

Building Better Brains!

Reading Instruction That Changes How the Brain Works

Research confirms that effective, multisensory reading instruction literally reorganizes the brains of struggling readers. Multisensory, multimodal instruction engages a variety of learning pathways. Especially effective is the engagement of the visual, auditory, tactile (touch), and kinesthetic (muscle movement) learning pathways. When struggling learners are taught to read using direct, explicit, systematic, multisensory phonics instruction, research using functional MRI (fMRI) brain imaging literally shows us that the impact on the brain is significant.

In 1998, Dr. Sally Shaywitz, a leader in the field of dyslexia and reading, released reading research done at Yale University's Center for Learning and Attention. Observing brain imaging during the reading process through the use of fMRIs explicitly showed that skilled readers consistently use specific portions of the left brain, with brain activity highly focused in very specific areas during reading tasks. Brain imaging in weak readers shows diffused activity scattered throughout the brain, which is much less efficient for reading.

Furthermore, studies have shown that instruction using direct, explicit, systematic, multisensory phonics actually changes how these weak readers utilize pathways in the brain for reading. This type of instruction, including an early emphasis on phonemic awareness taught two hours per week for a year, significantly enhances students' overall reading accuracy and fluency. The changes in brain imaging after this intervention show a significant increase in the focused use of the left hemisphere of the brain during reading tasks. The brain activity of the weak readers appears more and more like the brain activity of the skilled readers. These formerly weak readers are developing focused reading systems in their brains that were not present before instruction occurred.

Additional studies supporting these results have been conducted in many research facilities, including a team led by Dr. Guinevere Eden, associate professor of pediatrics at the General Clinical Research Center at Georgetown University Medical Center in Washington, DC, as well as a study at the Medical College of Wisconsin, with Jeffrey R. Binder, MD, professor of neurology, and Robert F. Newby, PhD, associate professor of neurology. This research continues today, constantly refining what we know about how the brain reads.

Early identification and intervention in kindergarten and grade 1 using this research-based instruction prevents many at-risk students from ever struggling with reading. This kind of proven, effective instruction for older students who already struggle with reading skills acquisition can reverse the ongoing difficulties, changing those learners into more competent readers. For individuals with dyslexia/learning differences and attention-deficit/hyperactivity disorder (ADHD), these instructional methods provide specific strategies and skills to work effectively with their learning differences, allowing them to become successful readers and spellers, significantly impacting their schoolwork and lifelong success.

This kind of reading research continues to support the guiding principles of instruction for all *Phonics First*® and *Structures*® teaching: explicit, structured systematic, sequential, multisensory phonics. Educators who skillfully implement *Phonics First*® and *Structures*® are actively teaching their students to become confident and independent learners while literally building new pathways for learning within their students' brains.

Add'l information: *Overcoming Dyslexia* by Sally Shaywitz; www.childdevelopmentinfo.com/learning/brain.shtml