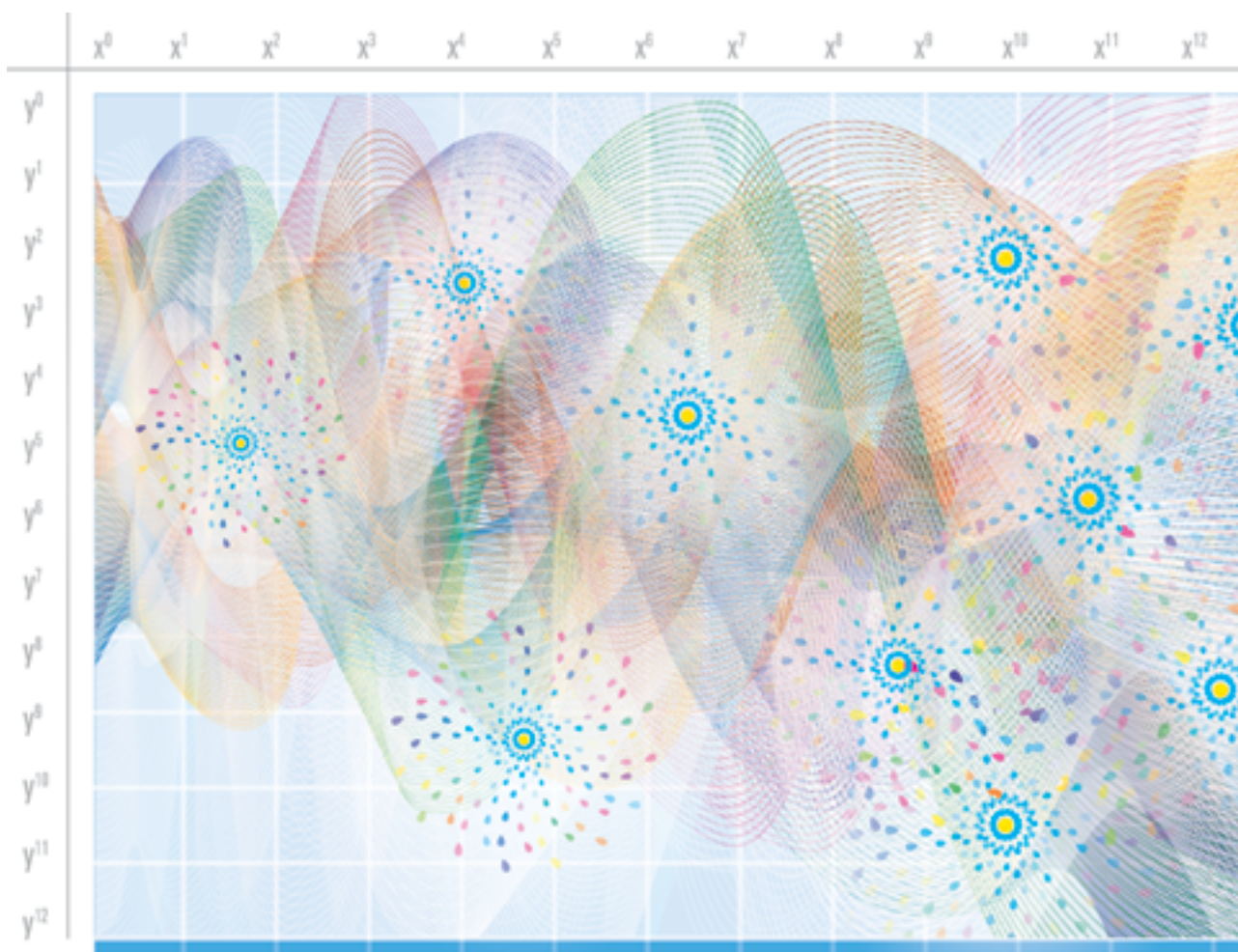




# How the Reading Brain Resolves the Reading Wars



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# THE READING BRAIN: Antidote To The “Reading Wars”

The invention of written language preserves the deepest forms of human thought; further, with no small cerebral ingenuity the act of reading propels and expands these very thoughts. Reading represents an example like few others of the brain’s protean design and its capacities to change itself to learn something new. In order to read, the human brain rearranges connections among its original parts—like language and vision—to create a new circuitry, which transforms the mind and the life of each reader, which contributes to the intellectual development of the species. Little could be more important for the formation of our young and for the advancement of our kind.

The stakes involved here are part of the reason why there has been the most unlikely of “wars” over what is the best way to teach reading—with a pendulum swinging with depressing regularity between advocates of phonics and “whole language” approaches

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*...with a pendulum swinging with depressing regularity between advocates of phonics and “whole language” approaches for centuries now.*

for centuries now. In this century, welcome resolution came from expert groups such as the National Reading Panel. They concluded their study of reading acquisition with a series of important insights that included some emphases from both approaches, alongside a recommendation that most children need early and explicit

emphases on being able to process the smallest sounds in language (phonemes) and on learning what are called letter-sound correspondence rules (decoding principles).

Over this summer, however, elements of this seemingly hydra-headed debate appear to have been “reignited” in recent articles and blogs involving the Washington Post. Little could be more unnecessary or worrisome for readers, teachers, and researchers, given the last decade of knowledge we now have about the reading brain. An understanding of several basic principles about how the brain learns to read renders any such debate anachronistic and, more importantly, points the way in education to more comprehensive

methods and practices. These principles of the reading brain’s design buttress conclusions from the National Reading Panel and expand them in illuminating ways.

## **Principle One.**

Human beings were never meant to read. Reading is a cultural invention. The “reading brain” represents the semi- miraculous capacity of the brain to form new circuits for cultural inventions from older, genetically programmed, component processes that make up vision, language, cognition, and emotional systems. Each component part is necessary for the whole circuit to function well enough to achieve expert reading. Teaching methods need to incorporate knowledge about each of these systems and how they work together to produce deep reading and deep thought.

## **Principle Two.**

Young readers have to create a whole new reading circuit out of these still developing component processes. There will be differences in the development of this circuit depending on the particular writing system and the child’s language environment. For example, although there are more similarities in reading circuits than differences across languages, Chinese readers have to develop more visual memory areas than English readers, who, in turn, will have to develop more areas that connect visual symbols to their corresponding sounds or phonemes. Further, some children come from linguistically rich environments with ample exposure to words and letters, while other children come from impoverished linguistic environments with insufficient input for language development, which is critical for reading. The point here is that unlike oral language there is no one unfolding reading circuit; rather, it has to be built up out of a great many component parts that are influenced by the oral and written language environment of the child.

## **Principle Three.**

The brain is masterful at “neuronal recycling”, a wonderfully apt term by cognitive neuroscientist Stanislas Dehaene. To build up the all the parts for the reading circuit, some neurons are reprogrammed to accomplish new tasks—like recognizing the fine features of letters or the larger units of re-occurring letter patterns. Making neurons originally programmed to recognize objects able to recognize letters requires a great amount of exposure time. Some children require more amounts than others, particularly struggling readers and children with dyslexia. This is an essential aspect of phonics-driven approaches, and should never be conceptualized as mere “drill”. The more exposure to specific visual features—from letters to letter patterns to letter units that possess meaning (e.g., morphemes like suffixes and roots of words)—the faster these visual features become activated and the faster connected to the rest of the circuit. This same principle applies to specific language aspects, like phonemes and larger units of sound.



**Principle Four.**

Connectivity is all, but it has to be learned. Letters, letter patterns, and morphemes must be connected to their corresponding sounds and blended into words; morphemes and words must be automatically connected to their often multiple meanings and associations, as well as to their grammatical uses. The more the young reader knows about words, and about how words function within sentences and stories, the faster this knowledge becomes activated, and the faster the circuit. All of this knowledge about words across varied literary contexts matters (an emphasis in whole language approaches) and increases the speed of connections. The entirety of this part of the circuitry—from visual recognition to semantic activation—needs to occur in less than one-half second, so that the children’s own background knowledge, feelings, and deep reading skills (like inference and critical thinking) can become part of the circuit, thus increasing the readers’ comprehension of the text and their ability to think in new and ever more analytical ways.

**Principle Five.**

Reading is ultimately about going beyond the text and going beyond ourselves. Thus, the goal of reading, as Marcel Proust wrote, is to “go beyond the wisdom of the author” to the reader’s own best thoughts. To get every young reader there, we need to work explicitly on the development of all the component parts (some not described here), their increasingly rapid connections among each other, and the readers’ understanding of the importance of their own critical and creative thought processes when encountering text.

Given these basic lessons from the continuously evolving knowledge about the reading brain, we who are the collective body of researchers of reading need to connect our work to each other’s, much like the reading circuit demonstrates to us. To spend another unnecessary moment discussing which part of this overall circuit is more important to teach than another is antithetical to our consensual goals for every child: nothing less than a highly connected brain poised to go beyond its own last thoughts. T.S. Eliot presciently remarked, “Look not into the hearts of man, look into the cerebral cortex”. We who study this cortex believe it has much to teach us, including why “reading wars” should be rendered obsolete by all of us. Reading is the consummate sum of the brain’s design. Our teaching of reading must reach for no less.

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