



Essential Learning Systems' Correlation to THE DYSLEXIA HANDBOOK: PROCEDURES CONCERNING DYSLEXIA AND RELATED DISORDERS





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In July 2014, the Texas Education Agency (TEA) published a revised version of **The Dyslexia Handbook**: **Procedures Concerning Dyslexia and Related Disorders**. This version is meant to replace all previous handbooks published in prior years, and reflects current law as well as legislative action from the 82nd and 83rd sessions of the Texas Legislature. Appendices A and B of **The Dyslexia Handbook** outline the laws and rules for dyslexia identification and instruction, plus state statutes.

The definition of dyslexia has not changed since the earlier handbooks. However, TEA has added its own definition. The current definition is accepted by both the International Dyslexia Association (2002) and the National Institutes of Health (2002):

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

# The Texas Education Code (TEC) §38.003 includes definitions for dyslexia and its related disorders:

- (1) Dyslexia means a disorder of constitutional origin manifested by a difficulty in learning to read, write, or spell, despite conventional instruction, adequate intelligence, and sociocultural opportunity.
- (2) Related disorders includes disorders similar to or related to dyslexia such as developmental auditory imperception, dysphasia, specific developmental dyslexia, developmental dysgraphia, and developmental spelling disability. (http://www.statutes.legis.state.tx.us/Docs/ED/htm/ED.38.htm#38.003)

For over 25 years, Creative Education Institute (CEI) has been a leader in providing learning solutions for dyslexics of all ages. Throughout this time, the company's Essential Learning Systems (ELS) has been the dyslexia program of choice of thousands of schools, and CEI's archives have a plethora of anecdotal records of success about learners of all ages, of achievement gains from pre- to post-tests, and of case studies. CEI staff members continuously review the latest research findings on how to treat dyslexia effectively so that CEI can update or enhance ELS on an ongoing basis.

Although the official definition of dyslexia is limited to reading and spelling difficulties, the CEI staff is well informed about the literature that indicates that dyslexics also, almost invariably, have difficulties in certain areas of mathematics. The International Dyslexia Association (1998) states that "Not all individuals with dyslexia have problems with mathematics, but many do." The areas that are likely to cause learners to struggle include mathematics vocabulary, decoding words in word problems and numeric and non-numeric symbols, fact fluency (both rapid and accurate), sequencing, direction, and position. Solutions to these mathematics issues can be found in CEI's **Mathematical Learning Systems (MLS)**, which is designed similarly to ELS.

CEI has taken care to document the scientific research that grounds each and every component of the program content, lesson design, instructional strategies, and implementation features for both ELS and MLS. Why ELS Works: Its Scientific, Theoretical, and Evaluation Research Base and Why MLS Works: Its Scientific, Theoretical, and Evaluation Research Base can be viewed and downloaded from CEI's website at www.ceilearning.com. These papers report the research behind each of the "Components of Instruction" required by TEA and demonstrate how CEI programs deliver and assess mastery of each of the components. Additionally, CEI's SHARE Magazine regularly



synthesizes the scientific-based evidence and how it is reflected in ELS and MLS. The most current issue of **SHARE** is featured on CEI's home page, and its archives can be accessed from there.

Essential Learning Systems (ELS) is an adaptive, technology-based reading and learning program that incorporates several researched-based methods to provide systematic, direct instruction, including elements of mastery learning models. It includes phonemic awareness activities, auditory feedback, letter recognition, phonics, alphabetic principles, decoding practice, vocabulary development, fluency, spelling, writing, and comprehension tasks and assessments. Instructional strategies include total individualization and differentiation, multi-sensory processing, chunking/clustering, time-on-task, and adequate and varied practice activities to build fluency and mastery. The program helps a variety of student populations, including those who are dyslexic, to learn how to learn and to learn how to read. The use of technology facilitates one-on-one instruction in larger groupings, individualization of instruction, multi-sensory presentations, continuous monitoring of performance, immediate feedback, and record keeping. CEI's screen design is another example of its consistent application of research findings. Colors are consistent, fonts choices are consistent and readable, and screens are uncluttered so that students are never distracted from what it is that they need to learn.

CEI also incorporates in the design of its programs the research on the importance of the role of instruction and the relationship between teacher and student. That is why CEI offers professional training to each teacher selected to run the program. We know and understand that highly trained teachers are paramount in implementing programs with fidelity. In no way are ELS and MLS mere software programs that students can just sit down and do on their own. Successful implementation requires a great deal of teacher engagement, judgment, monitoring, proactive adaptation and modification of lessons to meet needs, communication and collaboration with other teachers, and motivational strategies. (See Chapter III of **Why ELS Works: Its Scientific**, **Theoretical, and Evaluation Research Base** for more information.)

The Dyslexia Handbook references Legislative Action to Assist Teachers by providing two pieces of information for all schools on page 39. The first, Technology Integration for Students with Dyslexia, states:

The research is definitive regarding technology and instruction for students with dyslexia. When students have access to effective technology, their overall educational performance improves. One of the best ways to use technology is in combination with instruction in reading strategies and processes...

#### The second, Professional Development Relative to Dyslexia for All Teachers, states:

Research consistently confirms the impact that a knowledgeable teacher can have on success or failure of even the best reading programs (Shaywitz, 2003). To ensure teachers are knowledgeable about dyslexia, TEC 21.054(b) and TAC 232.11(e) require educators who teach students with dyslexia to be trained in new research and practices related to dyslexia as a part of their continuing professional education (CPE) hours.

CEI has a wealth of other resources to assist educators in understanding its programs and how they fit into the school's overall instructional plan. Staff members receive many requests for correlations, which is another way for educators to see evidence of research grounding since many federal and state mandates for interventions are themselves grounded in research. While most educational agencies have moved towards not endorsing or recommending interventions, Region 10 Educational Service Center does list programs according to scientific research and review. You may find ELS here: http://www.region10.org/sbr/index.html.

Other relevant correlations (which are accessible by emailing CEI at info@ceilearning.com) follow:

- + Correlation to Texas Standards (TEKS) for English Language Arts and Reading
- + A Results-based Assessment of Essential Learning Systems' Correlation to the National Reading Panel Guidelines
- Essential Learning Systems and Its Correlation to a Successful Intervention for Left Occipitotemporal Systems (Sally Shaywitz, et al. study)
- + ELS Correlation with Accelerated Reading Initiative (ARI)
- ELS Correlation to Title I Schoolwide Project Requirements
- + ELS Correlation with DIBELS
- + ELS Correlation with Texas Primary Reading Inventory (TPRI)
- + Educating Maria and Tiffany and Jose' and Kareem and Arnold and Susanna and Phil and ... (scenarios depicting ways that ELS and MLS fit into a Response-to-Intervention model)

# Critical, Evidence Based Components of Dyslexia Instruction of Dyslexia Instruction

### **Phonemic Awareness**

Dyslexia Handbook definition from Birsh, 2011, p.19: "Phonological awareness is the understanding of the internal sound structure of words. A phoneme is the smallest unit of sound in a given language that can be recognized as being distinct from other sounds. An important aspect of phonological awareness is the ability to segment spoken words into their component phonemes."

ELS reinforces phonological awareness by presenting a balance of print-based and other supplemental activities. In ELS, exercises employing multi-sensory learning strategies implant phonemes, the basic units of sound, and graphemes, the symbols that represent those phonemes, in the brain so that it can retrieve and combine the phonemes to produce words. In addition, the ELS lesson word lists are linguistically structured to enhance the development of phonemic awareness. Developers accomplished this by highlighting the study of single phonemes through the use of a word list that is comprised of words that are of minimal phonemic contrast (for example, cat, rat, fat, mat, sat).

As part of the ELS program, CEI includes two manuals: the **Phoneme Awareness** manual and the **Lesson Manual**. The **Phoneme Awareness** manual shows the phonemic makeup — in both segmented and blended formats — for each ELS lesson word in Levels I and II. CEI recommends that students use their index finger to track each phoneme as they say it aloud. The **Lesson Manual** exercises phonological awareness by providing words that are made up of a variety of sound units for each lesson in ELS in Levels I-VI.

ELS also offers both an Auditory Feedback and Teacher Echo task to help strengthen the student's auditory discrimination and phoneme blending skills. During the Auditory Feedback task, the computer voice says each word. When the microphone icon appears on the screen, the student repeats the word as the program records the student's response. Once the student has finished recording, the program plays back both the model sound file and the student response, so the student (and teacher) can compare the two. This comparison helps the student hear whether or not she is blending the phonemes correctly as she says each word. Teacher Echo follows similar principles, except the teacher's pronunciation takes the place of the model sound file.

### **Graphophonemic Knowledge (Phonics) Instruction**

Dyslexia Handbook definition: "Graphophonemic knowledge (phonics) instruction that takes advantage of the lettersound plan in which words that carry meaning are made of sounds and sounds are written with letters in the right order. Students with this understanding can blend sounds associated with letters into words and can separate words into component sounds for spelling and writing."

Depending on the teacher's preferences, the lesson may begin with a Phoneme Introduction screen that introduces the phonemes that the students will work on throughout the lesson. If the teacher selects Read Instructions Aloud as a parameter, the computer voice reads each introduction so that students can hear the pronunciations of the graphemes, or letter combinations. In that sense, the program helps students understand how the letters and sounds work together to form the words.

ELS continues its phonics instruction in the SHARE exercises, which employ multi-sensory learning strategies. During these exercises, the computer teaches students whole words and then breaks the words down into letters. The computer voice says each letter aloud as the student types it. Repetition of the letter-sound relationships helps students learn to read, spell, and recognize the words both instantly and accurately.

Students begin blending sounds and spellings in the SHARE task See Say. During See Say, students simply read each lesson word aloud to the teacher. Once students complete the SHARE portion of each lesson, they move on to additional blending tasks such as Teacher Echo, Auditory Feedback, Echo, Quick Talk, and Copy-Write.

During Echo, the computer sets the pace by saying and flashing each word. The student, matching that pace, speaks each word either before or after the computer. Similarly, Quick Talk flashes the words without speech, and the student speaks the word after the computer flashes it. In Copy-Write, a dictation exercise, the computer reads a sentence and then either says a word or phrase from the sentence or repeats the entire sentence. Students repeat the entire sentence spoken by the computer and then write the word, phrase, or sentence on paper.

### **Sound-Symbol Association**

Dyslexia Handbook definition from Birsh, 2011, p.19: "Sound-symbol association is the knowledge of the various speech sounds in any language to the corresponding letter or letter combinations that represent those speech sounds. The mastery of sound-symbol association (alphabetic principle) is the foundation for the ability to read (decode) and spell (encode). Explicit phonics refers to an organized program in which these sound symbol correspondences are taught systematically.

Depending on the teacher's preferences, the lesson may begin with a Phoneme Introduction screen that introduces the phonemes that the students will work on throughout the lesson. If the teacher selects Read Instructions Aloud as a parameter, the computer voice reads each introduction so that students can hear the pronunciations of the sound-symbol association. In that sense, the program helps students understand how the letters and sounds work together to form the words.

ELS continues its sound-symbol instruction in the SHARE exercises, which employ multi-sensory learning strategies. During these exercises, the computer teaches students whole words and then breaks the words down into letters. The computer voice says each letter aloud as the student types it. Repetition of the letter-sound relationships helps students learn to read, spell, and recognize the words both instantly and accurately.

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### **Syllabication**

Dyslexia Handbook definition from Birsh, 2011, p. 19: "A syllable is a unit of oral or written language with one vowel sound. The six basic types of syllables in the English language include the following: closed, open, vowel-consonant-e, r-controlled, vowel pair (or vowel team), and consonant-le (or final syllable). Rules for dividing syllables must be directly taught in relation to the word structure."

The **Phoneme Awareness** manual shows the phonemic makeup — in both segmented and blended formats — for each ELS lesson word in Levels I and II. The subtitle for each lesson covers what syllables are introduced on the lesson.

The Phoneme Introduction at the beginning of each ELS lesson introduces the basic syllables that are taught.

### Orthography

Dyslexia Handbook definition: Orthography is the written spelling patterns and rules in a given language. Students must be taught the regularity and irregularity of the orthographic patterns of a language in an explicit and systematic manner. The instruction should be integrated with phonology and sound-symbol knowledge."

ELS practices orthography in three ways. First, students are explicitly introduced to the sight- sound patterns of the words during the Phoneme Introduction. Next, the activity Hear Spell provides the student with targeted instruction to stimulate the brain's ability to visualize the letter symbols in words. Finally, 21 days after students complete a lesson, the Long Term Recall activity reviews students to ensure they are still transferring the letter symbols into words.

### Morphology

Dyslexia Handbook definition from Birsh, 2011, p. 19: Morphology is the study of how a base word, prefix, root, and suffix (morphemes) combine to form words. A morpheme is the smallest unit of meaning in a given language."

The ELS program includes several tasks to help the students understand both lesson and non-lesson words in context. The lesson words are often components of larger non-lesson words. The lesson word "at," for example, serves as part of larger words like "atom," "attach," and "attendance." Through repeated exposure to the lesson words, children learn to identify regular and irregular words quickly, accurately, and effortlessly. Lesson words are grouped into sound families, allowing students many opportunities to transfer and generalize learning from the specific lesson words to other similar words.

### **Syntax**

Dyslexia Handbook definition from Birsh, 2011, p. 19: "Syntax is the sequence and function of words in a sentence in order to convey meaning. This includes grammar and sentence variation and affects choices regarding mechanics of a given language."

One of the main ways ELS helps students to understand syntax is through its Copy-Write and Clues tasks. Clues offers a visual and auditory closure approach to review word meanings, build vocabulary and develop comprehension by allowing the student to see and hear the lesson word within a context sentence. Additionally, CEI supplies labs another program, **Sentence Assembler**. In this program, puzzle pieces show different sentence parts, and the students have to put the pieces in the correct order to make a logical sentence. As they move the puzzle pieces to different places, students begin to understand that they change the semantics of the text as they change the sentence structure.

Students carry all of these skills over to the Quick Tales and bonus questions and to their **CEI Journal** entries. These tasks require students to use language in a particular context. Quick Tales are short stories that incorporate the words from each lesson. **CEI Journal** is an innovative software program that provides both written and picture prompts to help students overcome their fear of putting thoughts on paper and to become more fluent writers. (**CEI Journal** and several other tasks are available also in CEI's Web-Based Activity Center and can be accessed via any internet-connected computer to extend learning and practice time for lab students.)

### **Reading Fluency**

Dyslexia Handbook definition: "Reading fluency is the ability to read text with sufficient speed and accuracy to support comprehension. Teachers can help promote fluency with several interventions that have proven successful in helping students with fluency (e.g., repeated readings, word lists, and choral reading of passages)."

ELS lesson activities Echo and Quick Talk provide the first fluency training for students. During Echo, the computer sets the pace by saying and flashing each word. The student, matching that pace, speaks each word either before or after the computer. Similarly, Quick Talk flashes the words without speech, and the student speaks the word after the computer flashes it. In Copy-Write, a dictation exercise, the computer reads a sentence and then either says a word or phrase from that sentence or repeats the entire sentence. Students repeat the entire sentence spoken by the computer and then write the word, phase, or sentence on paper.

ELS provides several guided oral-reading opportunities, so teachers have the opportunity to gauge their students' ability for rapid reading. Some sequences require the students to read Fluency Passages, simple sentences that incorporate some of the lesson words. Students using the Fluency Passages learn to recognize and read the lesson words in short sentences, and they begin learning how the word meanings change in different contexts. The Quick Tales short stories expand on these skills by requiring students to answer a variety of comprehension questions.

### **Reading Comprehension**

Dyslexia Handbook definition from Birsh, 2011, pp. 9 and 368; Snow, 2002: "Reading comprehension is the process of extracting and constructing meaning through the interaction of the reader with the text to be comprehended and the specific purpose for reading. The reader's skill in reading comprehension depends upon the development of accurate and fluent word recognition, oral language development (especially vocabulary and listening comprehension), background knowledge, use of appropriate strategies to enhance comprehension and repair it if it breaks down, and the reader's interest in what he or she is reading and motivation to comprehend its meaning."

A major strength of ELS is its emphasis on vocabulary. Not only do students learn to decode, pronounce, and spell the lesson words, but they also learn their definitions and how to use the words in sentence contexts. More than 2,000 word definitions are taught directly, and several thousand others are taught indirectly.

Vocabulary instruction is a cornerstone of the ELS program. The Look Listen See Say portion of SHARE provides multiple exposures to words and definitions for the first two segments of words in each lesson and reviews those words during the third segment. Other exercises, such as Clues and Word Match, reinforce the skill. Clues offers a visual and auditory closure approach to review word meanings, build vocabulary and develop comprehension by allowing the student to see and hear the lesson word within a context sentence. The screen presents a sentence with the lesson word missing, and three word choices appear at the top of the screen. Word Match is an activity that builds vocabulary in a variety of ways. By choosing from nine options, the facilitator determines which of those is most suitable for the students. Choices include: visual fundamentals

of word/picture/definition relationships, auditory pairing of words and definitions, or various presentations of independent reading of definitions.

Each Mastery Cycle in ELS begins with specific decoding skills and strategies and provides adequate and varied practice opportunities utilizing multi-sensory processing strategies. It then progresses to high-level comprehension skills and strategies. Students advance through the lessons at their own pace. To ensure students learn a wide variety of reading instruction strategies, the ELS program merges all five strategies that the National Reading Panel found to be most effective when teaching students to comprehend text: phonemic awareness, phonics, fluency, vocabulary, and comprehension. The ELS activities include answering and generating questions, recognizing story structure, summarizing pertinent information, self-monitoring, and using graphic organizers and mental imagery.

At the end of each lesson in a Mastery Cycle, the activity Quick Tales provides the best opportunities for reading and listening comprehension. This activity requires students to either read short selections independently, or listen while the story is read aloud. At the end of the story, each passage includes questions to help students increase their comprehension abilities. These activities, plus the emphasis on vocabulary and fluency development found throughout ELS, result in consistent accelerated gains in reading comprehension by lab students.

# **Delivery of Dyslexia Instruction**

### **Explicit Instruction**

Dyslexia Handbook definition: "Explicit instruction is explained and demonstrated by the teacher one language and print concept at a time, rather than left to discovery through incidental encounters with information. Poor readers do not learn that print represents speech simply from exposure to books or print (Moats and Dakin, 2008, p. 58). Explicit instruction is an approach that involves direct instruction: The teacher demonstrates the task and provides guided practice with immediate corrective feedback before the student attempts the task independently (Mather and Wendling, 2012, p. 326)."

ELS' instruction is not only explicit, but also individualized. The technology within ELS makes it possible for lab teachers to adapt the instruction for each student, ensuring that each learner is performing in his or her "zone of proximal development" (Vygotsky). For example, Student A can work on Level I, Lesson 1 at one station while Student B works on Level II, Lesson 15 at a different station. CEI scripts each student's lesson according to the lesson sequence and parameters that the teacher sets in the management system. As students progress through their lessons, the teacher can modify the sequences and parameters to accommodate each student's individual growth. Since the use of technology accomplishes this individualization, the teacher is free to monitor students as they work, address additional higher-ordered skills, and provide the necessary immediate and specific feedback to students to ensure that they are maximally successful.

### **Systematic and Cumulative Instruction**

Dyslexia Handbook definition: "Systematic and cumulative instruction requires the organization of material to follow the order of language. The sequence must begin with the easiest concepts and progress methodically to more difficult concepts. Each step must also be based on elements previously learned. Concepts must be taught systematically reviewed to strengthen memory (Birsh, 2011, p. 19)."

ELS lessons consist of a complex matrix of sight-sound combinations necessary for spoken and written English. The program groups the lessons into six levels according to sound patterns, beginning with the simplest patterns and moving in the way that speech naturally develops. These six levels contain over 200 lessons, and each level teaches a sequence of phoneme/grapheme, or sound/letter combinations. ELS is skill-based in the construction of its levels, not grade-level based, making it an appropriate intervention for any struggling learner, regardless of age.

CEI provides lesson plans called sequences to correspond to different traits of students who use the program. Students who use the ELS program achieve the greatest success when they complete tasks in the proper sequence. Every sequence includes many options that allow the lab teacher to individualize and differentiate ELS to meet each student's needs. By using the preset sequences, lab teachers follow proven techniques, and students can easily and independently work through their lesson tasks.

Sequences determine the order of the lesson tasks and how many times students perform each task. Sequences also determine some of the parameters that individualize the tasks. ELS divides the tasks into primary and supporting tasks. The primary tasks — SHARE and Echo — appear at the beginning of each new lesson, and the supporting tasks follow. Students must finish the day's primary tasks before exiting the program. If students do not complete all of the primary tasks on a given day, the program will present the primary tasks again upon the next login.

When a student works in sequence, the ELS program automatically moves from activity to activity, prompting the student to proceed at the beginning of each task. This allows students to assume more responsibility for their own progress and growth. The computer will not advance to the next lesson until the student completes all of the tasks in his or her lesson.

The program includes mastery checks to ensure that the students can decode fluently and know correct word meanings and spellings — and to ensure that students have stored the new knowledge and skills in long-term memory. ELS emphasizes mastery learning by requiring students to reach 87.5% proficiency of a specific skill before introducing a new skill. However, teachers may override the 87.5% mastery and move students forward if warranted. They can then return to the non-mastered skill or pattern at a later time.

### **Direct Teaching to Automaticity**

Dyslexia Handbook definition: "Diagnostic teaching is knowledge of prescriptive instruction that will meet individual student needs of language and print concepts. The teaching plan is based on continual assessment of the student's retention and application of skills (Birsh, 2011, p. 19). This teacher knowledge is essential for guiding the content and emphasis of instruction for the individual student (Moats and Dakin, 2008, p.58). When a reading skill becomes automatic (direct access without conscious awareness), it is performed quickly in an efficient manner (Berninger and Wolfe, 2009, p. 70)."

Each student has an individual therapeutic prescription for success — the lesson sequence and lesson parameters determined by the teacher. Students progress through well-planned tasks and exercises with adequate and varied practice opportunities to ensure fluency and mastery. The program is designed to ensure student engagement, but without the distractions of "edutainment," so that students stay on task. Lesson sequences are designed in such a way that students experience high levels of success, yet not so easy that they become boring. The ongoing auditory feedback that students receive contributes greatly to motivation and further encourages student engagement and effort.

By the time a student completes a 45-minute session of ELS, he or she will have done more than 200 specifically patterned exercises that inundate the brain with stimuli and which strengthen/develop the neural pathways in the brain necessary for reading success. Like all good direct instruction models, ELS incorporates rapid-paced instruction in order to maintain student attention and increase the amount of material that each lesson covers.

To ensure progress monitoring, ELS has a component in the teacher management system (CEI Learning Manager or CLM), called Continuous Progress Monitoring (CPM). When this component is enabled, students are taken through the Mastery Cycle of ELS with a series of pre- and post-testing benchmarks. These benchmark results are accessible by viewing student records in the CLM, or by printing them. Each CPM report will contain results for a student in six areas: phonics, phonemic awareness, fluency, vocabulary, spelling, and reading comprehension.

### **Synthetic Instruction**

Dyslexia Handbook definition by Birsh, 2011, p.19: "Synthetic instruction presents the parts of any alphabetic language (morphemes) to teach how the word parts work together to form a whole (e.g., base word, derivative)."

ELS employs synthetic instruction in three ways. The **Phoneme Awareness** manual shows the phonemic makeup—in both segmented and blended formats — for each ELS lesson word in Levels I and II. The subtitle for each lesson covers what syllables are introduced on the lesson.

The Phoneme Introduction at the beginning of each ELS lesson introduces the basic word patterns that are taught and how they combine to form a whole word.

The Word Building Worksheet is a tool that helps students choose from several word endings to create a whole word. In order to further the students' practice of morphemes, student complete Quick Tales reading passages and are asked to define base words.

### **Analytic Instruction**

Dyslexia Handbook definition by Birsh, 2011, p. 19: "Analytic instruction presents the whole (e.g. base word, derivative) and teaches how the whole word can be broken into its component parts (e.g. base word, prefix, root, and suffix)."

ELS employs analytic instruction in three ways. The **Phoneme Awareness** manual shows the phonemic makeup—in both segmented and blended formats — for each ELS lesson word in Levels I and II. The subtitle for each lesson covers what syllables are introduced on the lesson.

The Phoneme Introduction at the beginning of each ELS lesson introduces the basic word patterns that are taught and how they can be broken into component parts.

The Word Building Worksheet is a tool that helps students choose from several word endings to create a whole word. In order to further the students' practice of morphemes, student complete Quick Tales reading passages and are asked to define base words.

#### Simultaneous, Multisensory Instruction (VAKT)

Dyslexia Handbook definition: "Multisensory instruction that incorporates the simultaneous use of two or more sensory pathways (auditory, visual, kinesthetic, tactile) during teacher presentations and student practice."

A substantial part of ELS is multisensory instruction, which strengthens various skills through kinesthetic and tactile stimulation in conjunction with visual and auditory modalities. All lessons within ELS are multi-sensory (facilitated by the technology), and the program teaches new information in small units followed by changes in activities to allow processing time (spaced repetition).

In each ELS lesson, students must link incoming visual information (the printed word) to its auditory counterpart (the sound of the word) and produce a specific motor response (speaking the word or typing or highlighting it). This specifically patterned, forced linking creates a permanent change in the student's ability to retain and retrieve information and an increased aptitude for learning.

For example, after Look Listen See Say introduces ELS users to the set of lesson words, individualized and differentiated instruction continues in order to ensure fluency and mastery. The students are provided information in one modality—or in one level of processing, and then they are asked to recite it or respond in another. For instance, a student is provided visual and auditory information in a session, and the student will respond in a kinesthetic/tactile mode by highlighting, writing, or typing the word. Next, a student is given auditory information and is asked to respond in a kinesthetic/tactile mode. In the next instance, the student is provided physical information and is expected to respond in the acoustic. Practice sessions are plentiful and varied so that there is deep processing of the sound, spelling, and definition of all lesson words.

### **Areas for Assessment**

Dyslexia Handbook definition: "Based on the student's academic difficulties and characteristics and/or language acquisition, additional areas related to vocabulary, listening comprehension, oral language proficiency, written expression, and other cognitive abilities may need to be assessed." Areas for assessment include:

- + Reading real and nonsense words in isolation (decoding)
- + Letter knowledge (name and associated sounds)
- + Rapid naming of symbols or objects
- + Phonological/phonemic awareness

- + Decoding unfamiliar words accurately
- + Reading fluency (rate and accuracy)
- Reading comprehension
- + Written spelling

Possible additional areas include:

- + Vocabulary
- + Listening comprehension
- + Verbal expression
- + Written expression

- Handwriting
- Memory for letter or symbol sequences (orthographic processing)
- + Mathematical calculation/reasoning
- Phonological memory
- Verbal working memory
- Processing speed

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TEA's **Dyslexia Handbook** has a section on procedures for assessment of dyslexia. The publication delineates specific domains to assess as a way of determining individual student needs. The following matrix indicates how ELS addresses (and serves as a therapeutic intervention to correct) each of these domains:

Assessment Domains	ELS Components
Reading single words in isolation	Students are taught to read more than 2,000 words, both in isolation and in context through ELS.
Decoding unfamiliar words accurately	Decoding is a major objective of ELS. Lesson words are chunked into sound families.
Phonological/Phonemic awareness	All aspects of phonological awareness are included in ELS lessons and tasks.
Letter knowledge (name and associated sound)	ELS includes an entire component on Letter Recognition (both the letter names and associated sounds). Dyslexia, second-language, and primary grade teachers requested this addition to the program.
Rapid naming	ELS tasks provide practice and assessments in rapid naming of words.
Fluency/rate and accuracy	A major emphasis in ELS and MLS is improved fluency — both the rate and accuracy of decoding words as well as mathematics facts. Students have varied and effective practice exercises to acquire fluency, and it is regularly assessed.
Reading comprehension	ELS improves comprehension in three major ways: (a) directly teaches more than 2,000 word definitions; (b) improves fluency; and (c) provides opportunities to practice reading comprehension skills through Quick Tales tasks.
Spelling	Every series of ELS lessons includes instruction in spelling. In fact, the lesson words are organized around sound families so that students can learn to generalize and to transfer their learning to new words. Spelling is assessed in varied ways.
Vocabulary	Every series of ELS lessons includes instruction in vocabulary. Definitions are provided for each word, as are contextual sentences. Students are assessed in varied ways. MLS employs a consistent use of appropriate mathematics terms and teaches the definitions of those terms.
Written Expression	The <b>CEI Journal</b> provides illustrations and prompts to encourage students to write frequently using their new vocabulary and spelling skills. CEI's Creative Writing Contest also provides recognition for students in our labs.
Verbal Expression	Verbal Expression is practiced by reading aloud the words, fluency passages, sentences, and definitions of the lesson words.
Handwriting	Students have many opportunities in ELS to practice handwriting skills. Many complete SHARE in the Write response mode. Copy-Write is another example of ELS' dictation tasks. <b>CEI Journal</b> provides additional practice opportunities.
Mathematical Reasoning	MLS provides three concrete (with manipulatives and a working mat), three semi-concrete, and three abstract lessons for each concept taught. The third lesson in each series in an assessment lesson, and the tenth lesson for each concept is a mastery assessment. Daily printouts provide data for continuous progress monitoring.

Assessment Domains	ELS Components
Orthographic Processing	The mastery check Long Term Recall assesses a student's ability to transfer spelling patterns of a previous lesson into memory. Students must demonstrate the ability to rapidly and accurately retrieve the images of individual letters and the spelling patterns.
Verbal working memory	The activity See Say checks a student's ability to recall and decode words learned in the lesson, independently. Students must read the lesson words to a teacher for evaluation of mastery.
Phonological memory	Phonological memory is assessed during the spelling portion of the Mastery Cycle Post-Test. Students must score 87.5% before advancing to new words and vocabulary.
Processing memory	Quick Talk is the activity where students are assessed for their processing ability. Here, they must quickly scan and visually discriminate the word flashed upon the computer screen. Quick Talk parameters allow the teacher to speed up the activity for faster processing.

# **Features of CEI's Assessment Program**

Since the beginning days of CEI over 25 years ago, ELS has had a comprehensive assessment program. An integral part of the design is not just the collection of varied data, but the active use of that data by the lab teacher in monitoring student success and in changing, as needed, lesson sequences and parameters. "Data-driven decision making" or, as some term it, "informed instruction," has, therefore, long been a part of CEI's interventions. The matrix below lists various assessment features and provides an description of that feature in ELS. ELS's assessment program is another way that aligns it with the requirements for not only dyslexia instruction, but also other required interventions, including Response to Intervention.

Assessment Feature	ELS/MLS
Program placement assessment	CEI provides for both ELS and MLS pre-testing assessments so that students may be placed at an appropriate level in the programs.
Immediate feedback	CEI's programs provide immediate corrective feedback to students as they work through the lessons. Feedback is always encouraging and informs students of the support available, if they need help.
Self-assessment	Numerous opportunities are built into ELS for the student to check his/or her own work, to monitor ongoing performance, and to view the daily printouts for assessment of progress.
Continuous progress monitoring	Both ELS and MLS provide daily printouts for the lab facilitator to consider when planning for the next day's lessons. Continuous Progress Monitoring (CPM) reports are also available. CPM reports may serve as the program benchmark using the reporting period specified by the teacher.
Mastery assessment	Each series of three lessons includes a Mastery Lesson, which serves a review of a student's acquisition of decoding, spelling, vocabulary, and maze fluency. Mastery Lessons for MLS review the student's problem-solving knowledge and skills related to the concepts in a unit. Both programs contain a Post-Test that assesses mastery of the previous lesson material.
Early Warning System	ELS has a built-in "Early Warning System" to advise the lab facilitator that an individual student is not making acceptable progress so that lessons may be modified or adapted appropriately.

Assessment Feature	ELS/MLS
Teaching for mastery	Students who do not achieve 87.5% accuracy on ELS mastery lessons are automatically recycled through the lessons they need for mastery. The MLS program requires at least 80% mastery before a student is allowed to move to the next level. Research indicates that 80% is adequate for progress.
CEI Direct (CEI-D)	CEI-D allows ELS and MLS lab facilitators to send student records electronically to CEI's instructional coaches for guidance on program placement and parameter settings so that the program meets each individual student's needs and is neither too difficult nor too challenging.
Review assessments for long-term memory	Twenty-one (21) days after a student completes an ELS lesson, the program re-checks him on the words presented in that lesson to make sure learning is embedded in long-term memory.
Pre- and post-tests for program evaluation	The <b>Diagnostic Screening Test: Reading</b> and the <b>Diagnostic Screening Test: Math</b> (third- party assessments published by Slosson) are provided free with the ELS and MLS programs. Standardized scores allow schools to measure value added and to evaluate individual student, subgroup, and overall program progress.
Parent reports	ELS progress reports for parents are available in both English and Spanish.

# **Results**

ELS not only complies with the recommendations in **The Dyslexia Handbook**; it also boasts remarkable results with students who suffer from dyslexia. Information follows detailing CEI's testing methodology and the success that dyslexic students have achieved in ELS labs. (Feature stories and case studies about individual students and dyslexia programs appear regularly in CEI's news magazine, **SHARE**. See our home page, www.ceilearning.com.)

### Methodology

CEI has long recognized the importance of measuring the annual gains (value-added) of students participating in its labs. To measure academic growth of ELS students, CEI uses the **Diagnostic Screening Test: Reading (DST:R)**, developed by Thomas D. Gnagey, Ph.D. and Patricia A. Gnagey, M.S. The DST:R is an individually administered evaluation that provides information on a student's basic reading skills. Since lab teachers administer a pre- and post-test, results show the gains each student makes in basic reading skills and concepts as a result of engagement in the ELS program. The DST:R is a quick, valid method for gathering information about a student's reading skills. Each subtest provides a grade-level equivalent score. Additionally, the test computes four major scores:

- + Word Reading Comfort Level The level at which the student knows almost all of the words and reads each without assistance.
- + Word Reading Instructional Level The level at which the student knows 85 to 90 percent of the words and therefore reads easily enough to gradually acquire new vocabulary and associated skills.
- + Word Reading Frustration Level The level at which the student is unable to read so many of the words that he or she misses the essence of passages and finds the task of reading uncomfortable or unpleasant.
- + Comprehension of Passages The level at which the student is able to understand and remember the facts and subtleties of passages. (Both reading and listening comprehension may be tested.)

## **From Our Testing**

This study includes 4,334 dyslexic elementary school students. The graph reflects the percentages of ELS students who had various gains in Reading Comprehension over a one-year period. Scores are averages and, therefore, include schools that erratically implement, students who are not in the lab for a full year, and schools that implement labs late and close them early. Results are, therefore, in reality much better than these averages indicate when labs are implemented with fidelity and when the actual length of time each student participates is factored in.



4,334 students Average Gain: 1.6 grade levels 28% of students gained 2 or more grade levels!