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WHY ELS WORKS FOR DYSLEXICS

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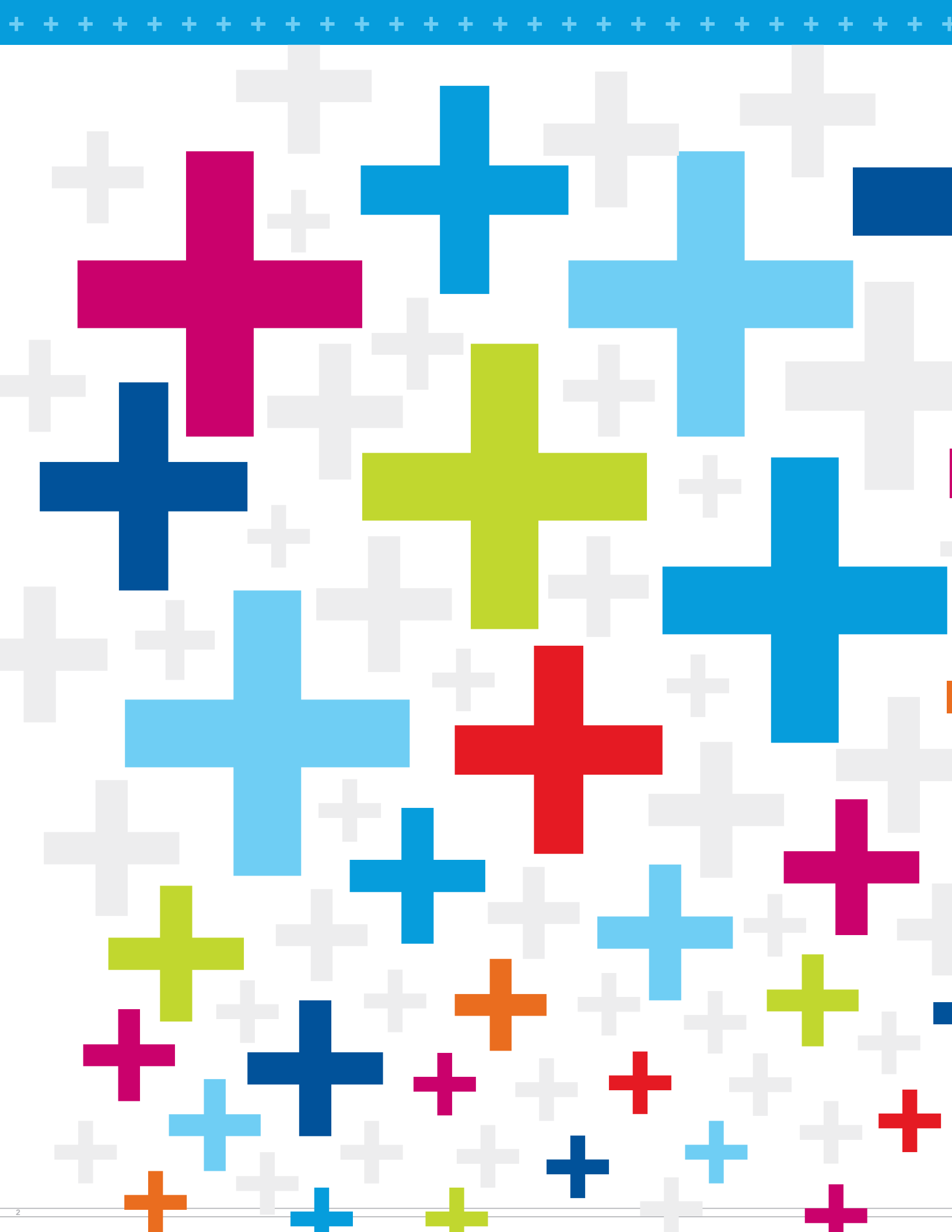


In 2005, CEI published *Why ELS Works: Its Scientific, Theoretical, and Evaluation Base*, documenting the scientific evidence that grounds every component of the program: the content, lesson design, instructional strategies, and implementation features. The paper addressed the various populations of learners who benefit from this remarkable program, but it did not focus on any one in particular.

Subsequent to that publication, some schools have requested the specific research as to why the program is appropriate for English Language Learners, the economically disadvantaged, students who have learning disabilities, adult basic education, or learners who are dyslexic. CEI staff, therefore, in response to those requests, have gone back to the research and distilled the information pertaining specifically to the various subgroups. What is clear in looking at these thousands of pages of documentation is that the developmental path for learning to read is the same for all learners. There are, however, variables that make it necessary to provide more emphasis and/or more practice/repetition in certain areas, based on the individual needs of the students.

Another thing that emerged from our analysis is that the studies, in general, emphasize the five critical components of reading instruction advocated by the National Reading Panel (2000):

- Phonemic Awareness
- Phonics
- Vocabulary
- Fluency
- Comprehension

But, depending on the subgroup being studied, there are frequently additional components found to be important — or the reasons for including one particular component will be different from the reasons cited for a more general population. We are excited about this work, for even when we examine one subgroup at a time, the evidence is overwhelming that Essential Learning Systems (ELS) is a powerful intervention for all these learners, especially given its therapeutic approach that provides an individualized prescription for each student based on a careful diagnosis of need and then frequent and ongoing monitoring to ensure progress. A brief summary of the findings relative to dyslexic learners follows. Since dyslexia is generally believed to be the result of impaired phonological processing, the preponderance of studies finds that phonological awareness, explicit instruction in spelling, and fluency development are the areas of emphasis.

Dyslexia Identification And Prevalence

Researchers generally agree that dyslexia affects anywhere from six to about 18% of the general population. It definitely runs in families, and it frequently is co-morbid; that is, it frequently occurs with at least one other disorder. Researchers are converging in their understandings that dyslexia is neurobiological in origin, meaning that the problem is located physically in the brain, and the result is faulty sensory processing — the root cause of many learning difficulties and disabilities. Symptoms of dyslexia include delayed speech, poor organization skills, memory problems, difficulties in decoding, difficulties in spelling, and inability to discriminate between sounds.

Letter Recognition

Researchers advocate a great deal of practice and repetition in ensuring that students are fluent (both accurate and rapid) in letter knowledge. We have known for a long time that letter recognition is one of the best predictors of children's success in learning to read, but delays in learning the letters and their sounds have only recently been identified as a potential identifier of dyslexia. A theme that runs through these studies is that letter recognition alone is important but insufficient. Students must also learn how to connect the letter sounds to those letters, so that is why phonological awareness becomes one of the areas of emphasis.

The research on the importance of letter recognition led CEI to invest the resources to embed its supplemental Letter Recognition program into ELS. Interestingly, this feature has been much applauded not only by primary grade teachers, but also by those running dyslexia programs and by those serving ELLs since many second-language learners of all ages do not know the English alphabet.

Phonological Awareness

Since dyslexia is the result of individuals' inability to process the sounds of the language, phonological awareness takes center stage in an intervention that must strengthen the neural pathways in the brain or build new ones that will enable dyslexics to learn how to read. ELS' SHARE exercises provide the initial instruction (using multi-sensory processing strategies) that enable students to acquire phonological awareness. We teach phonemes, blending and segmenting, sounds, decoding, spelling, vocabulary, and fluency in an integrated and contextual fashion that makes it possible — once students move to the supporting tasks — for practice to move this knowledge and skill into long-term memory.

Researchers recommend multiple and varied exercises to teach rapid naming of letters and words, the use of direct and explicit instruction to teach the critical knowledge and skills related to phonological awareness, a combination of phoneme awareness and phonics, explicit teaching of sound families, and a focus on fluency development in order for dyslexics to thrive. As Lishman (2006) states, "… phonological approaches to remediation are extremely important. Indeed, the concentration in teaching on the rehearsal of phonological skills is given a large measure of scientific respectability."

Spelling

Dyslexia researchers almost all focus on spelling as a critical intervention component, although the National Reading Panel did not. Students who have difficulties in recognizing letters, in processing sounds, in segmenting and blending, and in decoding will inevitably have difficulties in spelling. Too, students who cannot spell have great difficulties in learning to write since they use most of their cognitive resources just trying to figure out how to spell, making it almost impossible also to attend to punctuation, grammar, style, organization, vocabulary choices, and meaning.

These research-based strategies to teach spelling are all reflected in the ELS program:

- Using a write-say intervention with immediate feedback to the visual and auditory modalities to improve spelling accuracy;
- Teaching decoding and spelling in combination with phonological skills;
- Teaching explicitly the spelling patterns (since about 84% of english words are predictable);
- Using clear and consistent speech production;
- Fluency development, to the point of overlearning since such practice/repetition is necessary for accurate and fluent performance;
- Including dictation exercises and using the lesson words in personal writing since some students can spell words correctly on a test, yet miss them when writing a composition;
- Use of diagnostic assessment and continuous-progress monitoring;
- Incorporation of multi-sensory processing strategies;
- Using computer-assisted instruction; and
- Integrating the teaching of spelling and vocabulary

Fluency Development

A major strength of ELS is its fluency development component. ELS developers were well aware of the research on this issue in the original design of the program and made sure that the program includes not only effective instruction, but also more-than-adequate and varied practice/repetition activities to ensure that students learn the critical knowledge and skills to the mastery level and can perform both accurately and rapidly. Researchers note that without fluency people use all their working memory resources to decode or spell and have nothing left for comprehension. Interestingly, although comprehension strategies per se are not explicitly taught in ELS, the reading comprehension scores soar from the pre- to the post-tests. We know that we have a profound effect on comprehension because we teach fluency well — and we also teach vocabulary, which develops background knowledge that is also important to comprehension.

Palumbo and Willcutt (2006) are among those who study dyslexia and what works to teach those learners how to read. For fluency to develop, they state, three steps are necessary:

- Basic reading skills must be taught until the students are accurate at word recognition.
- Once accuracy is achieved, providing practice is essential for students to go beyond accuracy to fluency.
- Because the first two tasks are hard, students often want to quit before the task is mastered. Therefore, motivation is essential to keep them on task until they become fluent.

CEI agrees. That is why the lessons emphasize both the basic skills and provide plenty of practice for fluency to occur. That is also why we structure the program in ways for students to experience high levels of success, provide immediate feedback that is positive and encouraging, recognize students' success, and train lab facilitators in other motivational strategies.

Vocabulary

Vocabulary development is important for all learners, but it is not necessarily a major issue with dyslexics since, for the most part, their IQs are either average or above, and they may possess sophisticated oral vocabulary skills. Researchers point out, however, that many dyslexics do need considerable work in this area. Low-IQ dyslexics and dyslexics who come from disadvantaged backgrounds are among those who will need such instruction. Researchers also note that much repetition is necessary. Nagy and Scott (2000) urge "multiple and varied encounters" with each new word and find that "even four instructional encounters of high quality do not lead to a level of word knowledge adequate to measurably improve comprehension of text containing the instructional word."

ELS teaches more than 2000 words directly and to the mastery level and several thousand others indirectly. Not only do assessments show improved performance in vocabulary and reading comprehension among ELS lab students, but anecdotes abound. CEI staff hear stories continuously about teachers and parents noticing that the students start using new and more sophisticated vocabulary almost immediately. This new knowledge also is important to their self-confidence and sense of efficacy as learners.

Comprehension

Multiple studies confirm what many teachers observe on an ongoing basis. That is, "the most important cause of reading comprehension failure in children stems from difficulties with decoding and word recognition; if children cannot read words with a reasonable degree of accuracy, their comprehension is likely to be compromised" (Nation, 2006). Other studies confirm the importance of vocabulary in comprehension since it builds background knowledge.

INSTRUCTIONAL STRATEGIES

Multi-sensory Processing

The research literature on effective interventions for students with difficulties and/or disabilities in learning frequently point to the need for multi-sensory processing strategies for effective interventions. Jamieson and Simpson (2006), for instance, state:

There is no doubt that learning is facilitated when more than one, preferably three, sensory channels are activated. When teaching at the word level, the well known "look, cover, say, write, check" spelling method uses simultaneous visual, auditory, and kinesthetic feedback, in an endeavour to support memory and lead to automaticity in producing particular letter sequences.

Multi-sensory strategies are also advocated by the International Dyslexic Association (2000) "to enhance memory and learning." Researchers further note that such strategies are greatly facilitated by the use of computer software for instruction since the technology not only provides the multi-sensory approach, but it can also totally individualize instruction, as ELS does.

Multi-sensory processing strategies address student weaknesses and enable neural pathways to be strengthened or built to make learning possible. They also address student strengths, enabling students to use their areas of strength to "mitigate areas of weaknesses (Sousa, 2001)," resulting in improved performance.

Practice/Repetition

Effective interventions also invariably include multiple and varied practice/repetition opportunities. These are critical for fluency development and for learning to the mastery level. Hatcher (2006) summarizes as follows:

All teachers know that, after pupils have been shown something for the first time and have learned how to do it accurately, they need to be able to practice the skill until it has become second nature to them. The problem for teachers is often planning for sufficient practice time in a crowded curriculum and a busy classroom schedule.

ELS includes more-than-adequate practice/repetition activities. These tasks go far beyond what any teacher can provide on her own in a classroom full of students. Too, most commercial products, although they include practice activities, rarely include enough of them for mastery to occur for struggling learners. Not only does ELS have more than is needed for any one student, but they are individually prescribed so that a student gets only what he or she needs. The activities are varied so as to keep students engaged and motivated and to avoid boredom, which is the result of simply doing the same thing over and over. Another major benefit is that the computer makes multi-sensory strategies possible in every lesson, and it does all the record-keeping so that the teacher has neither to score each activity, nor be responsible for providing all the necessary feedback for students to stay engaged.

Individualization

Effective interventions, especially for students who are dyslexic or who have other learning disabilities, are individualized and differentiated so that each learner gets precisely what he or she needs to move forward and so that he or she stays in what Vygotsky calls the "zone of proximal development." Vance and Mitchell (2006) define this component as follows:

Differentiation should teach to students' strengths, use their preferred modality, chunk information to an appropriate size and present it at the preferred speed. This might include using visual or kinesthetic presentation styles, removing distractions, using simple vocabulary, simple grammar and short sentences, and speaking more slowly or more quickly.

ELS' use of assessment data and computer-assisted instruction makes individualization and differentiation possible. Even in a dyslexia classroom, the students will each have their own individual needs. ELS enables the teacher to ensure that each one gets not only the appropriate content, but also that it is presented in an individually appropriate way. ELS' sequences and the variety of parameter settings are keys to making the difference that each teacher desires: improved academic performance.

Computer-assisted Instruction (CAI)

There is really no doubt that computer-assisted instruction can be an effective vehicle for delivery of instruction to dyslexic students. CEI has mounds of studies on the efficacy of CAI for interventions in general and for students with disabilities. The benefits are numerous:

- Motivation for students
- Immediate and non-judgmental feedback for students
- Minimized distractions from the environment
- Individualization and differentiation
- Multi-sensory processing
- Consistent, high-quality instruction every day for every student
- Multiple and varied practice opportunities
- Inclusion settings since program is individualized
- Fluency
- Data provided to inform instruction
- Record-keeping on student progress

Visit the Resource Library at www.ceilearning.com to view and download a variety of documents that provide valuable information about using CEI programs with your Dyslexic students.

References from ELS labs serving dyslexic students, available by request from 888.511.4194 or by e-mailing info@ceilearning.com.

ELS is constructed in ways that leverage the power of all these advantages. Another important benefit is that the lesson screens are intentionally uncluttered since the research indicates that the busyness of many computer screens distracts struggling learners significantly and actually prevents them from learning. ELS screens include simple pictures, few words per screen, the consistent use of color and font, and other devices to facilitate learning.

Assessment and Feedback

Converging research indicates that the best uses of assessment are to diagnose student needs and then to monitor continuously their progress so that instructional adaptations/modifications can be made so that each individual continues to progress. These are critical components of any therapeutic intervention, of course, and ELS' comprehensive assessment system includes third-party assessments for diagnosis and program evaluation, as well as criterion-referenced placement tests for each mastery cycle and progress monitoring.

ELS provides feedback in numerous ways. One way, highly recommended by the research, is through immediate oral encouragement to the learner. Another is the feedback provided via the daily progress reports, which benefits both the student and the teacher. Another is through the regular parent reports that are available in both English and Spanish.

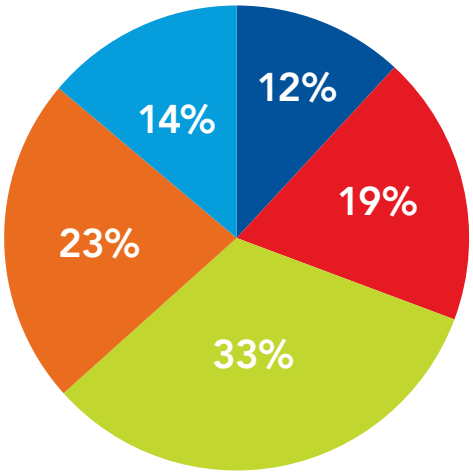
The newest ELS versions include yet another powerful feedback mechanism for ELS lab facilitators through CEI Direct (CEID). This feature allows the lab facilitator to e-mail directly to her Educational Consultant individual student records of progress for advice on whether the student is placed in the program appropriately, on how to set the lesson parameters for greater success, on whether the student is assigned to the appropriate sequence, and on how to improve motivation to learn. This 24/7 service has greatly improved lab effectiveness since the teachers no longer need to wait for a lab visit to get the help that they need.

Teacher Role

Some express concerns about computer-assisted instruction for dyslexics versus a delivery system entirely dependent on an individual teacher. Be assured that ELS also incorporates the research on the critical role of teachers in effective interventions. ELS has never been merely about software. A major part of Chapter II of the original research paper discusses the numerous expectations for teachers in an effective lab. Subsequently, we have also published a document that outlines in detail the instructional responsibilities of lab facilitators and the importance of the facilitator's judgment in monitoring student performance. ELS is used in a dyslexia lab in similar ways that print materials might be used. In fact, it is far less scripted and demands far more of the teacher than many programs dependent on print materials. CEI never recommends that a school merely put kids in front of the computers and walk off. Rather, the extensive training and support that we offer our labs constantly emphasize the opposite — that the role of the teacher is a key to the success of the students.

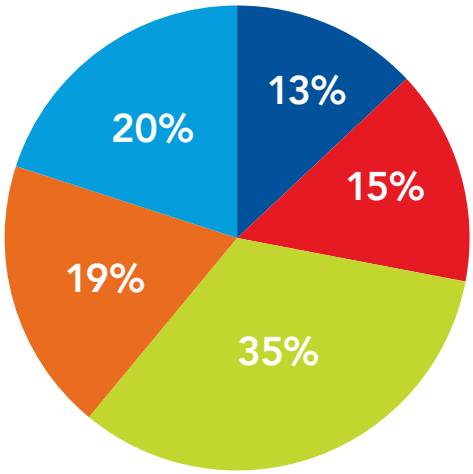
Measurable Results for **DYSLEXIC STUDENTS**

The study includes Dyslexic students who used CEI's Essential Learning Systems program for one school year. The graphs reflect the number of CEI students and their gains in Reading Comprehension at the end of that year.



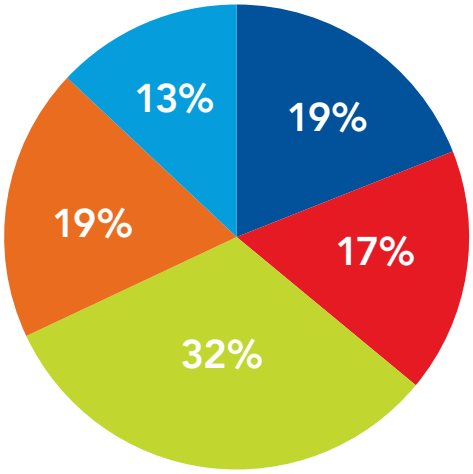
PRE-K/KINDERGARTEN STUDENTS

439 students
Average Gain: 1.6 grade levels
31% of students gained 2 or more grade levels!



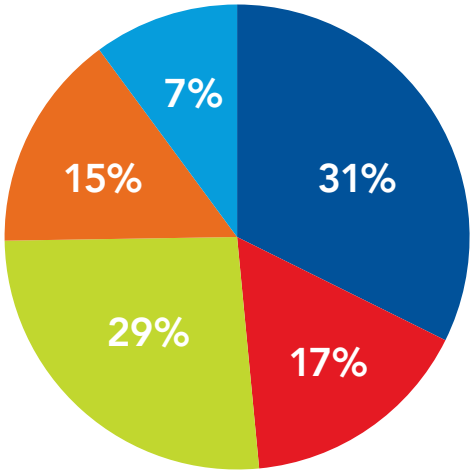
ELEMENTARY STUDENTS

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



MIDDLE SCHOOL STUDENTS

1,942 students
Average Gain: 1.9 grade levels
36% of students gained 2 or more grade levels!



HIGH SCHOOL STUDENTS

760 students
Average Gain: 2.6 grade levels
48% of students gained 2 or more grade levels!

MORE THAN 3 YEARS
2-3 YEARS
1-2 YEARS
6-11 MONTHS
LESS THAN 6 MONTHS

"If you think you can't make a difference, think again."

+ Paul J. Meyer

"I remember like getting tests back, and they were, like Fs, and I was like, 'Why am I getting this when everyone else got an A?' It made me feel like … you know … 'Why am I not understanding this like everyone else?' So that sort of hurt a little bit. And when my parents finally told me that I had dyslexia, it started to make more sense. Every time I would … like … succeed at something, go on to the next level, graduate from Level 1 to Level 2, you know, I'd smile for the rest of the day. It was really cool accomplishing things and building my self-esteem up."

+ Sixth Grade Student
Houston, Texas

"I have seen students who have been discouraged at school come to life in the lab. The lab has given them an opportunity to learn at their own pace, in a different way, and they feel successful. This change in attitude helps them not only achieve in learning, but also changes their whole attitude about school."

+ Elementary Principal
Brevard County, Florida

The biggest problem with dyslexic kids is not the perceptual problem, it is their perception of themselves. That was my biggest problem.

+ Bruce Jenner
Olympic Gold Medal
Winner, Dyslexic

"That's the real problem with kids who struggle with learning.... Some kids feel like they're stupid. I want them to know that they're not. They just learn differently. Once they understand that and have the tools to learn in their individual way, then they can feel good about themselves."

+ Charles Schwab
Businessman,
Philanthropist, Dyslexic

"I have witnessed this program meet the needs of students with deficiencies. Struggling learners … those with dyslexia … those with special needs are all benefiting from this program."

+ Assistant Superintendent
Edinburg, Texas

"A kindergarten dyslexic student who wrote his letters not only backwards, but also sideways, upside down and in reverse order, was recommended to our CEI lab. In just three months, everyone is seeing an improvement. He is consistently writing his letters correctly, and his teachers are certain that they will see more success from this hard-working young man! He is a true success story and a feather in CEI's hat!"

+ Elementary CEI Lab Facilitator
Llano, Texas

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