phonological code evolve into later reading problems" (Goldsworthy, 2003, p. 69). Students with dyslexia exhibit weaknesses primarily related to phonology, phonological memory, and retrieval, leading to difficulties with word recognition when decoding words. This phonologically based definition of dyslexia excludes visual problems as the cause. Although some researchers have suggested

that visual deficits may cause word-reading difficulties, confirmatory evidence of such "visual-based reading disabilities," which are not currently part of the definition of dyslexia, is still inconclusive (Kamhi & Catts, 2012).

Students with dyslexia frequently score in the average to above average range on measures of oral language, vocabulary, and comprehension, but they typically perform in the below average range or lower on measures of phonological processing (including phonological awareness, phonological memory, and/or rapid automatic naming).   Students with a specific comprehension deficit do not demonstrate significant word recognition (decoding) deficits. Their weaknesses in language and listening comprehension impact their ability to comprehend text that they have successfully decoded. Students with a mixed decoding/comprehension deficit demonstrate deficits in both word recognition (decoding) and language comprehension that negatively impact their ability to read and understand text.

Signs of Language-Based Writing Challenges

A LLD in the area of writing can involve the physical act of writing and/or the mental activity of formulating and expressing ideas through writing. A basic writing disorder refers to a physical difficulty forming letters and words. Expressive writing disability indicates a struggle to organize thoughts to express them on paper.

The symptoms of a LLD in the area of writing often include the following:

- Handwriting is messy and laborious
- Copying letters and words is difficult
- Letters and words are confused or omitted
- Spelling is inconsistent and inaccurate
- Punctuation is inconsistent and inaccurate
- Writing assignments are overwhelming
- Writing organization and coherence is challenging

Signs and Symptoms of LLDs

The following checklist details/displays some common signs of LLDs. Children who do not have a LLD may experience some of these difficulties at times. These signs and symptoms are of concern if they consistently interfere with a student's ability to master certain academic and daily living skills.

Age 3-5 years

- Problems pronouncing words
- Trouble finding the right word
- Difficulty rhyming

- Trouble learning the alphabet, numbers, colors, shapes, days of the week
- Difficulty following directions or learning routines
- Difficulty controlling crayons, pencils, and scissors or coloring within the lines
- Trouble with buttons, zippers, snaps, learning to tie shoes

Age 5- 9 years

- Trouble learning the connection between letters and sounds
- Unable to blend sounds to make words
- Confuses basic words when reading
- Consistently misspells words and makes frequent reading errors
- Trouble learning basic math concepts such as 1:1 correspondence in counting items
- Difficulty telling time and remembering sequences
- Slow to learn new skills

Ages 10- 13 years

- Difficulty with reading comprehension or math skills
- Trouble with open-ended test questions and word problems
- Dislikes reading and writing; avoids reading aloud
- Spells the same word differently in a single document
- Poor organizational skills (bedroom, homework, desk is messy and disorganized)
- Trouble following classroom discussions and expressing thoughts aloud
- Poor handwriting

Early Predictors and Prevention of Literacy Problems

It is important for SLPs to be knowledgeable regarding the acquisition of pre-literacy and literacy skills in typically developing individuals (Cabell, Justice, Kaderavek, Turnbull, Pence, & Breit-Smith, 2008). Table 2 provides a summary of many pre-literacy and literacy milestones that are typically acquired in young children from birth to 9 years of age. This information may be used as a guide for SLPs as they develop and implement prevention, assessment, and treatment plans for children in the area of literacy development.

Longitudinal studies have consistently demonstrated that children with language impairments (LIs) often have reading disabilities. In general, research indicates that at least 50% of children with LIs in preschool or Kindergarten go on to have reading disabilities in the primary or secondary grades (Kamhi & Catts, 2012). Many students initially diagnosed as having a speech impairment or a LI are later re-labeled with a LD in the area of reading in the 2nd-4th grades. These labels represent the same deficit, but it has changed by virtue of time and learning context, representing the continuum of deficits in language learning (Bashir & Scavuzzo, 1992). Therefore, these children have "grown into" different labels when the

demands of the curriculum have shifted to require more advanced language-literacy abilities, particularly in the domains of reading and writing.

Early evidence that can be used to help identify children at risk for language-based reading disabilities has been well documented over the years (Catts, 1997; Goldsworthy, 2003; Owens, 2014; Stackhouse, 1997; Wallach, Charlton & Christie, 2009). In general, the risk is greatest for children with a history of problems with both articulation and receptive/expressive language, and specific weaknesses in either oral language comprehension or phonological processing. Identifying difficulties in these areas can help predict which children may demonstrate later reading problems. For example, as early as three years of age, children may have difficulty with receptive vocabulary, naming, and phonological processing. At age four, they may exhibit problems with word juncture, differentiating and producing similar sounding words, and producing complex words and words with sound clusters. By five to six years of age, these underlying weaknesses become even more apparent as children are faced with the literacy expectations of the Kindergarten and first grade curricula.

Early identification of children who are at-risk for later reading problems is essential. In fact, one important study (Catts, Fey, Zhang, & Tomblin, 2001) identified five Kindergarten variables that predicted reading outcome in second grade: letter identification abilities, sentence imitation abilities, phonological awareness skills, rapid naming abilities, and mother's education level. Table 3 includes descriptors which characterize children at risk for language-based reading disabilities at the end of Kindergarten or the beginning of first grade. While no one deficit alone indicates a potential problem, children who are characterized by many of these descriptors and demonstrate limited mastery of the related skills by the end of Kindergarten or the beginning of first grade should be referred for an in-depth psychoeducational evaluation, including a complete assessment of speech/language abilities.

Table 2: Developmental Milestones for Pre-Literacy and Literacy Skills in Typically Developing Children from Birth-9 Years of Age

LITERACY SOCIALIZATION	PHONOLOGICAL AWARENESS	PRINT KNOWLEDGE	READING	WRITING
Birth to 2 years				
• Enjoys joint book reading • Learns to hold book right-side up • Learns to turn pages • Answers questions about pictures	• Rhyme awareness emerges at 24-30 mo.	• Learns to distinguish print from pictures	• May pretend to read when others are reading	• Learns to hold crayon, scribble
2 to 5 years				
• Interested in books • Learns the need to turn page to get to next part of story • Learns print is stable; anyone reading a book reads the same words • Recognizes familiar books, may know their titles	• Segments sentences into words • Segments words into syllables (emerges at 48-60 mo) • Counts syllables (50% by age four) • Recognizes/produces rhymes (ability to produce rhyme emerges at 30-36 mo) • Recognizes/produces words with the same beginning sound • Segments/blends words by onset/rime (s+un=sun) OR given sounds, can blend them into a word	• Learns alphabet song • Learns to recognize and name letters • Knows some letter names, can identify 10 • (usually those/if it's in their name) • Learns letters "have" sounds (i.e., grapheme/phoneme relationship awareness) • Knows that print is what you read • Learns clusters of letters separated by space, form words	• Learns to recognize name in print • May recognize environmental print on signs and labels (reads • "Stop" sign) • Knows to read from front to back • Learns omit space left-right progression of print	• Begins representational drawing • Learns to write name • Distinguishes drawing from writing • Learns to write some letters • May use invented spelling to label drawings • Experiments by writing/scribbling strings of letters or numbers, or similar forms • May write left to right, right to left, or up, down, and backwards

LITERACY SOCIALIZATION	PHONOLOGICAL AWARENESS	PRINT KNOWLEDGE	READING	WRITING
5 to 7 years				
• Reads picture books for pleasure, with assistance (e.g., audiotaped book) • Reads picture books for pleasure, independently • Knows parts of a book and their functions	• Identifies (names) first and last letters and sounds in words • Lists words that start with the same sound • Counts sounds in words • (50% of children by age 5) • Tells which of three words have common sounds • (e.g., ball, bat, pen) • Tells which of three words is different (e.g., sit, sit, sat) • Blends 3-4 sounds to make a word (/h/ + /ae/ + /n/ + /d/=hand) • Segments words into 3-4 phonemes (hand= (/h/ + /ae/ + /n/ + /d/) • Manipulates syllables (e.g., delete, substitute, reverse) • Manipulates sounds in words (What's hop without the /p/? [/ha/]) • Manipulates letters to make new words (can change hat to cat)	• Learns alphabetic principle: Words are made up of sounds; sounds can be represented by letters • Learns all letter names, letter sounds for consonants • Learns sounds for vowels • Matches letters to sounds (grapheme/phoneme correspondence) • May recognize words by sight	• Learns to decode by identifying sounds for printed letters and synthesizing sounds across letters to form words • Learns some words by sight • Starts to track print when listening to a familiar story • May read a few short, regularly spelled words (e.g., their names or their classmates names)	• Learns conventional spelling for some words • Writes many uppercase and lowercase letters • Learns to spell by using phonemic awareness and letter knowledge • Makes errors based on phonetic correspondences • Writes most letters and some words from dictation • Writing is simpler than speech of this child • Writing begins to be more common than drawing

LITERACY SOCIALIZATION	PHONOLOGICAL AWARENESS	PRINT KNOWLEDGE	READING	WRITING
7 to 9 years				
• Reads "chapter books" for pleasure independently • May read non-fiction for pleasure, as well	• Plays with sounds in words, as in pig Latin and other secret codes • Uses phonological awareness skills when spelling	• Begins to learn conventions for punctuation, capitalization, other conventions of print	• Transitions from emergent to "real" reader • Recognizes more words by "sight" • More phonic patterns are recognized to increase automaticity of decoding (e.g., "silent e rule") • As reading becomes more automatic, more attention is focused on comprehension • Reading moves toward fluency	• Learns spelling patterns (e.g., -sight pattern words) • Increases vocabulary of known spellings • Makes fewer spelling errors • Uses writing to send messages • Begins school-sponsored writing, such as book reports • Writing resembles level of complexity in speech • Oral and literate styles are mixed in writing • Narrative writing predominates

Sources:

Johnson, K. L., & Roseman, B. A. (2003); Paul & Norbury, 2012; Simpson & Andreassen, 2008

Table 3: Early Identifiers for Language-Based Reading Disabilities (Catts, 1997)

Speech Sound Awareness	Doesn't understand/enjoy/rhymes
	Doesn't easily recognize that words may begin with the same sound
	Has difficulty counting the syllables in spoken words
	Has problems clapping hands or tapping feet in rhythm with songs/rhymes
	Demonstrates problems learning sound/letter correspondence
Word Retrieval	Has difficulty recalling a specific word
	Shows poor memory for classmates' names
	Speech is hesitant, filled with pauses or filler words (e.g., "um")
	Frequently uses words lacking specificity (e.g., "thing," "stuff")
	Has problems remembering /retrieving verbal sequences (e.g., days of the week, alphabet)
Verbal Memory	Has difficulty remembering instructions or directions
	Shows problems learning names of people or places
	Has difficulty remembering the words to songs or poems
	Has problems learning a second language
Speech Production/Perception	Has problems saying common words with difficult sound patterns (animal, cinnamon, specific) NOT AN EARLY WORD, SUGGEST: spaghetti
	Mishears and mispronounces words or names
	Confuses similar-sounding words
	Combines sound patterns of similar words (e.g., "escavator" for elevator)
	Demonstrates frequent slips of the tongue (e.g, "brue blush" for blue brush)
	Has difficulty with tongue twisters
Comprehension	Only responds to part of a multiple-element request or question
	Requests/requires multiple repetitions of instructions/directions
	Relies too much on context to understand what is said
	Has difficulty understanding questions
	Fails to understand age-appropriate stories
	Has difficulty making inferences, predicting outcomes, drawing conclusions
	Lacks understanding of spatial items (e.g., left/right, front/back)
Expressive Language	Talks in short sentences
	Makes errors in grammar
	Lacks variety in vocabulary

	Has difficulty giving directions or explanations (e.g., makes multiple revisions)
	Relates stories or events in a disorganized, incomplete manner
	May have much to say, but provides little specific detail
	Has difficulty with conversational rules (e.g., turn taking, topic maintenance, clarifying) ADD? Given a picture story book to read aloud, labels rather than relating events or a story
Other Important Factors	Prior history of problems in language comprehension and/or production
	Family history of spoken or written language problems
	Limited exposure to literacy in the home
	Lacks interest in books and shared reading activities
	Does not engage readily in pretend play

Best Practices in the Assessment of Language-Literacy Skills

Conducting a Comprehensive Language-Literacy Assessment

It is important to remember that much of what SLPs are typically already doing with respect to assessing and identifying language impairments in children and adolescents supports the assessment and identification of literacy problems in this population. The information that is gained from the assessment of spoken language skills can be incorporated, extended, and applied to the assessment of written language skills. When SLPs focus their efforts on providing direct curriculum-relevant assessment, presenting in-services regarding the impact of language impairments on academic achievement and literacy, and collaborating with teachers to identify students with language and literacy problems, they are demonstrating best practices in the assessment of language and literacy disorders (ASHA, 2001; Paul & Norbury, 2012; Ward-Lonergan, 2014).

A comprehensive language-literacy assessment should include a combination of both formal and informal assessment measures of spoken language (listening and speaking) and written language (reading and writing) skills, as well as obtaining case history information and conducting a hearing screening, performing an oral mechanism exam, and administering speech evaluation measures. Receptive language skills are comprised of listening (spoken language) and reading comprehension (written language), and expressive language skills are comprised of speaking (spoken language) and writing (written language). Therefore, receptive and expressive language skills may be assessed through both spoken and written language modalities.

A well-designed language assessment battery in the public school setting will examine both receptive and expressive language domains, with a particular focus on language-based literacy skills. Information about all of the systems of language (i.e., phonology, morphology, syntax, semantics, and pragmatics) is necessary for a team assessment to effectively describe the individual student's deficit or disability. Difficulties can be observed in the comprehension, production, and awareness of language at differing levels, including the sound, syllable, word, sentence, and/or discourse levels. Students who have reading deficits may be deficient in typically expected literacy skills, including phonological awareness, phonics, word analysis, the use of contextual cues, the ability to predict, the ability to ask and answer questions about a text, summarizing, and the use of prior knowledge to learn about new topics (The New Department of Education, 2005; Owre & Brennan, n.d.).

Students who are at risk for reading problems and students with known reading problems should have access to a team of specialists who clearly understand the reciprocal relationships between spoken and written language. In order to correctly assess and identify children in need of intervention, the team must include the SLP as one if its key members. Appendix B includes selected formal, quantitative diagnostic/assessment tools that meet psychometric standards and may be helpful to the SLP who is evaluating a student with a suspected language-based literacy problem. Formal language measures are typically standardized, norm-referenced tests that yield standard scores, percentile ranks, and confidence intervals, and informal measures include curriculum-based assessment measures, dynamic assessment, criterion-referenced measures, observations, and language/discourse samples. It is often recommended that SLPs administer at least:

- One comprehensive language test (if appropriate) that assesses a wide range of receptive and expressive language skills
- One or more specific ability/specialty language tests (if appropriate) that assesses one or two specific aspects of language
- Informal measures as part of a comprehensive language-literacy assessment

Refer to Appendix C for selected informal, non-standardized measures of literacy development that may also be informative during the assessment process.

Designing an Effective and Efficient Language-Literacy Assessment

While decoding, reading comprehension, and writing skills are often included in the academic assessment battery completed by the Resource Specialist on the IEP team, a comprehensive speech/language assessment should build in components, using both formal and informal measures, that examine not only the student's oral language abilities across the systems of language, but also his or her language-based literacy skills. These include the prerequisite skills necessary to both decode and understand written language and the ability to write and spell

fluently. SLPs frequently include measures in their assessment batteries that are designed to assess receptive and expressive oral language, but they often under-assess the phonological core (including phonological awareness, phonological memory, and rapid automatic naming) and basic reading and writing skills.

For example, a comprehensive, norm-referenced formal test such as the Clinical Evaluation of Language Fundamentals-5 (CELF-5) (Wiig, Semel, & Secord, 2013) or the Oral and Written Language Scales II (OWLS-II) (Carrow-Woolfolk, 2012) is initially administered to quantify a student's overall receptive and expressive language skills in a variety of areas. Additional informal language sampling or observation of oral narrative abilities is usually also conducted in an attempt to further assess the student's linguistic abilities in less structured environments. This information is helpful to the IEP team, particularly if a mixed decoding/ comprehension deficit is suspected. It can also rule out language comprehension problems, which are not characteristic of a diagnosis of dyslexia. It does not, however, help us confirm or rule out the presence of an underlying phonological processing problem. Given the nature of language-based reading disabilities, this assessment battery should also, at the very least, contain a specific in-depth focus on phonological processing. Supplementing language testing with another formal assessment measure, such as the Comprehensive Test of Phonological Processing-Second Edition (CTOPP-2) (Wagner, Torgesen, Rashotte, & Pearson, 2013), would also be helpful, because the CTOPP-2 assesses phonological awareness, phonological memory, and rapid naming deeply. The authors of this test state that a deficit in one or more of these kinds of phonological processing abilities is viewed as the most common predictor of learning disabilities in general, and of reading disabilities in particular.

Furthermore, reporting the results of a brief observation of the student reading a grade appropriate passage and a review of a classroom writing sample provided by the classroom teacher would confirm phonics and reading fluency difficulties that may be related to weaknesses in the phonological core and/or weaknesses in writing conventions that demonstrate underlying deficiencies in the systems of language. Appendix B and Appendix C include a number of assessment tools, including both formal and informal measures, that will allow a SLP to design an efficient and effective testing battery that is balanced across the systems of language and the phonological core and considers their effects on reading, writing, and spelling.

Collaborating With the Interdisciplinary Team

During the assessment process, SLPs, teachers, and other professionals work collaboratively as members of an interdisciplinary team to develop and implement an effective assessment plan with the mutual goal of evaluating a child's strengths and weaknesses and individual needs, as well as identifying the presence or absence of any type of impairment or

disability including those involving literacy. Through collaborative, interdisciplinary assessment, all of the professionals involved are able to share their own unique knowledge and experiences and learn from each other as they work cooperatively together to support the development of literacy skills in their students. The students also directly benefit from this integrated approach that draws upon the combined skills and expertise of all of the professionals involved in the assessment process.

SLPs do not need to view themselves as being the professional who is primarily responsible for the assessment (or possible treatment) of literacy skills in school-age children and adolescents. Rather, they are one member of a powerful team of professionals who are all working collaboratively together for the common good of the child/adolescent involved. No single discipline "owns" literacy assessment; professionals from each discipline typically approach the assessment from their own unique perspective and serve as equal contributors to the assessment process. Therefore, no single professional or discipline is solely responsible for the assessment of literacy skills in these individuals.

The IEP team collaborates to determine whether or not a learning disability exists in some specific area(s) (e.g., Reading Comprehension, Reading Fluency, Oral Expression, Written Expression, Listening Comprehension, etc.). Keeping the subtypes of readers in mind as described in the Simple View of Reading (Table 1) promotes the selection of appropriate services and goals for qualifying students for speech-language and/or other special education services and the development of appropriate recommendations for the teachers, SLPs, and parents of those students who do not qualify for these services. In a comprehensive assessment, the SLP gathers, shares, and highlights key information related to the language-learning abilities of the student. This unique language perspective is invaluable to the IEP team as it pertains to the specific literacy problems demonstrated by the individual student being assessed.

It is important to remember that the information needed to determine the existence of a language-based reading problem (and its specific type) or a writing problem will be compiled through both direct SLP assessment and through consultation/collaboration with other members of the IEP team (e.g., general education teacher, parent, resource specialist, school psychologist). Table 4, which compares the performance of students with different types of reading problems to their typically developing peers, summarizes the areas frequently discussed by members of IEP teams. These areas contain the information necessary to define a reading problem according to the Simple View of Reading.

Table 4: Comparing students with Dyslexia, a Specific Comprehension Deficit, and a Mixed Decoding/Comprehension Deficit to their Typically Developing Peers

	Dyslexia	Specific Comprehension Deficit	Mixed Decoding/ Comprehension Deficit
Listening Comprehension	Average to above average	Below average	Below average
Reading Comprehension	Below average	Below average	Below average
Oral Language Skills	Average to above average	Below average in one or more sub-components of language	Below average in one or more sub-components of language
Decoding/Spelling	Below average	Average or above average	Below average
Reading nonsense words	Below average	Average or above average	Below average
Phonological Processing	Below average	Average or above average	Below average
Cognitive Ability	Average to above average	Average to below average	Average to below average

Best Practices in Intervention to Support Language-Literacy Skills
in Children and Adolescents

Service Delivery Models

The term "service delivery" refers to how services will be provided for children/adolescents with disabilities. SLPs should consider a wide range of service delivery options to meet a student's individual needs (ASHA, 2010; Ukrainetz, 2015). Over the past several decades, educational reform and federal legislation have had a major impact on the role of the SLP, including how services are provided. The Reauthorization of the Individuals with Disabilities Education Act (IDEA, 2004) supports serving students in the least restrictive environment (LRE), which may be interpreted not only as a "place" but also as inclusion with typical peers. The focus on educating students in the LRE and on providing curriculum-relevant intervention has led to a continuum of service delivery models utilized by SLPs. The intervention setting(s) should enable the child to participate in his/her school program to the greatest extent possible. Treatment service delivery decisions must be based on individual student needs. Regardless of whether services are provided directly or indirectly, collaboration between the SLP and the teacher is essential to ensure that services are educationally relevant and that the

student's performance within the classroom improves. Once the multi-disciplinary assessment team has identified areas of need and created goals and objectives related to language and literacy, the SLP will need to collaborate with team members to consider flexible and creative solutions for service delivery to meet the unique needs of each child whom they serve (Blosser, 2012).

Pull-Out Model (Traditional, Clinical Model). The most frequently used model for direct service delivery is the "pull-out model" or "traditional, clinical model" of service provision. In this model, the SLP works with students individually or in small groups in a location apart from the general classroom educational activities. The SLP typically sees the student in a "therapy" room for a specified amount of time for individual or group intervention.

Although the pull-out model is widely used, it is just one model among a range of service delivery options and not necessarily the most optimal one for students with LLDs. When determining which service delivery model (or combination of models) will best meet the student's individual needs, the SLP and IEP team must consider a variety of factors including:

- Present level of performance, as it relates to the student's communication impairment and impact on educational performance
- Goals and objectives for intervention
- Educational benefit, as determined by progress made in services received to date
- Location of the services – outside the classroom and/or integrated into the classroom and other school or community settings
- Individual or group intervention or a combination of these types of intervention
- Direct (provided to the student) or indirect (consultation provided to adults on behalf of the student) services or a combination of these types of services
- Frequency, intensity, and duration of the services
- Personnel delivering the services – the SLP, teacher, and/or other specialists or support staff

Consultation Model. The consultation model may be used by SLPs to provide indirect services to students with LLDs. The following guidelines are beneficial for SLPs to consider when implementing this model of service delivery:

- Teach and model specialized instructional techniques to allow teachers and support staff to embed language and literacy supports in daily routines.
- Collaborate with teachers to design curriculum-relevant activities that encourage literate language.
- Observe classroom lessons to monitor student progress, identify language demands during instruction, and suggest accommodations to support student participation.
- Collaborate with teachers to make curriculum modifications allowing students with special needs to access the curriculum.

- Work with parents to help them develop strategies to foster their children's acquisition of both spoken and written language.

Collaborative, Classroom-Based Model (Push-In Model). The "collaborative, classroom-based model" or "push-in model" of service delivery encourages collaboration between the SLP and the classroom teacher, which is essential to ensure that services are educationally relevant, and that the student's performance within the classroom improves (Blosser, 2012). Collaborative teacher/SLP teams determine the most appropriate approaches to meet their students' needs. The following list describes several types of classroom-based service delivery approaches suggested by Friend (2010) and Flynn (2010):

- One teach, one observe—one observes while the other teaches.
- One teach, one "drift"—one assumes primary teaching responsibilities while the other assists individual students.
- Station teaching—each teaches at a separate center.
- Parallel teaching—each instructs half the class using the same material.
- Remedial teaching—one presents material while the other re-teaches previously taught material.
- Supplemental teaching—one presents the lesson in a standard format while the other adapts the lesson.
- Team teaching—both share lecturing.

Language-Based Classroom Model (Course-for-Credit Model). The "language-based classroom model" or "course-for-credit model" of service delivery is used to provide more frequent, intensive language intervention services to students with speech and language impairments and LLDs. A language-based classroom is typically team taught by an SLP and a special education teacher, and students attend the class daily (or at least several times a week). When adolescents are served by this model, they often receive a grade and/or course credit for this class (may be referred by titles such as a "Communication Lab" or a "Language/Study Skills" course) as they would for other courses that are part of their regular school schedule.

Scheduling Strategies

Some of the strategies currently used by SLPs to schedule and provide services include:

Intensive scheduling: Also called the block system, this model enables the SLP to provide a greater number of hours of treatment within a condensed amount of time. Typically, students who receive services through this model are seen four or five times a week for a specified block of time, usually for four, six, or eight weeks (Blosser, 2012).

Flexible scheduling: This model permits variation in the schedule and location of services and is designed to address the student's individual needs. One example is the 3:1 scheduling model, which designates three weeks out of each month for direct intervention with students and one week for indirect services and workload activities that are performed 'on behalf of the child' (Cirrin, 2010). The 3:1 model, which is supported by ASHA, "provides opportunities for SLPs to consult with teachers about students' needs in the classroom, address curriculum pacing, and integrate speech-language goals and classroom curriculum" (VA Department of Education, 2011).

Response to Intervention

In addition to providing services to students with identified disabilities affecting language and literacy, SLPs have an increasingly important role to play within the Response to Intervention (RTI) model (Ehren, Montgomery, Rudebusch, & Whitmire, 2006). RTI is a multi-tiered model of intense, research-based intervention intended to ensure that "there are systems in place in general education to help every student meet grade-level expectations in academics and behaviors" (Rudebusch & Wiechmann, 2011). The California Department of Education has expanded this term to include the word "instruction" (i.e., "Response to Intervention and Instruction"; RtI2) to emphasize the full continuum of instructional options for all students that "integrates resources from general education and special education through a comprehensive system of core instruction and tiered levels of interventions" (California Department of Education, 2009). RTI2i is one component of California's Multi-tiered Systems of Support (MTSS) which is a broader approach that aligns the entire system of initiatives, supports, and resources for all students by implementing "continuous improvement processes at all levels of the system" (California Department of Education, 2016). Within the RTI framework, SLPs can provide direct and indirect language and literacy support to all students.

RTI is considered a "prevention and early pre-referral educational intervention model, designed to prevent students from failing" (Blosser, 2012). As such, the RTI model aligns with two of the roles and responsibilities for SLPs identified by ASHA with respect to literacy: 1) preventing written language problems and 2) identifying children at risk for reading and writing problems (ASHA, 2001). Within the multi-tiered RTI model, SLPs collaborate with general and special educators to determine and provide the level of instruction and support needed for each student to succeed academically (Blosser, 2012).

As part of their roles and responsibilities with regard to identification of reading and writing problems, ASHA (2001) recommends that SLPs:

- Design literacy-sensitive early identification activities.

- Help teachers and other professionals with early recognition of language factors associated with later literacy problems.
- Collaborate with other professionals to identify risk factors.
- Participate on pre-referral child study teams.
- Monitor classroom progress and consult with others regarding when a formal referral for assessment is needed.
- Suggest dynamic assessment strategies to help determine whether a language difference or disorder might be at the root of literacy difficulties.

Within the multi-tiered RTI model, SLPs can utilize their unique expertise to help prevent written language problems and identify children at risk for reading and writing problems. By collaborating with teachers and other professionals, SLPs have the opportunity to support the language and literacy needs of all students.

RTI typically includes "three tiers progressing from a low level of intensity to a high level of intensity of assistance." As part of the RTI team providing assistance within this framework, SLPs have the opportunity to help prevent written language problems for general education students.

Tier 1. Tier 1, the least intense level of support, aims to "provide all students with a scientifically based curriculum that follows state or core standards" (Rudebusch & Wiechmann, 2011). At Tier 1, SLPs typically provide indirect services intended to prevent language and literacy problems for students in a general education classroom setting. Rudebusch and Wiechmann (2011) offered the following examples of services that SLPs can provide at Tier 1:

- Provide information for parents and teachers regarding speech and language development.
- Plan and develop lessons on effective language and communication skills within the context of the classroom curriculum.
- Provide professional development on language-to-literacy connections (e.g., phonological awareness, vocabulary, language structures, verbal reasoning).
- Collect data (usually need parent permission) during classroom observations on students' speech and language skills or language demands during instruction/delivery of the curriculum.
- Design and facilitate homework programs to target speech-language skills.
  - Highlight language development connections in the curriculum.

ASHA (2001) offers additional recommendations for how SLPs can help prevent written language problems by fostering language acquisition and emergent literacy:

- Facilitate opportunities for children to participate in emergent language activities, both at home and at school.

- Encourage emergent literacy skills through joint-book reading and activities that expose children to developmental precursors to literacy (e.g., conventions of print, phonology and phonological processing, alphabetic/letter knowledge, and sense of story).
- Facilitate acquisition of an adequate lexicon, as well as knowledge of the rules of morphology, syntax, and pragmatics.

Tier 2. Tier 2 provides more intense support for students who are performing below grade-level standards and failed to make adequate progress in Tier 1. Tier 2 interventions typically involve targeted small-group instruction provided by skilled teachers, paraprofessionals, and/or specialized professionals including SLPs. Rudebusch and Wiechmann (2011) suggested the following types of indirect services that SLPs can provide at Tier 2:

- Assist in selection of evidence-based practices for literacy interventions.
- Identify, use, and disseminate evidence-based practices for math, reading, listening, speaking, and writing.
- Serve on the campus intervention team.
- Observe Tier 2 students to identify when their struggles are linked to speaking, listening, reading, or writing and to assist in collecting additional data to drive decision-making.
- Communicate Tier 2 progress to the teacher/parent.

In addition, SLPs can provide the following direct services at Tier 2:

- Provide small-group intervention to address specific areas of need.
- Monitor progress on target skills.

Tier 3. Students who continue to struggle in Tier 2 may require more intensive, individualized intervention offered in Tier 3. SLPs may continue to provide direct and indirect supports, but the intervention will be more frequent, more intense, and be provided over a longer period of time than in Tier 2 (Rudebusch & Wiechmann, 2011). Students in Tier 3 "may need special education testing and instruction and remedial intervention, including speech/language services" (Blosser, 2012).

Within the RTI framework, SLPs can help to identify students who are at-risk for language and literacy problems. Given the data-driven nature of RTI, student progress is monitored at all tiers to determine whether students are making adequate progress toward meeting grade-level expectations or if they require different or more intense supports (Blosser, 2012).

Curriculum-Based Language-Literacy Intervention

SLPs play a major role in supporting literacy development in our school-age children and adolescents with language disorders and LLDs by providing effective curriculum-based literacy intervention. SLPs support literacy through both direct therapeutic intervention with the students and through collaboration and consultation with special education and general education teachers (Nelson, 2010; Wallach & Miller, 1988). The primary goal is to facilitate mastery of the underlying language demands of the curriculum content through curriculum-based language intervention. Curriculum-based language intervention refers to the use of the classroom/school curriculum as the basis for developing goals and objectives and for providing academically and socially relevant intervention services (Ehren, 2000; Ward-Lonergan, 2014).

The goal of this approach is to coordinate the students' language goals/objectives with those of the curriculum by determining the most critical underlying listening, speaking, reading, and writing skills necessary for the student to meet the demands of the curriculum. Depending upon the curriculum standards and the individual needs of a student, the specific language-literacy skills and strategies targeted will vary, with the ultimate goal of facilitating generalization outside of the treatment setting. It is important to note that curriculum-based language-literacy intervention is not tutoring (Ehren, 2009; Ward-Lonergan, 2014). The purpose is not to work with a student to ensure that he/she completes a particular homework assignment or to teach the basic content and concepts already being taught by his/her classroom teachers. Rather, the purpose is to help him/her acquire the language skills and language-learning strategies which are necessary to understand and produce this content material, complete homework assignments independently, and improve in educational performance. This approach to intervention may be applied to any of the service delivery models described in the preceding section (Ward-Lonergan, 2014).

Utilization of Technology

Thanks to advancements in what is now considered "common technology", certain adaptations now allow for students who were struggling to read and write to be able to produce written work and edit it at the level of their abilities. Whereas there have always been features that were used to accommodate for these issues, it is now even easier without any cost to allow everyone to read and write to their full potential.

Reading Accommodations. There are multiple factors that can contribute to an individual's difficulty with reading independently. Many times we fall back to decoding, but often times the issues are more complex than that and can include visual tracking, context familiarity, and overall reading fluency. Studies show that the most effective method to increase

reading fluency is to provide manipulable text, or text that we can quickly change to accommodate an individual's literacy needs to allow him/her to be a more independent reader. These changes include:

- *Size and spacing* – Often we can dramatically raise a student's reading level by simply changing the font and the size of text presented. For many students, the ability to visually track information from left to right is not necessarily in the size of the font itself, but the space between lines. This accommodation is easy to do with electronic text and can instantly demonstrate positive results.

- *Font* – Although we often see fonts displayed in one format, it is common that students read differently and process text visually depending on the font selected. A serif font such as Times New Roman (the most common one used for newspapers and books) offers distinct lines across the page, but sometimes a font such as Verdana offers a more rounded, softer font on the eyes that allows students to process the information more easily and follow text more independently.

- *Color of text and background* – In all e-readers, it is possible to quickly change the background color, allowing for a more muted background of sepia or light blues and greys. These features allow for more than just a "cool" effect; they allow individuals to read longer and comprehend the information at a higher level than with a traditional black-on-white background.

- *Contextual support* – Many individuals have difficulty with text because they are unaware of the vocabulary and have an unclear picture in their mind of the overall context of the text. All electronic formats allow for definitions, synonyms or pictures to be quickly brought up to give additional support to help an individual to derive meaning from text. Need that picture in your head? A quick google link to the word allows one to access these words as a picture to quickly understand the text and understand its context.

- *Text to Speech* – Now considered common technology, the single most effective way to increase an individual's reading fluency is to access text to speech features. This feature reads back selected text, highlighting words as it is being read. It is a feature that is available in virtually every electronic format and platform for free and can be accessed at the single word level or reading entire books or websites if needed. Now if students come across a word they don't know, they can quickly press or select this portion of text to be able to have it read back to them.

Linking Treatment to the Common Core State Standards

The Common Core State Standards (CCSS) (National Governors Association Center for Best Practice and the Council of Chief State School Officers, 2010) was adopted by California (CA) for English Language Arts (ELA) and Mathematics. The CCSS have been developed to indicate what students will understand and be able to do by the end of each grade level from Kindergarten through 12th grade and to help prepare them for college and/or the workplace environment. One primary stated purpose of the CCSS is to help all children obtain a good education regardless of whether they change schools or relocate to a different state.

The CA Department of Education (CDE) has published the, CCSS for English Language Arts and Literacy in History/Social Studies, Science, and Technical Subjects for CA Public Schools Kindergarten through Grade 12 on their website (CDE, 2013). http://www.cde.ca.gov/be/st/ss/documents/finalelaccssstandards.pdf

These standards are divided into the following five strands for grades K-5 and grades 6-12:

1. Reading
2. Writing
3. Speaking
4. Listening
5. Language (which is a combination of reading, writing, speaking, and listening skills)

The notion that literacy is a shared responsibility across educators with different areas of expertise is emphasized in these standards to provide an integrated model of literacy across the curriculum. According to the CDE (2013), these standards "identify what it means to be a literate person in the 21st century." The ELA/Literacy standards are meant to supplement, rather than replace, the content area standards in History/Social Studies, Science, and Technical Subjects. These standards are a valuable resource for SLPs to consider when writing their intervention goals and objectives. Writing goals that align with these standards helps ensure that treatment is relevant to the curriculum.

Primary Areas of Literacy

There are several primary areas of literacy that may be considered by SLPs who are developing intervention plans for their students with language-literacy needs including the following:

Phonological processing. Phonological processing includes phonological/phonemic awareness, phonological memory, and rapid naming abilities. Phonological awareness is the understanding that spoken language can be divided into smaller units, and those units can be

identified and manipulated. Phonemic awareness is the highest level of phonological awareness and refers to the ability to segment and manipulate individual sounds in words. Instruction and support in the areas of phonological and phonemic awareness also includes skills such as segmenting words into syllables, identifying the initial and final sounds in words, identifying two words that rhyme, and deleting the initial or final sound in a word. In addition to phonological awareness, other specific types of phonological processing abilities correlated with literacy development include phonological memory and rapid naming abilities. Phonological memory refers to the ability to hold speech sounds in short-term memory (e.g., temporarily storing a phone number in short-term memory before dialing it). Rapid naming refers to the ability to quickly name commonly recognized items, which require speed and accuracy in the retrieval of phonological information from long-term memory.

Decoding. Phonics includes the systematic and predictable relationship between letters and sounds, and decoding is the ability to apply that knowledge to transfer print into spoken words. To successfully decode, students must be able to accurately and automatically recognize letter/sound correspondences when they read. They also need to use word attack and morphological awareness skills to read unfamiliar single syllable and multisyllabic words. Decoding instruction should be systematic and explicit; it should focus on teaching the rules of the English language as well as relationships between language elements, and it should follow an organized plan of instruction that moves from simple to complex skills.

Spelling (Orthography). Spelling requires knowledge of the systematic and predictable relationships between letters and sounds, and accurate and automatic correspondence of letters and sounds to encode or transfer spoken language to print. Spelling development begins very early on through scribble writing, pretend writing, and invented spelling. Support for students in the area of spelling should also be systematic and explicit, including instruction in the rules or patterns and regularities of spelling patterns and opportunities to apply that knowledge independently in their own writing.

Vocabulary knowledge. Word knowledge has a strong relationship to phonological and phonemic awareness during the "learning to read" stage of reading development, and is highly correlated with a student's ability to comprehend a text. Students require understanding of general, high frequency words, as well as more sophisticated literary vocabulary that is typically found in children's books. Vocabulary development can be supported through meaningful interactions with target words in various contexts. Instruction should include discussion and activities in which students are actively engaged in thinking about word meanings, how words can be used in different situations, and how words relate to one another.

Fluency. In order to comprehend a text, a student must apply his/her decoding skills and word knowledge to read connected text rapidly, smoothly, accurately and automatically. Specifically, fluency encompasses reading accuracy, reading rate, prosody (intonation), stress,

tempo, and use of appropriate phrasing. Instruction in the area of oral reading fluency includes modeling fluent reading, using strategies such as choral and paired reading, and providing opportunities for repeated readings of the same instructional level text.

Comprehension. Comprehension is the essence of reading and the ultimate goal of all reading instruction. Reading comprehension is an active process in which the reader constructs meaning through intentional and thoughtful interaction with the text. In order to understand what he/she is reading, a student must apply decoding and fluency skills and relate his/her background, vocabulary, and syntactic knowledge to the themes and ideas in the text. Familiarity with syntax, including the different semantic nuances of connective and function words which can change meaning, especially in compound and complex sentences, is necessary for understanding higher academic level text. Teaching strategies such as visualization and prediction can support students' comprehension skills. Teacher-led discussions and questioning while reading a text also may be beneficial.

Written expression. Writing is the ability to compose text effectively to communicate for various purposes and audiences including expressing feelings and ideas, organizing and demonstrating knowledge and beliefs, and conveying meaning. Writing requires the application of skills from a number of areas including vocabulary knowledge, knowledge of conventions of text structures, grammar, and spelling. Students' writing development may be supported through balanced instruction that focuses on the writing process as well as the product. Instruction that focuses on the process includes modeling and opportunities to practice planning, pre-writing, drafting, revising, editing and publishing. Writing instruction should also include opportunities for students to edit their own writing for spelling, capitalization, punctuation and grammar.

Evidence-Based Practice (EBP) Intervention for Supporting Language-Literacy Development

There is a great deal of research documenting effective reading and writing instruction and intervention for children with language-based reading and writing difficulties (Justice, 2010; Kamhi & Catts, 2012; Shaywitz, 2004; Ukrainetz, Ross, & Harm, 2009; Wolf, Miller, & Donnelly, 2000). Shaywitz (2004) summarized the five essential components of any effective reading intervention program which are as follows:

- Systematic and direct instruction in phonemic awareness
- Systematic and direct instruction in phonics
- Practice applying phonics in reading and writing
- Fluency training
- Enriched language experiences

Many researchers (Adams, 1990; Gough & Tunmer, 1986; Kamhi & Catts, 2012) have reminded us of the importance of these components within the context of their respective models of the reading system. In general, these models indicate that in order to read successfully, a student must develop the ability to process phonological (sound), orthographic (letter representation), word meaning (semantics), and contextual (sentence and text level) information. Three of these processing areas (phonological, word meaning, and context) rely heavily on the successful development of the five major sub-components of language (i.e., phonology, morphology, syntax, semantics, and pragmatics) to effectively assist the brain as it decodes and comprehends text.

Phonological and orthographic processing can be strengthened through many types of phonological awareness and phonics activities, but early exposure to rhyme, alliteration (repetition of words that begin with the same letter), assonance (repetition of similar vowel sounds in stressed syllables to create internal rhyme), and print awareness through nursery rhymes and stories is extremely beneficial. Activities and interactions that enhance the processing of the meaning of text are necessary and may also help prevent reading problems. Such activities correspond to the enriched language experiences recommended by Shaywitz (2004), which focus on improving vocabulary and comprehension of concepts in context and the use of reading comprehension strategies for both narrative and expository texts. Research conducted by Peterson, Jesso, and McCabe (1999) indicated that interactive discourse with parents/caregivers significantly improved vocabulary and narrative abilities in children from low socioeconomic status backgrounds. In addition, numerous research studies have clearly indicated that the narrative skills of children prior to entering school have been found to be one of the best predictors of later school outcomes in children who are at risk for academic and language problems (Wellman et al., 2011).

It is beyond the scope of this document to provide detailed descriptions of all of the evidence-based treatment techniques and strategies that SLPs may wish to implement to facilitate the acquisition of language-literacy skills in their students with language disorders and LLDs. However, a Language-Literacy Resource List can be found in Appendix D with several examples of commercially available materials, research articles, and books which are offered as suggestions of resources that may be beneficial to SLPs who are providing intervention to support various major aspects of language-literacy development.

Conclusion

As emphasized throughout this position paper, SLPs play a critical role in supporting language-literacy development in students through prevention, assessment, and intervention services. This document contains a substantial amount of information and resources for SLPs in California to consider. SLPs assume the important responsibility of facilitating the development of written language skills in children and adolescents with language disorders and LLDs through

direct service delivery and through collaboration with other professionals who also support literacy development. The authors acknowledge that additional approaches and strategies exist that are appropriate for meeting the needs of individual students, including English Learners. It is important for the reader to consult the robust body of published research pertaining to these students when addressing their language and literacy needs. Given the current legislative discussions around language and literacy at the state level, SLPs are poised to play an increasingly significant role in supporting the language and literacy needs of children and adolescents in California.

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Appendices

Appendix A: CA Education Code, Selected Sections

A.1 CA Ed Code Section 56333

CA Education Code, Section 56333 (Amended by Stats. 1980, Ch. 1353, Sec. 56. Effective September 30, 1980

56333. "A pupil shall be assessed as having a language or speech disorder which makes him or her eligible for special education and related services when he or she demonstrates difficulty understanding or using spoken language to such an extent that it adversely affects his or her educational performance and cannot be corrected without special education and related services. In order to be eligible for special education and related services, difficulty in understanding or using spoken language shall be assessed by a language, speech, and hearing specialist who determines that such difficulty results from any of the following disorders:

(a) Articulation disorders, such that the pupil's production of speech significantly interferes with communication and attracts adverse attention.

(b) Abnormal voice, characterized by persistent, defective voice quality, pitch, or loudness. An appropriate medical examination shall be conducted, where appropriate.

(c) Fluency difficulties which result in an abnormal flow of verbal expression to such a degree that these difficulties adversely affect communication between the pupil and listener.

(d) Inappropriate or inadequate acquisition, comprehension, or expression of spoken language such that the pupil's language performance level is found to be significantly below the language performance level of his or her peers.

(e) Hearing loss which results in a language or speech disorder and significantly affects educational performance."

(Amended by Stats. 1980, Ch. 1353, Sec. 56. Effective September 30, 1980).

A.2 Eligibility Criteria CCR 3030

California Code of Regulations Title 5, CCR 3030 Eligibility Criteria (New Article 3.1 (Sections 3030 and 3031) filed January 31, 1983

5 CCR § 3030

§ 3030. Eligibility Criteria.

(11) A pupil has a language or speech disorder as defined in Education Code section 56333, and it is determined that the pupil's disorder meets one or more of the following criteria:

(A) Articulation disorder.

1. The pupil displays reduced intelligibility or an inability to use the speech mechanism which significantly interferes with communication and attracts adverse attention. Significant interference in communication occurs when the pupil's production of single or multiple speech sounds on a developmental scale of articulation competency is below that expected for his or her chronological age or developmental level, and which adversely affects educational performance.

2. A pupil does not meet the criteria for an articulation disorder if the sole assessed disability is an abnormal swallowing pattern.

(B) Abnormal Voice. A pupil has an abnormal voice which is characterized by persistent, defective voice quality, pitch, or loudness.

(C) Fluency Disorders. A pupil has a fluency disorder when the flow of verbal expression including rate and rhythm adversely affects communication between the pupil and listener.

(D) Language Disorder. The pupil has an expressive or receptive language disorder when he or she meets one of the following criteria:

1. The pupil scores at least 1.5 standard deviations below the mean, or below the 7th percentile, for his or her chronological age or developmental level on two or more standardized tests in one or more of the following areas of language development: morphology, syntax, semantics, or pragmatics. When standardized tests are considered to be invalid for the specific pupil, the expected language performance level shall be determined by alternative means as specified on the assessment plan, or

2. The pupil scores at least 1.5 standard deviations below the mean or the score is below the 7th percentile for his or her chronological age or developmental level on one or more standardized tests in one of the areas listed in subdivision (A) and displays inappropriate or inadequate usage

of expressive or receptive language as measured by a representative spontaneous or elicited language sample of a minimum of 50 utterances. The language sample must be recorded or transcribed and analyzed, and the results included in the assessment report. If the pupil is unable to produce this sample, the language, speech, and hearing specialist shall document why a fifty utterance sample was not obtainable and the contexts in which attempts were made to elicit the sample. When standardized tests are considered to be invalid for the specific pupil, the expected language performance level shall be determined by alternative means as specified in the assessment plan.

Note: Authority cited: Section 56100, Education Code. Reference: Sections 56026, 56320, 56333 and 56337, Education Code; 20 U.S.C. Sections 1401(3)(A) and 1414(a) and (b); and 34 C.F.R. Sections 300.8, 300.300, 300.301, 300.304, 300.305, 300.306, 300.307, 300.308, 300.309 and 300.311.

HISTORY

1. New Article 3.1 (Sections 3030 and 3031) filed 1-31-83; effective thirtieth day thereafter (Register 83, No. 6).

2. Amendment filed 2-11-86; effective thirtieth day thereafter (Register 86, No. 7).

3. Amendment filed 3-21-88; operative 4-20-88 (Register 88, No. 15).

4. Amendment of section and Note filed 5-5-2014; operative 7-1-2014 (Register 2014, No. 19).

This database is current through 3/6/15 Register 2015, No. 10

5 CCR § 3030, 5 CA ADC § 3030

A.3 Appendix: CA Ed Code 56337

56337. "(a) A specific learning disability, as defined in Section 1401(30) of Title 20 of the United States Code, means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or perform mathematical calculations. The term "specific learning disability" includes conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. That term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities, of intellectual disabilities, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

(b) Notwithstanding any other law and pursuant to Section 1414(b)(6) of Title 20 of the United States Code, in determining whether a pupil has a specific learning disability as defined in subdivision (a), a local educational agency is not required to take into consideration whether a pupil has a severe discrepancy between achievement and intellectual ability in oral expression, listening comprehension, written expression, basic reading skill, reading comprehension, mathematical calculation, or mathematical reasoning.

(c) In determining whether a pupil has a specific learning disability, a local educational agency may use a process that determines if the pupil responds to scientific, research-based intervention as a part of the assessment procedures described in Section 1414(b)(2) and (3) of Title 20 of the United States Code and covered in Sections 30.307 to 300.311, inclusive, of Title 34 of the Code of Federal Regulations."

 (Amended by Stats. 2011, Ch. 347, Sec. 34. Effective January 1, 2012).

**Appendix B: Selected formal language-literacy diagnostic/assessment tools
that meet psychometric standards**

Appendix B: Selected formal language-literacy diagnostic/assessment tools that meet psychometric standards

Measure	Age Range	PA	Rapid Naming	Phonics	Fluency	Vocab	Comp	Spelling	Written Expression	Reading Ability
Assessment of Literacy and Language (ALL);(Lombardino, Lieberman, & Brown, 2005)	Pre-K-Grade 1	x		x	x	x	x			x
Clinical Evaluation of Language Fundamentals-5 (CELF-5); (Wiig, Semel, & Secord, 2013)	5:0-21:11					x	x		x	x
Comprehensive Assessment of Spoken Language (CASL); (Carrow-Woolfolk, 1999)	3:9-21:11					x	x			
Comprehensive Test of Phonological Processing-2 (CTOPP-2); (Wagner, Torgesen, Rashotte, & Pearson, 2013).	4:0-24:11	x	x							
Gray Oral Reading Test-5 (GORT-5); (Wiederholt & Bryant, 2012)	6:0-23:11	x		x	x		x			x
Oral and Written Language Scales-II (OWLS-II), Listening Comprehension/Oral Expression Scales and Reading Comprehension and Written Expression Scales; (Carrow-Woolfolk, 2012)	3:0-21:11 (LC/OE) 6:0-21:11 (RC/WE)					x	x		x	x

Measure	Age Range	PA	Rapid Naming	Phonics	Fluency	Vocab	Comp	Spelling	Written Expression	Reading Ability
Peabody Picture Vocabulary Test-4 (PPVT-4); (Dunn & Dunn, 2007)	2:6-90+					x				
The Phonological Awareness Test-2; (Robertson & Salter, 2007)	5:0-9:11	x		x	x					x
Test of Adolescent and Adult Language-IV (TOAL-4); (Hammill, Brown, Larsen, & Wiederholt, 2007)	12:0-24:11					x	x		x	x
The Test of Early Reading Ability-3 (TERA-3); (Reid, Hresko, & Hamill, 2001)	3:6-8:6			x	x		X			x
Test of Integrated Language & Literacy Skills (TILLS);(Nelson, N.W., Plante, E., Helm-Estabrooks, N., & Hotz, G. 2015)	6:00 – 18:00	x		x	x	x	X	x	x	x
Test of Language Development Intermediate-4 (TOLD:I-4); (Hammill & Newcomer, 2008)	8:0-17:11					x	x			

Measure	Age Range	PA	Rapid Naming	Phonics	Fluency	Vocab	Comp	Spelling	Written Expression	Reading Ability
Test of Language Development Primary-4 (TOLD:P-4); (Hammill & Newcomer, 2008)	4:0-8:11	x				x	x			
Test of Written Expression (TWE); (McGhee, Bryant, Larson, & Rivera, 1995)	6:6-14:11								x	
Test of Written Language-4 (TOWL-4); (Hammill & Larsen, 2009)	9:0-17:11					x		x	x	
Wechsler Individual Achievement Test-Third Edition (WIAT-III), Selected Subtests: Word Reading, Pseudoword Decoding, Reading Comprehension, Listening Comprehension, Spelling, Written Expression; (Wechsler, 2009)	4:0-50:11			x	x		x	x	x	X

Measure	Age Range	PA	Rapid Naming	Phonics	Fluency	Vocab	Comp	Spelling	Written Expression	Reading Ability
Woodcock-Johnson IV Tests of Achievement (WJIV); Selected Subtests: Letter-Word Identification, Word Attack, Passage Comprehension, Oral Reading, Spelling of Sounds, Writing Fluency, Writing Samples, (Schrank, Mather, & McGrew, 2014a)	2:0-90+			x	x		x	x	x	x
Woodcock-Johnson IV Tests of Oral Language (WJIV); (Schrank, Mather, & McGrew, 2014b)	2:0-90+	x	x	x		x				X
Woodcock Reading Mastery Tests-III (WRMT-III); (Woodcock, 2011)	4:6-79:11			x	x					X

KEY: PA = Phonological Awareness; Vocab=Vocabulary; Comp=Comprehension

**Appendix C: Selected informal, qualitative, supplemental, and
non-standardized measures of literacy development**

Appendix C: Selected informal, qualitative, supplemental, and non-standardized measures of literacy development

Measure	Age Range	PA	Phonics	Fluency	Vocab	Comp	Spelling	Written Expression	Reading Ability
Criterion-Referenced Measures	3-21	x	x	x	x	x	x	x	x
Curriculum based reading comprehension measures	3-21				x	x			x
Curriculum based reading fluency measures (Words Per Minute-WPM)	3-21			x					x
Dynamic Assessment	3-21	x	x	x	x	x	x	x	x
Informal observation of child reading age-appropriate text	3-21	x	x	x					x
Spoken Language/Discourse Sampling	3-21	x			x	x			
Writing samples obtained during assessment	3-21		x		x	x	x	x	
Writing samples submitted by classroom teacher	3-21		x		x	x	x	x	

KEY: PA = Phonological Awareness; Vocab=Vocabulary; Comp=Comprehension

Appendix D: Language-Literacy Resource List

NOTE: Many of the resources listed below pertain to more than one area of literacy, but they are only listed once for the sake of brevity.

Reading
Phonological and phonemic awareness/phonological processing
 (See Appendix E for specific treatment suggestions in this area)

Adams, M., Foorman, B., Lundberg, L., & Beeler, T. (1998). Phonological awareness in young children: A classroom curriculum. Baltimore, MD: Paul H. Brookes.

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Appendix E: Specific Intervention Guidelines and Activities for Phonemic and Phonological Awareness

E.1 Phonological Awareness and Children in Preschool and Kindergarten

According to Yopp (1992), "phonemic awareness is both a prerequisite for and a consequence of learning to read" (p. 697); additionally, in 1995 Dr. G. Reid Lyon indicated that "some degree of awareness in the phonological structure of words helps to make learning to read a more understandable task. Without such awareness, the alphabetic system that our written language is based on is not comprehensible." Research has shown that approximately 20% of children struggle to develop adequate phonological awareness skills (Lyon, 1999). According to Yopp & Yopp (2009), in order for one to fully understand "how to use a written system [reading/writing] that records sounds," one "must be able to notice" and have a solid understanding of "the sounds" in the speech system. They further reported that phonological awareness, the ability to notice and manipulate the sounds of spoken language, is significant for later reading development success. Furthermore, according to Goldsworthy (2001), "a strongly stored phonological system allows a novice reader to have a much easier time mapping a visual, graphemic system onto it." In short, phonological awareness development is key in later reading development success.

Without adequate phonological awareness skills, reading development becomes a slow, laborious task with the potential of continued academic struggles; however, research indicates that training in phonological awareness leads to easier reading development. According to the Common Core State Standards Initiative website (www.corestandards.com), phonological awareness falls under the Reading Foundation Strand. The following table illustrates both phonological awareness and decoding skills expected to be mastered by the end of the Kindergarten year:

Phonological Awareness	Decoding
Demonstrate understanding of spoken words, syllables, and sounds (phonemes)	Know and apply grade-level phonics and word analysis skills in decoding words.
Recognize and produce rhyming words	Demonstrate basic knowledge of one-to-one letter-sound correspondences by producing the primary sound or many of the most frequent sounds for each consonant.
Count, pronounce, blend, and segment syllables in spoken words	Associate the long and short sounds with the common spellings (graphemes) for the five major vowels.
Blend and segment onsets and rimes of single-syllable spoken words	Read common high-frequency words by sight (e.g., the, of, to, you, she, my, is, are, do, does).

Isolate and pronounce the initial, medial vowel, and final sounds (phonemes) in three-phoneme (consonant-vowel-consonant, or CVC) words.1 (This does not include CVCs ending with /l/, /r/, or /x/.)	Distinguish between similarly spelled words by identifying the sounds of the letters that differ.
Add or substitute individual sounds (phonemes) in simple, one-syllable words to make new words.	

E.2 Phonemic Awareness Deficiency in School-Age Children/Adolescents

Students need to develop good phonemic awareness as a necessary and foundational skill involved in acquiring literacy skills using an alphabetic written language. They must be able to hear the sounds in spoken words in order to write them down with the appropriate letter symbols (i.e., spelling or encoding). Conversely, they must be able to interpret the letter symbols of a written word into their correct sounds and blend those sounds in order to recode written words into their spoken equivalent (i.e., reading or decoding).

The importance of phonological awareness skills in literacy acquisition may become clearer by examining the literacy acquisition model proposed by Chall (1983):

Stage 0 – Pre-literacy: Birth to age 6 years

Stage 1 – Decoding: K-2nd grade

Stage 2 – Practice to Fluency: 2nd grade to 3rd grade

Stage 3 – Comprehension -"Reading to Learn" vs. "Learning to Read": 3rd grade

Children need good phonemic awareness (stage 0), or the ability to perceive sounds in spoken words in order to progress to the decoding stage. Once they can decode accurately (Stage 1), they need to practice applying these skills so that they can develop speed (i.e., fluency) in reading words. In Stage 2, children begin to recognize words which they have seen frequently and read them automatically, not having to decode individual letters anymore. Competency at this stage allows them to move into the comprehension stage (Stage 3) in which they begin to be able to focus more on the meaning of what they are reading rather than on how to decode each word. At this point, vocabulary, grammar, background knowledge, and higher order language functions begin to improve as well and contribute to overall reading ability.

Ball (1993) delineated a basic continuum of phonological awareness skills in a progressive order of difficulty:

- Rhyme: the ability to judge, and generate rhyming words

- Alliteration: the ability to judge and generate initial, medial and final sound sameness of words
- Syllable Splitting (Treiman, 1985): the ability to judge and generate onset and rime in words
- Phoneme Blending: the ability to blend individual phonemes into words
- Phoneme Segmentation: ability to separate out individual sounds in words
- Phoneme Manipulation: the ability to judge and generate the addition, deletion, or place changing of sounds within words

Both Ball's continuum of phonological awareness skills (1993) and Chall's model of literacy acquisition stages (1983) may be used by SLPs to determine how to approach treatment with students who have deficient phonemic awareness skills. In general, young children who have not yet begun formal reading and spelling instruction (stage 0) typically benefit from activities at each level of the continuum beginning with Rhyming, Alliteration and Syllable Splitting. Since they cannot yet read print, pictures or drawings of objects they know are most suitable for their instruction. Playing games, like matching pictures of similar sounding words or "Odd-One-Out" (e.g., asking which of three to four different pictures sound alike and which one does not) , is a good way to develop these skills. Finally, using the Elkonin Cards (i.e., a series of connected boxes where each box represents an individual phoneme) and sound boxes (Elkonin, 1973) is a good way to begin with young students, who may know some if not all of their alphabet, to help bring them up to the level of phoneme segmentation and blending.

With school-age children and adolescents who have begun literacy instruction unsuccessfully and have been diagnosed as having a phonemic awareness deficiency, it is important to advance to the phoneme segmentation level of treatment as quickly as possible. The essential skill that students need to become successful in literacy acquisition is the ability to segment sounds in whole words (i.e., sounding out words or word attack skills). In addition to the real words in their sight word vocabulary, it is also important to include pseudo-words (nonsense words) in their treatment so they have to rely on the segmenting and blending skills that they have learned through intervention in order to read and spell these nonsense words.

School-age children and adolescents will typically be very aware that they have been unsuccessful learning to read and spell. This fact is most likely very painful for them, so be aware that you are dealing with a sensitive area and that you may initially encounter defensive behavior on their part. Once they realize that they are learning skills that they need to become successful, their behavior will usually improve.

E.3 Hierarchy of Phonological Awareness Tasks and Suggested Treatment Activities

The following treatment hierarchy progresses from the most basic level to the most complex level, with the end goal of improving phonemic awareness skills.

- Sentences
- Words
- Syllables
- Onset-Rime
- Phonemes (Phonemic Awareness)

(Adapted from Merritt & Culatta, 1998)

Various types of treatment activities may be used at each level of the hierarchy above including listening, rhyming, identification, segmentation, blending, and manipulation tasks as described below:

- Preparatory Activities
- Develop listening habits
- Tune into print
- Rhyme Awareness Activities
- Identify words that rhyme
- Produce words that rhyme
- Phoneme Awareness Activities
- Identify the beginning sound of a word
- Identify the ending sound of a word
- Identify the middle sound of a word
- Segmenting Activities
- Segments sentences into words
- Segment words into syllables
- Segment words into sounds
- Blending Activities
- Blend syllables into words
- Blend sounds into words
- Manipulation Activities
- Delete syllables from words
- Substitute syllables in words
- Delete sounds from words
- Substitute sounds in words

(Johnson & Roseman, 2003; Paul & Norbury, 2012; Simpson & Andreassen, 2008)

E.4 Tips and Activities for Phonological Awareness

Tips

- Don't wait until a child has mastered one skill before moving on.
- Begin teaching skills in a developmental sequence. Tasks differ in their degree of difficulty and level of linguistic complexity (Gillon, 2004).
- Be aware of the children's various abilities and performance levels – they will vary a great deal especially in very young children.
- Keep activities fun and playful.
- Include 10 to 15 minutes of direct phonological awareness activities each day.
- Incorporate phonological awareness into classroom activities.
- Include culturally diverse materials and consider any cultural variations in sound production (Johnson & Roseman, 2003).
- Provide visual (e.g., printed letters), tactile (e.g., touching a block for each sound), and movement (e.g., clapping for each syllable or sound) cues (Johnson & Roseman, 2003).

Activities

Preparatory Activities

Guidelines – Explain to the children about the importance of sounds and how they give us information or convey meaning.

Engage in listening activities – Assist the child in developing good listening habits to prepare them for listening to the sounds of our language.

Engage in print identification – Introduce the child to print through letters (i.e., letter names, shapes, and sounds)

Rhyme Awareness Activities

Guidelines – Read stories that have rhyming words, and use nursery rhymes, songs, and chants ("jump rope songs") to teach the concept of rhyming.

Identify words that rhyme

Produce words that rhyme

Phoneme Awareness Activities

Guidelines – Focus on the sound first, then the letter(s). Talk about the sounds – where they are made (with lips, tongue tip up or down), whether there is voicing (e.g., feel their throat), if the sound is a continuant or a stop sound (e.g., /s/ versus /t/). Show the children the written letters.

- Identify the beginning sound of a word
- Identify the ending sound of a word
- Identify the middle sound of a word

Segmenting Activities

Guidelines – Start with larger units (this develops prior to awareness of smaller units) by beginning with sentences and working toward words and then sounds (Gillon, 2004). When segmenting syllables, begin with compound words (e.g., notebook, hotdog). Refer to the syllables as "parts". Instead of clapping to the syllables, tap a different finger for each beat so the child can see how many syllables the word has. When segmenting words into sounds, begin with easier words: Consonant-Vowel (CV), VC, CVC, and then move on to more difficult words: CCVC, CVCC, and CCVCC. Refer to the sounds as "sounds", not "parts"!

- Segments sentences into words (awareness)
- e.g., clap to poems or songs – (e.g., "Old McDonald")
- Segment words into syllables
- Easier words: compound words (e.g., hot-dog, school-bus)
- More difficult words: mono-syllabic and multi-syllabic words
- Segment words into sounds
- Easier words: CV, VC, CVC (e.g., go, up, cat)
- More difficult words: CCVC, CVCC, and CCVCC (e.g., stop, bend, stamp)

Blending Activities

Guidelines – Begin with continuous speech sounds (e.g., /s,f,th,sh/) and then move on to stop sounds (e.g., /b,d,k,g/). Begin with words that have two sounds (CV, VC), and then continue to CVC, CCVC, CVCC, and CCVCC words.

- Blend syllables into words
- Blend sounds into words

Manipulation Activities

Guidelines – Practice taking the syllables/sounds off from both the beginning and end of words. Be careful using the sh/ch sounds – even though they are single sounds, they are spelled with two letters!

- Delete syllables from words
- Substitute syllables in words
- Delete sounds from words
- Substitute sounds in words

E.5 Early Phonological Awareness Activities for Students Functioning at the Preschool Level of Language Development

Sentence Segmenting

- Jumping lily pads
- Throwing bean bags
- Clapping

Word Order

- Start with ABAB patterning to get a skill of prediction, anticipating what will happen next (use pictures, clip art, etc.)

Rhyme Awareness

- Rhyming books/nursery rhymes…these words rhyme! They sound and they look the same that makes them rhyme
- Rhyming songs
- Rhyme Identification
- Card Decks, Pictures, etc. "Find the rhyming pair"
- Rhyming Memory
- Rhyming Bingo

Rhyme Production

- Card Decks "Think of a word that rhymes with…"
- Give Me Five "Think of 5 words that rhyme with…"
- Finishing the Rhyme Sentence

Initial Sound Identification

- A program to support sound awareness "What is the first sound in XXX?"
- Give Me Five: "Think of 5 words that have the same first sound as……

Phoneme Segmentation

- Segment the word
- Blend the sounds and match to the picture

E.6 A Suggested Treatment Approach for Phonemic Awareness at the Single Syllable and Multisyllabic Word Levels for Students Functioning at the School-Age Level

Initially, it is important to determine if the student knows all of the consonant sounds (phonemes) and letters (graphemes), as well as the "long" and "short" vowels, and have acquired sound/symbol (phoneme/grapheme) correspondence abilities (e.g., the letter "b" makes the /b/ sound). Teaching students that long vowels saying the sound of their letter name is helpful. Ask them to listen to see if a vowel says its name. Short vowels can be introduced in the initial position of "short words," e.g. short a-"at," short e-"end," short i-"it," short o-"on', and short u-"up." Students must listen to determine whether the vowel in a pseudo-word sounds like the first sound in any of the short words. They may begin to label the short vowels by the short word. In addition, teach them the diacritical marks for the long and short vowels initially (i.e., the bar over the long vowels and a curved line over the short vowels) since these terms and symbols are typically used in school curricula. It is also helpful to ask students to look in a mirror as they pronounce a consonant phoneme and notice what the mouth is doing to create that sound (e.g. biting the lower lip with upper teeth and blowing to create the /f/ or /v/ sounds) as a means of providing multisensory input.

Single Word Level:

Treatment for deficient phonemic segmentation usually begins with three- sound pseudo words, CVCs, and progresses through words with four or possibly five sounds. Treatment then continues by including multisyllabic real words of three-six syllables. Use appropriate English phonotactic rules when creating pseudo-words, so that they will seem appropriate to the English language. It is helpful to begin with the use of consonants that have the continuant feature because they can be prolonged and produced slowly (e.g., SEV, MISHT, SLOMP, ZUNJ, etc.)

Level 1 - Token Level: When introducing single syllable pseudo-words, regardless of the number of sounds, always begin with a token only level (i.e., no letters used). This is necessary to be certain that students are learning to listen for the individual sounds (see suggested strategies below). After teaching the skill, provide practice first and then a quiz with at least 10 words with the goal of 90-100% accuracy on the first attempt with no prompts.

Level 2 – Letter Squares: The task is to substitute letter manipulables for the tokens in words of any length. These can be squares of construction paper with the letter symbols written on them. Students are verbally given a pseudo-word and asked to encode or represent it with the letter squares. Next, squares are placed together behind a barrier to create a word. Then, remove the barrier and ask the student to decode or read the word. Students may need to sound out each letter and blend the sounds into a spoken word. If assistance is needed, pull out any misread letter and ask the student to identify its sound. If the student is able to do this correctly, put the letter back into the word and ask him/her to say it the correct way while reading the whole word. Again, after teaching the skill, provide practice opportunities, and then set up a quiz of 10 words with a mastery criterion of 90-100% accuracy.

Level 3 - Paper and Pencil Pseudo-words: At each word length, proceed with paper and pencil with reading and spelling of pseudo-words as directed in the previous level. The students use a pencil to write the pseudo-words on paper that are dictated by the SLP. Then the student reads the pseudo-word that the SLP writes on the paper. It is suggested to use at least 10 pseudo-words for spelling exercises and   for reading.

Level 4 - Paper and Pencil Real Words: Proceed as directed in the previous level, but use real words with the appropriate number of sounds for each word length stage. It is recommended that spelling rules be taught at this point, beginning with the "Silent E rule" and the "Two vowels go walking rule" for the 3-sound level followed by other basic spelling rules.

Multi-Syllabic Word Level

Level 1 - Spelling: Create a list of real words containing 3-, 4-, and 5- syllables. Teach students that there is just one vowel sound in each syllable. Begin by segmenting or chunking each word into syllables, perhaps encouraging them to count the syllables on their fingers. Once the student can identify all of the syllables in a word separately, have him/her write the syllables on a piece of paper. The student may begin by putting spaces between the syllables, but gradually have him/her remove the spaces and see the word as a whole (i.e., spelling).

Level 2 - Reading: For each word length, the SLP writes one multisyllabic word on a board or paper which the student cannot already decode. Have the student underline each vowel. Ask him/her to look at the first two vowels and the consonants between them. Decide together how to divide the word between the consonants (so that the syllables may be pronounced) and draw a line there. Next, have the student look at the second and third vowels and the consonants between them and repeat the process until the word is completely divided into syllables. Have the student read the syllable chunks and then blend the syllables by keeping the voice going while verbally producing the syllable chunks.

At every level of success, whether learning to read and spell single syllable or multisyllabic words, it is important that students use their new skill level in actual literacy activities so that they transfer the skill into daily academic use. This may include writing dictated sentences or student-generated sentences using the words or word patterns they have just mastered. In addition, students need to read SLP-generated sentences or paragraphs or decodable texts written at their reading level, with word patterns that they know how to decode.