Dyslexia: Testing & Subtypes

Dyslexia Processing Problems

Language-based learning disorder
- Phonological processing
- Auditory working memory
- Rapid Naming Speed

Associated deficits
- Word-finding
- Auditory overload
- Orthographic processing problems

Dysgraphia Processing Problems

- Visual Scanning and tracking
- Graphomotor functioning
- Confusion of symbol directionality
- Problems forming sound-symbol connections
- Strength/endurance
- Slow processing speeds
Testing for Information Processing

Wechsler Intelligence Scale for Children-V (WISC-V)

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Sn</th>
<th>Sd</th>
<th>Subtest</th>
<th>Sn</th>
<th>Sd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information (Comprehension)</td>
<td>(100) (10)</td>
<td>Visual Spatial</td>
<td>100</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Oral Comprehension</td>
<td>112</td>
<td>75</td>
<td>Math Reasoning</td>
<td>8</td>
<td>22</td>
</tr>
<tr>
<td>Block Design</td>
<td>12</td>
<td>77</td>
<td>Figure Matrices</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>Visual Memory</td>
<td>7</td>
<td>16</td>
<td>Picture Concepts</td>
<td>030</td>
<td>130</td>
</tr>
<tr>
<td>Arithmetic</td>
<td>8</td>
<td>21</td>
<td>(Letter-Number Sequencing)</td>
<td>07</td>
<td>09</td>
</tr>
<tr>
<td>Coding</td>
<td>5</td>
<td>5</td>
<td>Mental Processing</td>
<td>75</td>
<td>5</td>
</tr>
<tr>
<td>Auditory Memory</td>
<td>81</td>
<td>10</td>
<td>Spatial Search</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>General Ability</td>
<td>85</td>
<td>10</td>
<td>Full Scale IQ</td>
<td>90</td>
<td>20</td>
</tr>
</tbody>
</table>

Other tests measures of info processing

- Phonological processing (CTOPP-2)
- Short-term auditory working memory (WISC-V or W-J-IV)
- Rapid Naming Speed
- Orthographic processing (Jordan-3 or TOC)
- Word Finding in demand language situations (WJ-IV)
- Foreign language aptitude (MLAT)
- Ability to make sound-symbol connections (WISC-V or W-J-IV)
- Graphomotor functioning

Dyslexia Subtypes

- **Dysphonetic dyslexia**
  - Phonological processing
  - Short-term auditory working memory
  - Reading & spelling

- **Dyseidetic dyslexia**
  - Orthographic processing
  - Sound-symbol relationships
  - Reading, spelling & math
**Academic Impacts**

- Poor reading decoding
- Good reading comprehension
- Good listening comprehension
- Poor foreign language acquisition
- Auditory overload (sentence repetition skills)
- Attention deficits
- Poor spelling/written expression
- Poor math calculation skills (only with orthographic processing problems)
- Poor capitalization and punctuation skills
- Slow laborious reading and writing
- Need for extra time
- Trouble completing assignments

**WIAT-III example: Oral Language (10 year old)**

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Standard Score</th>
<th>10 Year Old</th>
<th>8 Year Old</th>
<th>5 Year Old</th>
<th>Normal</th>
<th>Grade Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral Language</td>
<td>90</td>
<td>73</td>
<td>61</td>
<td>Below Aver</td>
<td></td>
<td>Below Aver</td>
</tr>
</tbody>
</table>

**WIAT-III Reading**

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Standard Score</th>
<th>10 Year Old</th>
<th>8 Year Old</th>
<th>5 Year Old</th>
<th>Normal</th>
<th>Grade Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Reading (W)</td>
<td>75</td>
<td>5</td>
<td>73</td>
<td>73</td>
<td>Below Aver</td>
<td>Below Aver</td>
</tr>
<tr>
<td>Oral Reading (W)</td>
<td>79</td>
<td>73</td>
<td>73</td>
<td>Below Aver</td>
<td></td>
<td>Below Aver</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>104</td>
<td>81</td>
<td>83</td>
<td>Average</td>
<td></td>
<td>Average</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>76</td>
<td>76</td>
<td>76</td>
<td>Below Aver</td>
<td></td>
<td>Below Aver</td>
</tr>
</tbody>
</table>
Putting it all together when testing

- Does student have information processing problems? If “yes” what are they?
- Is there an academic impact?
- Is there a discrepancy between ability and achievement?
  - Wait and fail issues
- What types of SDI does the student need to remediate skill deficits?
- What types of accommodations are needed?
  - Audio books - Learning Ally & Bookshare
  - Foreign language waiver
  - Computer technologies
  - Extended time
Nelson-Denny Reading Test: Extended time

Suggested Resources

- Overcoming Dyslexia by Sally Shaywitz, MD
- PDE Dyslexia and Early Literacy Intervention Pilot Program
- Yale Center for Dyslexia & Creativity
- Dyslexia Assessment - attached
- Disconnect the Real D word - attached
Dyslexia Assessment: What Is It and How Can It Help?

Decades of research and national test scores confirm that reading problems commonly occur and affect as many as one in five bright and motivated students who have average or above average intelligence. Adult literacy problems are also common, affecting one in four who are intelligent but have not been able to attain a functional literacy level. Research demonstrates that additional direct instruction provided appropriately beginning in kindergarten through third grade, can help all but the most severely impaired students catch up to grade-level literacy skills and close the gap for most poor readers. Assessment is the first step in identifying these students early to make sure they receive the effective instruction they need to succeed.

Identifying Dyslexia

The key symptoms of dyslexia are problems with decoding or single word reading and/or poor reading fluency and poor spelling. Phonological weaknesses or disorders, specific language-based difficulties, are usually the underlying cause of the literacy problems associated with dyslexia. Comprehension may be impaired and writing skills will suffer if spelling is not mastered. Language and vocabulary problems can cause comprehension difficulties that can become more severe over time as academic demands increase. Poor readers may have weak vocabulary and background knowledge caused by reading less than average readers.

The problems associated with dyslexia are language-based, not visual and not related to cognitive skills or intelligence. Phonological processing problems are the principal cause of dyslexia. Phonological processing refers to the ability to analyze speech or spoken language, from identifying individual words, to word parts or syllables, and then into the smallest parts called phonemes or speech sounds. Because speech is produced rapidly, and sounds within spoken words are pronounced so quickly, phonemes overlap. Some individuals may experience difficulty with Rapid Automatic Naming that can compound the challenge of learning to read. Phonemes or speech sounds may vary by geographic region, or individual, and are often quite hard to distinguish. Assessment by a skilled professional can determine if the student struggles with phonological processing.

When students continue to struggle with literacy skills despite the provision of additional high quality expert instruction using Response to Intervention (RTI) / Multi-Tiered System of Support (MTSS), a formal clinical evaluation is needed to determine if they have dyslexia. Assessment of Dyslexia involves individual clinical testing, provided by a qualified professional who has had extensive clinical training in assessment as part of a graduate degree program. Clinicians who assess Specific Learning Disabilities (SLD) and dyslexia may have M.A., M. ED., Ed. D., or PH. D. degrees in Education, Reading, Educational Psychology or Psychology. Evaluation by a medical doctor or neuropsychologist is not required for assessment of SLD or dyslexia.

Educational testing can verify the presence of SLD or dyslexia and can provide the needed diagnostic documentation that is required for eligibility for specially designed instruction and accommodations throughout the educational career from elementary school through college and graduate school. Clinical assessment can document student progress; progress is demonstrated by an increase in standard scores or percentile ranks, not by an increase in age or grade equivalent scores. Adults with dyslexia may need accommodations in the work place such as extended time or electronic readers to accommodate diagnosed dyslexia.
Dyslexia Assessment – Page 2

**The Best Time to Assess**

Federal law states that eligibility for SLD must consider a student’s response to intervention or classroom instruction, commonly called Response to Intervention (RTI) or Multi-Tiered Systems of Support (MTSS). These terms reference educational research demonstrating that appropriate early intervention, provided in kindergarten through third grade three, is very effective in closing the gap for struggling readers. Early intervention or additional direct instruction should begin as early as kindergarten or first grade for struggling readers when the gap is small and students benefit from brain plasticity advantages for learning language-based information. When a student is not achieving at an average rate additional instruction (e.g. an additional hour of direct instruction for grades one through three) may be provided immediately to help them catch up. Student progress must be monitored using reliable and valid progress monitoring measures to be sure the gap is closing. Analysis of data must drive all school team decisions about a student’s program and learning profile.

When students do not catch up after additional instruction and support using an RTI/MTSS approach, clinical evaluation is needed to determine and document the nature of the learning problem. After evaluation, the school team, will consider the case history and the testing data and will determine eligibility for Special Education services under IDEA (Individuals with Disabilities Education Act). Data and evaluation results should be shared with parents throughout this process. For students with diagnosed SLD and dyslexia, the plan is typically an Individualized Education Plan (IEP), which provides both remediation and accommodations.

Another type of school plan, called a Section 504 Plan, comes under the Americans with Disabilities Act and provides only accommodations, focusing on granting access for individuals with handicapping conditions. A Section 504 Plan does not specify the provision of direct specially designed instruction or remediation.

**Areas Assessed**

The following areas should be assessed in an educational evaluation of dyslexia:

- Phonological Awareness – an individual’s awareness of and access to the sound structure of his/her oral language
- Phonological or Language-Based Memory – ability to recall sounds, syllables, words
- Rapid Automatic Naming – speed of naming objects, colors, digits, or letters
- Receptive Vocabulary – understanding of words heard
- Phonics Skills – understanding of the symbol (letter) to the sound(s) relationship, either individually or in combination with other letters
- Decoding – ability to use symbol-sound associations to identify (read – pronounce) words
  - Real Words
  - Nonsense Words
- Oral Reading Fluency – ability to read accurately, at a story-telling pace – to facilitate / support comprehension
  - Single Words
  - Sentences and Paragraphs
- Spelling
- Writing
  - Sentence Level
  - Paragraph Level

Math assessment can be done as part of a complete educational evaluation and should include measures of untimed math calculations, math reasoning with math word problems read aloud and math fluency. Many students with language-based learning disabilities of dyslexia struggle to memorize language-based information such as multiplication tables, but may have...
adequate math calculation and math reasoning skills when reading is accommodated (word problems read aloud). Other students may struggle with mathematical language and have problems with math word problems that go beyond decoding difficulties. The skilled clinician can analyze the student’s strengths and weaknesses in math, considering the student’s performance on each math subtest instead of relying solely on broad math scores that provide only an average of the subtest scores. For example, students who have average math calculation skills, untimed, and average math reasoning (math problems read aloud), may have weak math fluency. When this is the case, students need extended time to accommodate their demonstrated weak math fluency. Broad math scores that report the average of all subtests may mask individual weak areas. Careful analysis of a student’s performance on educational subtests is needed for clinical assessment of learning needs. This will lead to appropriate and needed recommendations for remediation and accommodation.

What to Expect

Evaluation of dyslexia involves collecting information about birth history, family history, child development, including speech and language development and early educational history. The clinician, SLD Specialist, Dyslexia Therapist, or other trained professionals, must review school records incorporating any previous assessments or previous diagnoses and note early interventions, such as speech/language therapy, if any were provided. After clinical review or analysis of the collected data and information, the written report summarizes all the intake information and history. The report should clearly describe the referral questions or concerns that led to the assessment. For individual clinical assessment of SLD and dyslexia, a battery of tests is used to ensure reliability and validity. Standard scores and percentile ranks should be included in the report. Age and grade-level scores may be included, but they are just approximations and should never be relied upon as measures of academic achievement.

Scoring and interpretation are completed by the skilled clinician who synthesizes intake information, reports, test scores, interprets results, gives a clearly stated diagnosis when appropriate, and provides a well-written report to parents and the school team. If the student is diagnosed with SLD or dyslexia, the written report clearly states recommendations for remediation, also called specially designed instruction, as mandated by federal law. The written report also specified needed accommodations such as providing additional time for assessments or having tests read to the student.

Understanding the Scores

Cognitive or intelligence testing is not needed as part of the SLD identification process. Average or higher scores on measures of listening comprehension, receptive vocabulary, math calculation and math reasoning can demonstrate the presence of average or higher intellectual potential in the young student. Current federal special education law, IDEA, states that the use of severe discrepancy (the difference between cognitive or IQ scores and educational achievement scores) must not be required for identification of SLD including dyslexia. However, some students with complicated learning profiles such as twice exceptional students (most commonly, gifted students with SLD or dyslexia) will need cognitive or intellectual testing to demonstrate their unique learning profile and needs.

For older students, cognitive or IQ testing is still required for application for accommodations on high stakes tests such as SAT or ACT. Cognitive or IQ testing is also required for admission to most college and university programs that provide support for students with diagnosed SLD or dyslexia. A clear diagnostic statement must be provided in the written report to document the presence of the diagnosed SLD; qualifying language that does not provide a clear diagnosis
Additional Supports

Students and adults with diagnosed dyslexia may need support and consultation to help them understand their unique learning profile. Evaluation for the presence of other conditions that commonly co-occur with SLD and dyslexia should be considered when appropriate. Ongoing family and educational support together with updated assessment information is needed to meet increased academic demands and to provide required documentation in academic settings and in the workplace.

References


The term dyslexia has created much long-standing confusion and conflict between parents and school systems across the country. Issues arising from these conflicts are chronic and place students who are struggling readers squarely in the crossfire. Due to a number of factors, these issues are worth careful examination and discussion and are not as simple as they may appear. Although the intent of this article is to present a balanced perspective on these issues, our aim is also to gore several sacred cows that interfere with a true partnership between schools and parents to address the very real educational needs of students with dyslexia.

Although, as will be discussed, we chide the clinical community for its role in the disconnect between parents and schools, we ascribe the lion's share of the responsibility to the schools and the practices around services for students with learning disabilities. Indeed, and in a larger sense, disputes and controversy over the term dyslexia seem to us to represent a smoke screen obscuring the real issues in the education of students with LD. Hiding behind the smoke screen is the inordinate emphasis the system has placed on eligibility for special education services, with eligibility being the big event in the educational life of a student. It has been our experience that much of the up-front controversy surrounding dyslexia (i.e., dueling evaluations, schools' refusal to accept a dyslexia diagnosis) serves to obscure the stark reality that our schools have strayed so far from a focus on a systematic, explicit approach to teaching reading and remediating reading disabilities that, in reality, we often do not know what to do after a student is staffed into special education with dyslexia.

A feature of the current system that is not conducive to meeting the needs of students with dyslexia is the aptitude/achievement discrepancy model for identifying learning disabilities, which requires that a child's achievement must be severely discrepant from his ability level (typically determined by an IQ measure) for the student to receive special education placement and services. The discrepancy model has been euphemistically called the "wait to fail" model. While this model is being eliminated from the regulations of many States to align with the new Individuals with Disabilities Education Act 2004, it is still very much alive and well in many schools. The impact of this inefficient and invalidated process is that school teams must wait until a student is two to three years behind in a particular area to qualify for special education.

Disputes and controversy over the term dyslexia seem to us to represent a smoke screen obscuring the real issues in the education of students with LD.

Several points should be noted with regard to the discrepancy approach. The aptitude/achievement discrepancy formula frequently results in students being denied special education eligibility and services until they are sufficiently behind. Of major frustration is that parents and educators alike are well aware without formal testing in kindergarten/first grade that certain students are already falling behind but must wait until the discrepancy between aptitude and achievement is severe. Exacerbating this frustration for parents is that, in our experience, 85–90% of students eventually referred for special education eligibility have reading disabilities as their core deficit, and the pattern of chronic failure that sets in with late identification is well known to the field. When a student finally reaches the promised land of special education, the central aspect of which is the promise of "specially designed instruction" to remediate the disability, the reality is that a commitment to expert instruction has been woefully lacking in most schools. To explain this state of affairs, we can blame, in large part, the ideological reading wars that have trumped 30 years of solid research around how students learn to read.

Another factor that adds to the disconnect between parents and schools and that promotes mistrust is the assumption that a student who is identified with a learning disability (due to dyslexia or any other reason) and is eligible for special education services, will receive instruction that will meet his needs. In the case of a student with dyslexia, research has clearly estab-

Continued on page 36
Special educators without the training to provide the needed intervention are then faced with a student significantly behind in reading. In this regard, another unfortunate ramification of the “wait to fail model” is that, typically, most students with reading difficulties are staffed into special education in their third- or fourth-grade year, when subject/content matter becomes more specialized and complex, that is, going from learning to read to reading to learn. As a result, the special educator serves as a homework helper rather than as a teaching reading teacher in an attempt to prevent the student from falling further behind.

Although the reasons surrounding this lack of emphasis on systematic and explicit reading instruction are varied, of major concern is, again, the extent to which the ideological reading wars are alive and well in many school districts. This situation clearly works to the detriment of our struggling readers. Many students are taught using a whole language approach which clearly works against the needs of these struggling readers who, as research has shown over 30 years, need a more systematic and explicit instructional approach to reading. The combination of the wait-to-fail model, inadequate training, and the continuing battle of whole language versus a systematic approach to reading instruction creates the formidable challenges that students with dyslexia often face in obtaining effective support and remedial instruction. Added to these challenges is the greatly increased emphasis on State assessments and State standards, and, for good and otherwise, an intense focus on preparing students for these assessments as opposed to teaching them to read. Due to this systemic flaw, these students are at risk for either dropping out or developing behavioral issues. If they do remain in school, they are graduating with a third or fourth grade reading level, woefully unprepared to face the challenges of the real world. In this context, the failure of our schools to both prevent reading failure or to remediate reading disabilities is the core issue surrounding the disconnect between parents and educators regarding dyslexia.

In the scenario we have depicted, a parent frequently and understandably becomes frustrated at the school’s “wait to fail” model coupled with its subsequent inability to teach their child to read. Then, when parents seek an outside or independent educational evaluation from someone we broadly designate as the “clinical community” another disconnect is often promoted. The clinical community (e.g., researchers, psychologists in private practice, LD clinics) and school practitioners often submit psycho-educational evaluations, which are typically initiated by parents already at odds with the school, of limited utility. The usually lengthy outside report, with side clinical evaluators have argued over the term dyslexia. They invest considerable time and energy dissecting and arguing over patterns of subtest scores, which, in hindsight, had about as much relevance as debating how many “angels dance on the head of a pin” when it comes to providing a clear roadmap for the student’s instruction. Unfortunately, these debates further the polarization between parents and schools.

As we hope is evident at this point, we believe the core issue surrounding the disconnect among all those concerned with dyslexia is the both simple and complex reality that our public school teachers have not had the necessary training in reading instruction in preservice, higher education, and continuing in postemployment professional development. Indeed, the lack of focus on our nation’s higher education teacher prep programs places on preparing teachers to teach reading results in many K–3 students not receiving the benefit of good classroom reading instruction. This gap in the education of teachers also results in considerable confusion regarding the concept of a learning disability— the students we ultimately staff into special education learning disabled (i.e., having a neurological processing disorder) or are they instructional casualties (i.e., nondisabled students who have not had the benefit of good K–3 classroom reading instruction. This issue serves to obscure, again, the needs of truly dyslexic students.

Our experience as practitioners also tells us that in many higher education teacher prep programs and school districts, the aforementioned ideological reading wars are still alive and well. Much like the arguments of professionals over the term dyslexia and the subtest patterns, these discussions take time and energy away from needed training in the systematic, explicit, and informed instruction that research has proven to be effective for the acquisition of reading skills. Adding to this is the lack of focus surrounding many school districts’ professional development programs (i.e., the “smorgasbord” approach in which teachers can choose what they want
from an array of offerings rather than receiving instruction in what they need). Coupled with this scenario is a culture in many schools in which teachers resist implementing evidence-based reading programs with comments such as, “It’s too prescriptive,” “I don’t like canned programs,” or “I have a different philosophy.”

We hope that readers will not translate the doom and gloom surrounding our assessment into a terminally pessimistic indictment of the current system. Indeed, we see greater recognition across both higher education and K–12 education of the central importance of reading as the gateway skill to all other learning with, concomitantly, a significant realignment of and greater rigor surrounding preservice coursework and professional development. In this context, we have great optimism about the beginning implementation of the response to intervention process (RTI). Initially begun as a special education initiative geared toward correcting the inherent deficiencies and lack of validity surrounding the “wait to fail”/discrepancy formula model, RTI has quickly become, for a steadily increasing number of school districts, a school-wide model for closing the achievement gap. While the purpose of this article is not to provide a detailed discussion of the potential of RTI, we strongly believe that the essential components of an RTI process, when implemented with fidelity, hold great promise for teaching students with dyslexia and other learning disabilities to be successful readers.

Specifically, universal and early screening of all students will help to identify students at risk of reading failure. Problem-solving teams, using universal screening (e.g., DIBELS, AIMSweb, Yearly Progress Pro, STAR) and other data will prescribe short-term interventions for students and call for frequent monitoring of their progress. Focused assessment to specify root causes of a student’s reading failure with, of at least equal importance, these assessments serving to guide or drive instruction, is viewed as a highly significant and positive shift away from rote administration of IQ and achievement testing for the sole purpose of eligibility determination. Although the concepts underlying the RTI process are common sense in their preventative aspect, we also recognize the second order change that RTI represents for many practitioners, that is, a fundamental change in how we as educators do our work.

Ultimately, however, RTI represents accountability and transparency for meeting the educational needs of students who are and will be our struggling readers. We have already seen school districts revamping their professional development program when a district-adopted RTI process reveals holes in teachers’ training and their subsequent ability to implement a research-based reading intervention. We have also seen parents heretofore mystified and frustrated with the “wait to fail”/504/homework helper model become active partners in the RTI process that, again, is more transparent and accountable. Most importantly, we are beginning to see evidence that we are reversing decades of neglect and poor practice and, finally, getting serious about teaching kids with dyslexia how to be successful readers.

**RTI has quickly become, for a steadily increasing number of school districts, a school-wide model for closing the achievement gap.**

**Ed Steinberg, Ph.D.,** has been a school psychologist and district special education director. He is currently the Assistant Commissioner for Education for Colorado and serves as the state special education director.

**Daphne Pereles, M.S.,** has been a teacher in general, special, and gifted education, a district level special education coordinator, and an educational diagnostician. In addition to being a national consultant on twice-exceptional issues, Daphne is currently a supervisor for the Colorado Department of Education.
Framework for Informed Reading and Language Instruction

Matrix of Multisensory Structured Language Programs
The International Dyslexia Association (IDA) works diligently to provide information to the public regarding informed, evidence-based reading instruction and professional development for teachers and intervention specialists. IDA fully supports the work of The Alliance for Accreditation and Certification of Structured Language Education, Inc. (The Alliance, www.allianceaccreditation.org), the International Multisensory Structured Language Education Council (IMSLEC, www.imslec.org) and The Academy of Orton Gillingham Practitioners and Educators (AOGPE, www.ortonacademy.org). These organizations represent institutes and agencies that design and provide instructional materials and training regarding language-based learning problems. IDA’s Board, in turn, includes the Professional Development for Informed Practice (PDIP) Committee, which supports informed instruction of children and adults who experience difficulty learning to read and write. IDA intends to help school decision-makers, practicing educators, and parents gain access to one or more of the many effective sequential, multisensory, structured language programs.

Why These Programs?

These programs were chosen for inclusion in the matrix because they have a long history of use in clinics and classrooms. Over many years of development in clinical and classroom settings, these programs, when properly implemented, have been successful in teaching students to read, write, and use language. Each program has been repeatedly tested by practitioners who have met the training standards required for implementation. Each has been refined over many years of clinical and classroom use. Each embodies similar principles of instructional design. And each places strong emphasis on the necessity for teacher knowledge and teacher training. Programs vary, however, in the extent to which they have been included in scientifically conducted intervention studies. Additional materials and programs may be added to the matrix, or included in a similar matrix in the future, as evidence permits.

Who are the Programs For?

Current policies regarding the allocation of instructional resources in schools are promoting the idea of a “three-tier” system of instruction. In the three-tier system, students who are falling behind are placed in small groups for remediation (tier two). After progress monitoring, those who are not responding well to classroom or small group instruction are considered to be “treatment resisters,” or students with potential learning disabilities (tier three).

Approaches included in the matrix are those used at every “tier” of student ability. Some are designed for whole class instruction and are used preventatively to keep children from experiencing academic failure (tier one). Some are designed for small group intervention (tier two). And some provide more intensive instruction and are favored by clinicians who work with students with severe reading disabilities.
Are These the Only Programs for Treatment of Reading and Language Problems?

This matrix of widely used programs does not include all of the programs that have been proven effective in remediating reading disabilities or preventing reading problems in “at risk” children. Research on early intervention and prevention of reading disabilities has been conducted with many other instructional materials and programs that are not included in the matrix (see references). Additional reviews of instructional and intervention programs can be found on the website of the Florida Center for Reading Research (www.fcrr.org).

What Program Characteristics Are Most Important?

Intervention and remediation researchers report over and over that the most effective programs of instruction, at all ages, explicitly address multiple components of oral and written language learning in an integrated manner. These components include: phonological awareness; vocabulary development; reading comprehension skills and strategies; beginning and advanced decoding skills, with spelling included; reading fluency; handwriting; grammar; written composition; and strategies for learning. Certain programs that have been validated by research target some of these components, but the strongest contain lesson formats in which these components are interrelated and taught in parallel strands. In addition to teaching the content strands, effective approaches are explicit, systematic, multisensory, and cumulative.

Interested consumers should contact program websites or program offices for specific information on research supporting the approach, and for other key information. Many of these programs provide websites, videos or DVDs explaining their unique characteristics.

Are These Programs Research-Based or Evidence-Based?

The best studies of program effectiveness report the characteristics of the students in the study, the duration and intensity of the intervention, the training and skill of the teachers, the fidelity of program implementation, and the exact methods that were used. They also measure student outcomes multiple times during intervention with several valid, accepted assessments. Such research is expensive and complex, and many effective, clinically tested programs exist that have not been included in rigorous comparison studies. Some programs in the matrix are in that category. Other programs, not on the matrix, have been proven effective for teaching specific skills to certain kinds of children at particular stages of reading development, but do not identify themselves as MSL programs. Each program will provide the existing evidence for effectiveness on request. In summary, the effectiveness of some of the programs on the matrix is established by scientific standards, and the effectiveness of others is established through clinical use over time. The matrix does not include all programs with demonstrated effectiveness.
The matrix contains codes regarding the following program characteristics: type of program (prevention, intervention/remediation, or general); type of delivery (1-1, small group, or classroom instruction); intensity; multi-sensory drill procedures; components of instruction, (phonemic awareness, phonics [including spelling], fluency, comprehension [including vocabulary], written expression [hand-writing and constructing text]); level of professional development provided; research evidence of program-efficacy; and contact information.

### Key to Alphabetic Symbols

<table>
<thead>
<tr>
<th>Type of Program:</th>
<th>P Prevention, R Intervention/Remediation, G General Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Delivery:</td>
<td>I Individual, G Small Group, C Classroom</td>
</tr>
<tr>
<td></td>
<td>____ Intensity (# of hours per week)</td>
</tr>
<tr>
<td>Multisensory Drill Procedures:</td>
<td>A Auditory, V Visual, K-t Kinesthetic-tactile Reinforcement</td>
</tr>
<tr>
<td>Instruction:</td>
<td>B Card Blending</td>
</tr>
<tr>
<td>Phonemic Awareness:</td>
<td>PA</td>
</tr>
<tr>
<td>Phonics:</td>
<td>D Decoding, S Syllables, M Morphemes, I Irregular Words, Sp Spelling</td>
</tr>
<tr>
<td>Fluency:</td>
<td>W Words, P Phrases, T Connected Text</td>
</tr>
<tr>
<td>Comprehension:</td>
<td>V Vocabulary, T Text Comprehension, N Narrative Text, E Expository Text</td>
</tr>
<tr>
<td>Written Expression:</td>
<td>____ Text levels (range of grade levels)</td>
</tr>
<tr>
<td>Handwriting:</td>
<td>M Manuscript, C Cursive</td>
</tr>
<tr>
<td>Constructing Text:</td>
<td>S Sentence Level, P Punctuation, N Narrative Composition, E Expository Composition</td>
</tr>
<tr>
<td>Professional Development:</td>
<td>C Certification</td>
</tr>
<tr>
<td>Levels of Training:</td>
<td>I Introductory, A Advanced, F Follow-up for teachers</td>
</tr>
<tr>
<td>Levels of Trainers:</td>
<td>C Coaching, A Area Trainer, N National Trainer, T Trainer of Trainers</td>
</tr>
<tr>
<td>Supervised Practicum:</td>
<td>Yes or No</td>
</tr>
<tr>
<td>Distance Learning:</td>
<td>O Online Courses, W Webcast</td>
</tr>
<tr>
<td>Research Evidence:</td>
<td>R Response to Intervention, QE Quantitative/Empirical Research, QC Qualitative/Case Study Research</td>
</tr>
<tr>
<td>Type of Program</td>
<td>Orton-Gillingham Approach</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Type of Delivery</td>
<td>I, G</td>
</tr>
<tr>
<td>Intensity</td>
<td>2-5X, 2hrs.</td>
</tr>
</tbody>
</table>

**INSTRUCTION**

**Phonemic Awareness**
- PA

**Phonics**
- D, S, M, I, Sp

**Fluency**
- W, P, T

**Reading Comprehension Text Level**
- V, T, N, E

**Written Expression**

**Handwriting**
- M, C

**Constructing Text**
- S, P, N, E

**Profession Development**

**Levels of Training**
- I, A, F

**Levels of Trainers**
- Ck AOGPE

**Supervised Practicum**
- Yes

**Distance Learning**
- O-G subscriber level

**Research Evidence for Efficacy**
- QC, QE Ck AOGPE

**Contact Information**

**www.**
- Priscilla Hoffman OrtonAcademy.org

**Phone**
- 845-373-8919

**Address**
- AOGPE PO Box 234 Amenia, NY 12501-0234

**Unique Features**
- Original MSL program for dyslexic learners; most other MSL programs are based on Orton-Gillingham

---

"Unique Features" column continues:

- ALTA certifies individuals, ALTA Centers accredits centers
- Precise artic of phonemes; cursive script; ext. auditory training; delayed use of phonetic rules
- Comprehensive literacy curric., inc. reading, writing, spelling, grammar; ESL included
- Blind writing, behind back writing; sight word rdg to metronome; practice software
<table>
<thead>
<tr>
<th>Lindamood-Bell</th>
<th>Project Read</th>
<th>Slingerland</th>
<th>Sunday System</th>
<th>Sounds In Syllables</th>
<th>Spalding Method</th>
<th>Starting Over</th>
<th>Wilson Fundations &amp; Wilson Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>5X, 20 min.- 6hr.</td>
<td>2-5X wk.</td>
<td>Daily lang. arts</td>
<td>2-5X wk.</td>
<td>1 hr. 4-5X wk.</td>
<td>Opt. 45 min./day</td>
<td>Min. 5X wk.</td>
<td>Fdns: 5X wk., 30 min. WR: 5X wk., 90 min. opt. Min. 2X wk., 60 min.</td>
</tr>
<tr>
<td>PA</td>
<td>PA</td>
<td>PA</td>
<td>PA</td>
<td>PA</td>
<td>PA</td>
<td>PA</td>
<td></td>
</tr>
<tr>
<td>M, C</td>
<td>M, C</td>
<td>M, C</td>
<td>M, C</td>
<td>M if nec., C</td>
<td>M, C</td>
<td>M, C</td>
<td></td>
</tr>
<tr>
<td>C, A, N, T</td>
<td>C, A, N, T</td>
<td>IMSLEC Instructor</td>
<td>C, A, N, T</td>
<td>Therapy Level</td>
<td>Trainer Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>Pilot Project</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>Ck Lindamood-Bell</td>
<td>Ck Project Read</td>
<td>Ck Slingerland</td>
<td>Ck Sunday</td>
<td>Ck Spalding</td>
<td>Ck Starting Over</td>
<td>Ck Wilson</td>
<td></td>
</tr>
<tr>
<td>Paul Worthington Lindamoodbell.com</td>
<td>Greene/Wright Projectread.com</td>
<td>Slingerland.org</td>
<td>Mark Adzick</td>
<td>Sandra Dillon</td>
<td>Mary E. North Spalding.org</td>
<td>Joan R. Knight</td>
<td>Barbara Wilson Wilsonlanguage.com</td>
</tr>
<tr>
<td>LiPS Program®</td>
<td>Complete Lang. Arts program; Staff Dev. K-12 curriculum; effective w/ reg. &amp; spec. needs learners</td>
<td>Designed for classroom; strong handwriting component Slingerland® Screening Tests; no spec. mat’s</td>
<td>All mat’s inc.; recommended for ELL; ongoing, in-class, assessment; student driven pacing</td>
<td>Strong emphasis on syllable unit for rdg. &amp; sp.; mat’s appropriate all ages inc. adult</td>
<td>Precise handwriting for establ. letter-sound relationships; sequence goes from PA to wrtg/ spelling to rdg.</td>
<td>IMSLEC accred.; Curricula K-Adult; also program for children 6-16 w/ their parents</td>
<td>Fundations: Geared to children K-3; Wilson Reading: upper elementary &amp; adult with extensive controlled text for older students</td>
</tr>
</tbody>
</table>


Note: We are grateful to Marcia Henry, Ph.D., past president of the IDA, for preparing this matrix and thank all those members of the IDA board for their comments.