



# Information and Tips from *How the Brain Learns to Read* by David Sousa

## Alphabetic Principle

- The human brain is not born with the insight to make sound-to-letter connections, nor does it develop naturally without instruction. (p. 37)
- Unlike spoken language, there are no areas of the brain prewired for reading. (p. 205)
- The problems with inconsistent orthography are resolved the same way other learning challenges are – through practice. (p. 37)
- Research studies indicate that a child must be able to decode with accuracy and fluency in order to read proficiently. (p. 37)
- Children's decoding skills improve based on exposure to many examples. (p. 40)
- A firm understanding of the alphabetic principle is essential for early success in learning to read. (p. 40)
- **Recent brain imaging studies have shown:** How effective practice can build new neural circuits. After children are introduced to new letter-sound relationships, additional practice is necessary to ensure that the learning is committed to long-term memory. (p. 72)
- Small groups are usually more productive for phonemic awareness instruction. (p. 73)
- Reading instruction should begin with phonics, using decodable text, and then move to contextual and enriched reading as the student gains competency and confidence. (p. 87)
- Student reading achievement in the primary grades improved when decoding and word recognition were taught systematically with comprehension strategies. (p. 98)
- Avoid letter names: Use the phoneme sounds of the alphabet when doing activities, and avoid letter names. Letters sounded as they are named only confuse the learner. (p. 148)

## Spelling

- Spelling becomes important almost as soon as the child has mastered phonemic awareness and begins to make the letter-sound correspondences. (p. 41)
- Success in reading does not automatically result in success in spelling. Reading requires recognition whereas spelling requires production – a more complex skill that utilizes additional mental processes. (p. 41-42)
- Studies show that the accuracy of a student's spelling in kindergarten and grade 1 is a predictor of later reading ability. (p. 42)





- The consistent repetition of incorrect spelling will, in time, lead to their storage in long term memory. Therefore, teachers should use strategies that will help children transform invented spelling into conventional spelling. (p. 78)
- Spelling instruction is more than memorizing word lists. It should follow a logical sequence that starts with phonemic awareness, demonstrates which letters represent which sounds, and introduces the notion that the same sound can have different spellings. (p. 78)
- Studies found that explicit instruction in spelling for kindergarten children not only improved the children's spelling ability but also improved their reading ability. (p. 81)
- The key to corrective spelling lies with the interventions that teachers *purposefully* use to guide children's writing from invented to conventional spellings. (p. 82)
- At the beginning of the year, writing lessons in K that feature specific instruction in letter formation and spelling could be extended to include short compositions later in the year. (p. 82)

## Fluency

- Fluency is the ability to read a text orally with speed, accuracy, and proper expression. (p. 82)
- Case studies report that fluency is one component that is often neglected in the classroom. (p. 82)
- Fluency bridges the gap between word recognition and comprehension. Because fluent readers do not need to spend much time decoding words, they can focus their attention of the meaning of the text. (p. 82)
- Fluency depends on the reader's familiarity with words. (p. 82)
- The fluency of even skilled readers will slow down when encountering unfamiliar vocabulary or topics. (p. 82)
- No research evidence is available to confirm that instructional time spent on silent, independent reading with minimal guidance and feedback improves fluency and overall reading achievement in young readers. Given that instructional time is limited, there may be better ways to spend reading time in the classroom than silent reading. (p. 84)
- By your being a good model of fluent reading, students learn how a reader's voice can help text make sense. (p. 85)

## Vocabulary

- Oral vocabulary becomes the basis for comprehension in reading. (p. 90)
- The larger the child's oral vocabulary, the more easily the child will comprehend text. (p. 91)
- Scientific research on vocabulary instruction reveals that some vocabulary must be taught directly but that most vocabulary is learned indirectly. (p. 91)





- Some vocabulary should be taught directly. (p. 91)
- The more children see, hear, and read specific words, the better they learn them and their various meanings. (p. 92)
- Remember the capacity limits of working memory and keep the number of new words per lesson no more than 5 for elementary students and up to 7 for secondary students. This will give you more time to teach each word in depth, resulting in greater student comprehension. (p. 93)
- Be sure to teach those terms that are central to the unit of study.

## Comprehension

- Just because readers are able to sound out words does not guarantee that they will comprehend what they read. (p. 96)
- Children who are learning to sound out words are using substantial mental effort, so fewer cerebral resources remain for the cognitive operations needed to comprehend the words being read aloud. (p. 96)
- When they are fluent, word recognition requires far less mental effort, freeing up the child's cognitive capacity for understanding what is read. (p. 92)
- Student reading achievement in the primary grades improved when decoding and word recognition were taught systematically with comprehension strategies. (p. 98)
- Instructional approaches (for comprehension) that have received the strongest support from scientific research: (p. 99-101)
  - o Comprehension monitoring
  - o Using graphic and semantic organizers
  - o Answering questions
  - o Generating questions
  - o Recognizing story structure
  - o Summarizing
  - o Mental imagery
  - o Paraphrasing

## General

- Develop a Scientifically-Based Reading Program and Stick With It (p. 207)
- Expose Teachers to Current Scientific Knowledge about How the Brain Learns to Read (p. 206)
- What Skills Should Be in Place by Grade 3? (p. 208)
  - o Master the alphabetic principle
  - o Read fluently
  - o Understand what they are reading
  - o Have strategies to sound out unfamiliar words
  - o Be confident in spelling





- Read almost any book in the elementary library
  - Write almost anything that falls within the child's knowledge and experience
  - Have an appetite for reading and writing
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- Offer Ongoing Professional Development That Includes Teaching Strategies Based on the New Research (p. 208)
  - Offer Professional Development in Reading to Building Principals (p. 213)
  - Close the Achievement Gap in Reading (p. 214)
  - Encourage Teachers to be Researchers (p. 215)

(From the) **Conclusion** (p. 217)

“Successful teachers of reading are flexible rather than rigid in their approach, and they know through experience what they need to do to make learning to read exciting and meaningful. They also acknowledge that the findings of scientific studies are clear: explicit instruction in phonemic awareness is essential because it helps the beginning reader understand the alphabetic principle and apply it to reading and writing. Enriched text complements this process to provide relevant and enjoyable reading experiences. This balanced approach avoids the seemingly endless reading wars and recognizes that learning to read and write are complex activities requiring at least 7 levels of brain processing that must eventually be integrated:

**-Phonological** – knowing the sound system of language, phonemic awareness, and sound-letter correspondences

**-Graphic** – visually perceiving letters and symbols

**-Lexical** – recognizing words and their component parts, such as prefixes and suffixes.

**-Syntactic** – understanding rules of grammar and discourse

**-Semantic** – comprehending meaning and detecting thematic structures

**-Communicative** – expressing purposes and intentions

**-Cultural** – communicating shared beliefs and knowledge



# Research Reference List

The following 5 pages contain references to the EBLI activities (across the top of the page) and references to research that supports the activities (down the left side of the page). The circles indicate that the reference on the left supports the skills, concepts, and or instruction in the EBLI activity above the circle.



	Sound Lines Multi-syllable Sound Lines	Phoneme Manipulation	Listen, Tally, Say, Write Dot and Dash	Say as You Write	Same Spelling Different Sound	Same Spelling Different Sound	Say and Pull	Multi-Syllable Spelling	Comprehension	Read, Read Back Fluency	Vocabulary	General Information
National Reading Panel Report, Dec. 2000, Washington, DC: National Institute of Child Health and Human Development.	EBLI	EBLI	EBLI	EBLI	EBLI	EBLI	EBLI	EBLI	EBLI	EBLI	EBLI	EBLI
Ball, E.W., and Blachman, B.A. 1988. Phonemene Segmentation: Effect on Reading Readiness. Annals of Dyslexia, 38, 208-225.	EBLI		EBLI	EBLI			EBLI		EBLI			EBLI
Beck, I. L., Perfetti, C. A. and Mckeown, M. G. 1982. Effects of Long-term Vocabulary Instruction on Lexical Access of Reading Comprehension. Journal of Educational Psychology, 74, 506-521.								EBLI			EBLI	EBLI



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Beck, I., Mckeown, M. and Kucan, L., (2002) Bringing Words to Life. New York: Guilford Press.											EBLI	EBLI
Bear, D.R., Templeton, S., Invernizzi, M., Johnston, F. (1999). Words Their Way: Word Study for Phonics, Vocabulary and Spelling Instruction, New Jersey: Prentice Hall.	EBLI		EBLI	EBLI	EBLI	EBLI	EBLI	EBLI			EBLI	EBLI
Biemiller, A. [1977] 1998. Relationship Between Oral Reading Rates for Letters, Words, and Simple Text in the Development of Reading Achievement. Reading Research Quarterly, 23, 223-253.												EBLI



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Blachman, B.A., Tangel, D.M., Ball, E.W., Black, R., and McGraw, C.K. 1999. Developing Phonological Awareness and Word Recognition Skills: A Two Year Intervention with Low-income, Inner-city Children. Reading and Writing: An Interdisciplinary Journal, 11, 239-273.		E.B.L.I.	E.B.L.I.									E.B.L.I.
Block, C.C. 2002. Improving Comprehension Instruction: Rethinking Research, Theory and Classroom Practice. Jossey-Bass Education Series, no. 20. San Francisco: Jossey-Bass.								E.B.L.I.				E.B.L.I.
Block, C.C., and Pressley, M. eds. 2001. Comprehension Instruction. New York: Guilford Press								E.B.L.I.				E.B.L.I.





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Boronat, C. B. and Logan, G. D. 1997. The Role of Attention in Automatization: Does Attention Operate at Encoding, or Retrieval, or Both: Memory and Cognition, 25, 26-59.	EBLI						EBLI	EBLI				EBLI
Bradley, L., and Bryant, P.E. 1985. Rhyme and Reason in Reading and Spelling. Ann Arbor: University of Michigan Press.												EBLI
Brennan, F., and Ireson, J. 1997. Training phonological awareness: A study to evaluate the effects of a program of metalinguistic games in kindergarten. Reading and Writing: An Interdisciplinary Journal, 9, 241-263		EBLI	EBLI	EBLI					EBLI			EBLI



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Fountas, I. C., Pinnet, G.S. and Giacobbe, M.E. (1998). Word Matters: Teaching phonics and spelling in reading/writing classrooms. Portsmouth, New Hampshire: Heinemann.				EBLI				EBLI	EBLI			EBLI



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Hennings, Dorothy G. (2000) Contextually relevant word study: Adolescent and Adult Literacy, 44, 268-285								EBLI	EBLI			EBLI
McGuinness, D. 2004. Early Reading Instruction: What Science Really Tells Us about How to Teach Reading. Cambridge, MA: MIT Press.	EBLI	EBLI	EBLI	EBLI	EBLI	EBLI	EBLI	EBLI	EBLI	EBLI	EBLI	EBLI
Nagy, William E., 1998. Teaching Vocabulary to Improve Reading Comprehension. Newark, Delaware: International Reading Assoc.									EBLI		EBLI	EBLI
Nunes, T., Bryant, P. and Bindman, M. 1997. Morphological spelling strategies: Developmental stages and processes. Developmental Psychology, 33, 637-649.					EBLI	EBLI		EBLI				EBLI



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Strickland, D. S., Ganske, K., Monroe, J.K, 2000. Supporting struggling readers and writers: Strategies for classroom intervention 3-6. Newark, Delaware: International Reading Assoc.	EBLI							EBLI	EBLI			EBLI
Templeton, S., and Bear, D. (Eds.), 1992, Development of orthographic knowledge and the foundation of literacy: A memorial Festschrift for E.H. Henderson. Hillsdale, New Jersey: Erlbaum.				EBLI	EBLI	EBLI	EBLI	EBLI				EBLI
Zutell, J. 1998. A developmental spelling approach to word study for delayed readers. Reading & Writing Quarterly, 14 219-239.				EBLI	EBLI	EBLI	EBLI	EBLI				EBLI

