

## The Science of Reading: Introduction

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We're hearing a lot these days about the science of reading. This isn't the first time that questions have been raised about how research can be used to increase children's reading proficiency. Two early efforts with this aim were published in 1967: *The First-Grade Studies* and *Learning to Read: The Great Debate*. Since that time, several national reports have revisited the evidence, including *Becoming a Nation of Readers* (1985), *Preventing Reading Difficulties* (1998), and *The National Reading Panel's Report* (2000).

In the two decades since the National Reading Panel's report, many studies have been conducted on reading acquisition and development. Further, the speed and amount of information published has increased, making literacy demands higher than ever. Both researchers<sup>i</sup> and journalists<sup>ii</sup> have asked whether the apparent failure of many American students to attain the necessary literacy levels reflects a lack of evidence-based instruction at the beginning stages of reading.

As the 2020 Reading for Understanding report<sup>iii</sup> demonstrates, proficient comprehension depends on numerous factors. The science of reading and its instruction involves many research literatures—research on cognitive monitoring, background knowledge, writing, and engagement and motivation, to name only a few. But the message about the need for attention to the science of reading in designing reading instruction has been resoundingly about the early stages of reading. The research evidence related to the early stages of reading will be the focus in this series of short essays as well.

This focus on the early stages of reading does not discount the many other rich bodies of research on reading development and instruction. The bottom line, however, is that readers need to recognize the meaning of words in texts if they are to get meaning from text. The words in the following example were the ones that typical first graders in the bottom quartile read on an oral reading fluency assessment in a recent study;<sup>iv</sup> the white spaces represent words that these first graders did not recognize:

Trees are very tall plants. They come  
in                      and sizes.      all trees have the  
                         . The                      are the green                      of the tree.  
Some                      are big and                      .<sup>v</sup>

What students took away from this text was that trees are very tall plants. But without recognizing phrases and words such as *different shapes*, *same parts*, and *leaves*, the reading event was hardly one of making meaning of this text. Word recognition is not all there is to comprehending text, but it is a necessary foundation.

This series on the Science of Reading has five parts:

Part 1 answers the question: Why is the orthography of English so important in learning to read (and critical for teachers of reading to understand)?



Part 2 provides valuable insights from the science of reading on what is involved in acquiring reading or the curriculum of reading acquisition.

Part 3 deals with insights from the science of reading on *how* reading acquisition is fostered—that is, the instructional activities that support reading acquisition.

Part 4 reviews research on why several popular instructional practices are *not* helpful in promoting reading acquisition.

Part 5 identifies gaps in the science of reading that require the attention of researchers.

The videos and the essays communicate the same information, providing different means of studying how we can support our students to become the proficient and engaged readers they want and need to be in the digital-global age!

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<sup>i</sup> Seidenberg, M. (2017). *Language at the speed of sight: How we Read, Why so many can't, and what can be done about it*. Basic Books.

<sup>ii</sup> Hanford, E. (2018). Why are we still teaching reading the wrong way. *The New York Times*.

<sup>iii</sup> Pearson, P. D., Palincsar, A. S., Biancarosa, G., & Berman, A. I. (Eds.). (2020). *Reaping the Rewards of the Reading for Understanding Initiative*. Washington, DC: National Academy of Education.

<sup>iv</sup> Hiebert, E.H., Y. Toyama, & R. Irey (in press). Features of known and unknown words by first graders of different proficiency levels in winter and spring. *Education Sciences*.

<sup>v</sup> Good III, R. H., & Kaminski, R. A. (2011). Dynamic indicators of basic early literacy skills (next ed.) Dynamic Measurement Group.



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