

Examining the Research

Below are links and summaries for some of the research articles referenced in the miniseries on phonemes and phoneme awareness.

READING
MEETINGS

with Mark and Molly
Conversations Bridging

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Part 2: *Becoming Phonemic*

[Put reading first: The research building blocks of reading instruction](#) (CIERA, 2003)

This is a guide “designed by teachers for teachers” that summarizes the findings of the National Reading Panel Report. They frame the science of reading nicely at the beginning of the guide, saying, “Our understanding of ‘what works’ in reading is dynamic and fluid, subject to ongoing review and assessment through quality research. This guide begins the process of compiling the findings from scientifically based research in reading instruction, a body of knowledge that will continue to grow over time.” The section on phonemic awareness instruction has a nice summary of the different types of tasks and does a nice job of showing how print can be integrated into instruction.

[Ending the reading wars: Reading acquisition from novice to expert](#) (Castles, Rastle, & Nation, 2018)

This article provides a great review of the long history of research on the science of learning to read. They cover the skills and knowledge a child needs to acquire to become a skilled reader and implications for the classroom. Relevant to becoming phonemic there is a section beginning on page 10 that covers the importance of phonemic awareness.

[How psychological science informs the teaching of reading](#) (Rayner et al., 2001)

As Castles et al. (2018) wrote, “the state of the science of learning to read was reviewed comprehensively in this journal more than 15 years ago (Rayner et al., 2001). It is thus surprising and concerning that the reading wars continue. It is our hope that this review will contribute to ending these wars, so that a further examination of the status of this debate 15 years hence will not be required.” The article provides an important developmental perspective on reading that can be used to inform instruction. There is a thorough section on phonological awareness and the reciprocal relationship between knowledge of phonological structure and reading experience.

[The Gillon Phonological Awareness Training Programme](#) (Gillon, 2008)

This is a program based on intervention research that was conducted with 5- to 7-year-old New Zealand children with spoken language impairment. The materials have been modified for more general use. The handbook contains a variety of activities to target phonological awareness that can be done with individuals, small groups, or a whole class.

[Development of phonological awareness](#) (Anthony & Francis, 2005)

This article is relatively short and provides a quick overview of what research has discovered about phonological awareness (what it is, how it develops, and the effect experience with print has on it). This would be a great read for someone who is new to learning about phonological awareness and wants to get a quick lay of land.

[How does orthographic knowledge influence performance on phonological awareness tasks](#)

(Castles et al., 2003)

These experiments revealed that both adults and children experience automatic orthographic influences when completing phonological awareness tasks. Participants were less accurate and took longer to respond when the word in a task did not have straightforward correspondence between the letters and the sounds in the word. The authors caution that when looking at performance on phonological awareness tasks it is important to keep in mind that some of the association between performance and reading ability may be due to knowledge of spelling.

[Intrusion of orthographic knowledge on phoneme awareness: Strong in normal readers, weak in dyslexic readers](#) (Landerl, Frith, & Wimmer, 1996)

In this study middle school students heard words and were asked to delete a phoneme. Examples include: What do you get if you drop the first sound in BRUSH? What do you get if you drop the first sound in SWORD? What do you get if you drop the first sound in GHOST? For words like SWORD and GHOST the researchers found that the students often added in the sound of the silent letter when asked to delete the first sound and said /word/ and /host/ instead of /ord/ and /ost/. Their performance on an oral phoneme deletion task was influenced by their knowledge of spelling — demonstrating that there are no pure representations of the sounds of words in the brain. Our internal representations of phonology are intertwined with our knowledge of orthography.

[How does learning to read affect speech perception?](#) (Pattamadilok et al., 2010)

This study used transcranial magnetic stimulation to examine phonological and orthographic processing in the brain. The researchers found that knowledge of spelling changes the pre-existing neural representations of phonology (from experience with spoken language) in the brain. The results provide evidence that the representations of phonology in the brain are influenced by exposure to an alphabetic writing system and that awareness of phonemes results from experience reading.

[Reading differences and brain: Cortical integration of speech and print in sentence processing varies with reader skill](#) (Shankweiler et al., 2008)

This study used fMRI to examine how the brain represents speech and print and how much the two are integrated. They found that the speech and print are more integrated in more skilled readers than in less skilled readers.