

# Ending the Reading Wars: Reading Acquisition From Novice to Expert

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## Abstract

There is intense public interest in questions surrounding how children learn to read and how they can best be taught. Research in psychological science has provided answers to many of these questions but, somewhat surprisingly, this research has been slow to make inroads into educational policy and practice. Instead, the field has been plagued by decades of “reading wars.” Even now, there remains a wide gap between the state of research knowledge about learning to read and the state of public understanding. The aim of this article is to fill this gap. We present a comprehensive tutorial review of the science of learning to read, spanning from children’s earliest alphabetic skills through to the fluent word recognition and skilled text comprehension characteristic of expert readers. We explain why phonics instruction is so central to learning in a writing system such as English. But we also move beyond phonics, reviewing research on what else children need to learn to become expert readers and considering how this might be translated into effective classroom practice. We call for an end to the reading wars and recommend an agenda for instruction and research in reading acquisition that is balanced, developmentally informed, and based on a deep understanding of how language and writing systems work.

Learning to read transforms lives. Reading is the basis for the acquisition of knowledge, for cultural engagement, for democracy, and for success in the workplace. Illiteracy costs the global economy more than \$1 trillion (U.S. dollars) annually in direct costs alone ([World Literacy Foundation, 2015](#)). The indirect costs are far greater because the failure to attain satisfactory literacy blocks people from acquiring basic knowledge, such as understanding information about hygiene, diet, or safety. Consequently, low literacy is a major contributor to inequality and increases the likelihood of poor physical and mental health, workplace accidents, misuse of medication, participation in crime, and welfare dependency, all of which also have substantial additional social and economic costs ([World Literacy Foundation, 2015](#)). Low literacy presents a critical and persistent challenge around the world: Even in developed countries, it is estimated that approximately 20% of 15-year-olds do not attain a level of reading performance that allows them to participate effectively in life ([Organisation for Economic Cooperation and Development, 2016](#)).

Not surprisingly, then, there has been intense public interest for decades in how children learn to read. This interest has often been realized in the form of vociferous argument over how children should be taught to read—a period of exchange that has become known as the “reading wars” (for reviews, see [Kim, 2008](#); [Pearson, 2004](#)). Over many years, the pendulum has swung between arguments favoring a *phonics* approach, in which the sounds that letters make are taught explicitly ([Chall, 1967](#); [Flesch, 1955](#)), and a *whole-language* approach, which emphasizes the child’s discovery of meaning through experiences in a literacy-rich environment ([Goodman,](#)

1967; F. Smith, 1971). Most famously, [Goodman \(1967\)](#) characterized reading not as an analytic process but as a “psycholinguistic guessing game” in which readers use their graphic, semantic, and syntactic knowledge to *guess* the meaning of a printed word. More recently, a *three-cueing* approach (known as the Searchlight model in the United Kingdom) has become pervasive, in which beginning readers use semantic, syntactic, and “graphophonic” (letter-sound) cues simultaneously to formulate an intelligent hypothesis about a word’s identity (for discussion, see [Adams, 1998](#)). Debate around these broad approaches has played out across the English-speaking world.

The beginnings of the reading wars go back more than 200 years, when Horace Mann (then the Secretary of the Massachusetts Board of Education) rallied against teaching the relationship between letters and sounds, referring to letters as “skeleton-shaped, bloodless, ghostly apparitions” and asserting “It is no wonder that the children look and feel so death-like, when compelled to face them” ([Adams, 1990](#), p. 22; see also [Kim, 2008](#)). It was standard practice at that time to teach children to read in such a way that they learned the links between letters and sounds explicitly. This practice goes back to the 16th century ([Hart, 1569/1969](#); [Mulcaster, 1582](#)), but it became especially popular through Noah Webster’s “blue-backed spellers” (so called because of their blue binding) produced during the 18th and 19th centuries. In particular, *The American Spelling Book* ([Webster, 1787](#)) was continuously republished over the following century and became one of the best-selling books of all time ([Kendall, 2012](#)).

Today, research in psychological science spanning several decades has provided answers to many of the most important questions about reading. There is a rich literature documenting reading development and a large and diverse body of work on the cognitive processes that serve skilled reading in adults. Much of this evidence is highly relevant to the question of how reading should be taught and, pleasingly, it has been examined in comprehensive government reviews of reading instruction, including those conducted in the United States (e.g., the [National Reading Panel, 2000](#)), the United Kingdom (e.g., the Rose Review; [Rose, 2006](#)), and Australia (e.g., the Department of Education, Science and Training, or DEST; [Rowe, 2005](#)). These reviews have revealed a strong scientific consensus around the importance of phonics instruction in the initial stages of learning to read. The research underpinning this consensus was surveyed in an article published in this journal more than 15 years ago ([Rayner, Foorman, Perfetti, Pesetsky, & Seidenberg, 2001](#)). Yet this research has been slow to make inroads into public policy. Although some progress has been made relatively recently, most notably in the United Kingdom, there remains a very wide gap between the state of research knowledge about learning to read and the state of understanding in the public and in professional domains. Further, even where there is strong national guidance around reading instruction, implementation often devolves to the local level and is influenced by variations and biases in teacher training (see, e.g., [Buckingham, Wheldall, & Beaman-Wheldall, 2013](#); [Seidenberg, 2017](#)).

The quality and scope of the scientific evidence today means that the reading wars should be over. But strong debate and resistance to using methods based on scientific evidence persists (see, e.g., [Moats, 2007](#); [Seidenberg, 2017](#)). Why should this be the case? We believe that there have been two major limitations in the presentations of the scientific evidence in the public and professional domains. The first limitation is that, although there have been many reviews describing the strength of the evidence for phonics instruction (e.g., [Rose, 2006](#)), it is more difficult to find an accessible tutorial review explaining *why* phonics works. Our experience is that once the nature of the writing system is understood, the importance of phonics instruction in the initial stages of learning to read becomes obvious.

The second limitation is that there has not been a full presentation of evidence in a public forum about reading instruction that goes *beyond* the use of phonics. It is uncontroversial among reading scientists that coming to appreciate the relationship between letters and sounds is necessary and nonnegotiable when learning to read in alphabetic writing systems and that this is most successfully achieved through phonics instruction. Yet reading scientists, teachers, and the public know that reading involves more than alphabetic skills. To become confident, successful readers, children need to learn to recognize words and compute their meanings rapidly without having to engage in translation back to sounds. Therefore, it is important to understand how children progress to this more advanced form of word recognition and how teaching practice can support this. In addition, reading comprehension clearly entails more than the identification of individual words: Children are not literate if they cannot understand text. We believe that the relative absence of discussion of processes beyond phonics has contributed to ongoing resistance to the use of phonics in the initial stages of learning to read. That is, instead of showing how a foundation of phonic knowledge permits a child to understand and gain experience with text, this imbalance has allowed a characterization of phonics as “barking at print” (reading aloud robotically without understanding) to continue among educationalists (e.g., [Davis, 2013](#); [Samuels, 2007](#)) and public figures (e.g., [Rosen, 2012](#)).

We aim in this review to address these important omissions. We define the goal of reading as being able to understand text—a task of immense complexity (see [Box 1](#) for more detail on what we mean by reading)—and review what is known about how children achieve this goal. We then consider how reading should be taught to best support its development. Our article is structured in three major parts, spanning from children’s early experiences of mapping letters to sounds to the fluent text processing characteristic of expert readers. In the first part, we explain why cracking the alphabetic code is so central to learning to read in alphabetic writing systems such as English and why it forms the foundation for all that comes later. Our central message here is that *the writing system matters*. Although our review focuses primarily on reading in alphabetic systems, by providing a detailed account of the structure of different writing systems and the way in which they systematically map onto oral language, we aim to demystify the evidence about learning to read. In doing so, we hope to provide our readers with deep insight as to *why* particular teaching methods support initial reading acquisition.

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