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Building the Young Reader's Brain, Birth Through
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Building the Young Reader's Brain, Birth Through Age 8

Third Edition

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Preface

As I approached writing the third edition of *Building the Young Reader's Brain, Birth Through Age 8*, I looked at the previous introduction. A positive, upbeat dialog followed the book's development and assured the reader of all that would be found in the second edition. The book's co-author, Dr. Pat Wolfe, and I realized there was so much excitement in 2009 about the potential for reading instruction that could benefit from the advances and information in neuroscience. The introduction finished with this statement:

Finally it is acknowledged that it takes talented teachers, who understand how children learn to read, to orchestrate a delicate balance of instruction, student engagement, conversation, and reading practice so their students are able to read with a natural amount of effort and with obvious enjoyment.

The end of the previous introduction provides a beginning for the third edition of this book. Much has changed for our schools, for the education profession, and for parents. We continue to have talented teachers who are knowledgeable and sensitive about the learning needs of children, but the professional conditions educators work under have changed. An update on the "state of education" is a most appropriate introduction. Recent history of education in our schools is the foundation for teachers and students as they strive to master reading. The stage is set for a book to understand the whole child, specifically with a focus on neurology and on "WHAT IS HAPPENING IN THERE?"

ABOUT THIS THIRD EDITION

This third edition, with a new title, is a practical guide to teaching the way the brain learns, specifically how children's brains are innately designed for oral language, and not naturally intended to learn reading. Other deep topics include the brain's memory systems, along with developmental stages of benchmark development for very young children, and for developing readers, priming skills of attention, concentration, remembering, and organization, culminating with cognitive development.

In many ways it is a book grounded upon cumulative practices from many educational experts, who base their recommendations on strong educational research.

While the science of reading (National Reading Panel, 2000) is the backbone of most educational practices for teaching reading, researchers continue to provide new insights to influence effective teaching practices. This book is a showcase of those practices as they relate to brain building for reading. The reader is invited to review the expansive list of references that back the scientific review of brain structures and their functions. Note that the reading instructional practices that are included were selected based on their relevance to how the brain processes information, and on an extensive review of current literature.

BACKGROUND AND A BIT OF HISTORY

Learning to read has had powerful attention for the last 30 years or more. Everyone knows the statistics. Children who learn to read, and learn to read well, are more likely to be successful in life, according to society's standards. A predominance of people who break laws and go to prison are poor readers. The education system gets a low grade when a high number of students graduate from high school without reading proficiency, or if dropout rates are high, most likely because reading is too hard. There was a time, not so long ago, when educators started to "get it together" and publishers were producing teacher's manuals and reading texts that accounted for and addressed the reading needs of all children.

I remember the year 2008 when California's textbook selection committee had completed its work. Recommended publishers were selected, and their names were announced to school districts. The materials truly represented what was known about the best available reading practices. Most importantly, the materials reflected the National Reading Panel's (2000) findings. Conclusions in this report resulted from a rigorous set of research methodologies through a review of over 300 studies, which were selected from two databases, PsycINFO and ERIC. In textbooks and teacher's manuals, all areas for reading instruction were covered including practices that were compatible with the cognitive (brain) aspects of reading:

This Report is organized into sections to provide an overview of the major findings and determinations achieved by the NRP in the areas of alphabetic (phonemic awareness instruction and phonics instruction), fluency,

comprehension (vocabulary instruction, text comprehension instruction, and teacher preparation and comprehension strategies instruction), teacher education and reading instruction, computer technology and reading instruction, and next steps. (National Institute of Child Health and Human Development, 2019)

Don't be deceived by the date of this abstract. The National Reading Panel's findings were publicized in 2000, but remain applicable and continually acknowledged today. What is known about the science of reading is based on this report from the turn of the century. It continues to provide the most current information about the science of reading.

Build the Brain the Common Core Way (Nevills, 2014) was produced as a response to the Common Core State Standards Initiative (2010). The nationwide project was influenced by the National Reading Panel's (2000) report. The initiative furthered the panel's findings by defining high-quality academic standards presented as goals for English language arts (ELA) and mathematics, with an outline for student achievement at the completion of each grade level. In 2010, the Common Core State Standards (CCSS) were approved by the federal Department of Education. Performance goals and to-be-developed standardized assessments were designed for use across the nation. In 2014, response to the CCSS was questionably positive, but critical implementation supports were lacking.

With a focus on ELA, the question is, "What did *not* accompany the CCSS?" First, curriculum with instructional materials aligned to the standards was nonexistent. Previous textbooks with accompanying teacher's manuals were mostly discarded, as they did not match terminology with the nationwide standards. Teachers scrambled to develop or find materials to use for their day-to-day instruction. District decision makers questioned how they could provide standards-based materials. Educators also lost some of the formative reading assessments they had relied upon to direct student instruction. National standardized assessments were under development, but not yet available. Retooling through staff development was requested, but not yet available. Parents and caregivers were glaringly absent during the development of the CCSS. However, the standards directed schools and their districts to acquaint and involve families during implementation efforts. And, if all those voids were not enough, the CCSS did not address students with reading disabilities, who required special education services. At this time, 2014–2019, teachers, who are early implementers, found or developed new instructional programs, but

many were still in a day-to-day response mode for student needs when COVID-19 came and schools closed and moved to an online presence.

Two years followed with educators, parents, and children adapting to a “new normal” for education. What an incredible job all areas of education accomplished as the system closed down for in-person classroom teaching! Almost instantaneously, schools revamped themselves for a totally different online school experience. Educators hardly skipped a beat while operating in extremely harsh and unpredictable situations. Parents adjusted and did what they could to maintain a learning environment for their children. Without any preparation, parents dealt with dramatic changes in their day-to-day lives during the following two years. Still, there remained a mostly unresolved issue of how to teach reading according to the CCSS, in whatever form the standards had been adopted state by state.

An article published by EdSource in early 2022, about six months after children returned to their classrooms following the COVID-19 mandates, reported that the literacy crisis had deepened.

[A] cluster of new studies shows that about a third of children in the youngest grades are missing reading benchmarks, as the New York Times reported, which was up significantly from before the pandemic.

One study found that early reading skills were at a 20-year low this fall, a situation the researchers described as “alarming.” In another study, 60% of students at some impoverished schools have been identified as at high risk for reading problems—twice the number of students as before the pandemic. (D’Souza, 2022a)

Studies from around the states were equally alarming (D’Souza, 2022b; Nation’s Report Card, 2022). Fortunately, teachers now receive more support from their districts, counties, and state departments of education. Educators are diving into the teaching of reading with new vigor, equipped with vastly improved instructional materials and armed with knowledge, including brain (cognitive) awareness of how children learn.

Research and reporting centers, including the Center for Applied Linguistics, EdSource, APM Reports, the Hechinger Report, and the National Center for Education Statistics, along with hundreds of other agencies, provide prolific research and reports. Teacher training through podcasts, webinars, and blogs is readily available, and many provide continuing

education credits at no cost. The blast of information was paired with extensive online resources to help and support education at all levels, including subject areas beyond the CCSS-targeted areas of ELA and mathematics. Publishers scrapped previous textbooks and materials and reworked their publications for a national audience. State education agencies revised their documents and online presence. There is so much information and yet a limited time to digest the abundance of usable resources.

THE THIRD EDITION

The pandemic exacerbated an already existing situation, identified as the need to provide teaching of phonological processing, which includes phonemic awareness with the addition of phonics instruction. Along with this sequence are the myriad of other reading skills that demand development, which are addressed in this book.

The third edition of *Building the Reading Brain, PreK–3*, now called *Building the Young Reader’s Brain, Birth Through Age 8*, is poised to respond to the issues of the here and now, as well as to provide a solid reading foundation for the field of education in years to come. Curriculum and instructional materials to teach reading are developed and revised. Educators once again can collaborate, retool, and be supported by research-substantiated published materials. The foundation that cements it all together is research information that verifies how a child’s brain is programmed to learn efficiently and effectively.

Children are equipped with a powerful learning instrument that we call the human brain. It is preset to learn. It is resilient. It is reprogrammable. Children are naturally curious and innovative. The students of today and tomorrow have the brain stuff to survive and thrive. Their teachers and parents do also. Readers can look to the summary of each chapter and recognize that this is a “must read it all” book.

CHAPTER SUMMARY

Chapter 1—A child’s brain, even before birth, begins to develop the five senses and motor skills. The miniscule brain of a developing fetus directs the formation of the nervous system and the child’s body. Language experiences, such as talking, singing, and interacting with a newborn through the developmental years, are of extreme importance. Parents and caregivers quite naturally provide an environment that starts learning right during the first two years of their child’s life.

Chapter 2—Different structures inside the youngster’s brain rapidly develop for children to listen to and speak their native language. What are developmental benchmarks for young children? What are the cognitive aspects of learning? Why is information from neuroscience important? A language explosion is going on, and adults can join its progress with excitement.

Chapter 3—Oral language and social development are key for 4-year-olds as they approach or attend preschool. Are they ready? Developmental benchmarks continue to be listed for parents and teachers to follow language and social development. Information about the nerve cells (neurons) of the body and how they become mature is gleaned through an understanding of the awesome term *neuroplasticity*. Memory means more than remembering. Some learning does happen spontaneously, but as language systems become more complex, so do the ways children remember. Going back to the five senses, we learn how input from the senses is received and acknowledged, or not. We all know how important play is to 3- and 4-year-olds, but is it known that play equates to learning and brain development in addition to how much fun it is?

Chapter 4—Playtime is addressed again with other benefits for preK and kindergarten children. A dive into neuroscience this time looks at the structures of the limbic system and why this primitive part of the brain is important to understand. Memory system information builds on working memory and what is worthy of a child’s attention. This chapter concludes with a discussion of habits of mind, also called priming skills.

Chapter 5—The oral language pathway is defined including areas of the brain that support speech. The reading pathway is different and difficult to build. Teachers respond by teaching explicit lessons for sounds to letters and then to words. Print awareness, functions, conventions, and form are learned for encoding words. The cognitive skills children need to support them along the way to becoming readers are also a part of this chapter.

Chapter 6—This chapter is a must-read to understand the major overhaul that is occurring nationally and internationally in English-speaking countries. All readers, even those who appear to learn on their own, will be better readers with a strong foundation in decoding and encoding through phonological processing. Premier teaching practices described will support learning the way a child’s brain by design will respond efficiently.

Chapter 7—The memory systems in the brain, when understood, make sense of all aspects of learning to read. Objectives from the CCSS can be addressed with memory-specific instruction.

Research from the science of reading is validated. Neuroscience once again provides answers, along with best teaching practices, to lingering questions about how children learn to read.

Chapter 8—This chapter is loaded with ways students are supported to read with fluency, automaticity, and prosody. All-out strategies prepare students to progress from “learning to read” to “reading to learn.” As in previous chapters, the role of the developing brain is a key feature. A cognitive skills continuum, which began in Chapter 2 featuring 1- and 2-year-olds, is concluded in this chapter with students at ages 8 and 9.

Chapter 9—Early assessment is vindicated. In-depth discussions feature responses for children with reading deficits through cognitive, brain-specific interventions. This chapter opens with a wide range of possible reasons and solutions for students who are challenged readers. Special considerations are provided for English language learners (ELLs), also identified as English learners (ELs). The concern for overabundance of special education placements for children who are racially or ethnically different is also a topic. Finally, there is a question about learning two languages—is it beneficial? That topic can be found in this chapter.

Chapter 10—The seriousness of the preceding chapters is gone, as this chapter looks at the enjoyable and engaging practice of partnering with students to teach them about their brains. Teachers take on the role of providing “what” students learn and “how” it can be learned. The emphasis changes when students are invited to be responsible for learning strategies that are productive *and* unique to how each one learns best.

Chapter 11—Responses to the pivotal questions in the first chapter are the focus of this final chapter. A challenge question from Chapter 5 is also addressed. Readers are invited to the cognitive world of children and their abilities for reading. This book concludes with a tapestry of woven information about the human brain as students train, build, and fortify their own brains to become successful at reading.

The reader is invited to match the science of reading, as well as the CCSS or other adopted standards, with the science of neurology. What sounds like an unimaginable assignment can come together in a nice package. The intricacies of the human brain—its micro and macro systems, how it builds a reading pathway, and how memory works for comprehension, recall, and telling—can relate and intermix with all areas of instruction to give a clear pathway for building a young child’s brain for reading.