
Controversies within the Science of Reading

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A growing number of researchers are criticising an overemphasis on auditory skills. Educators around the US have embraced the ‘Science of Reading’ in their classrooms, but that doesn’t mean there’s a truce in the reading wars. In fact, controversies are emerging about an important but less understood aspect of learning to read: phonemic awareness.

That’s the technical name for showing children how to break down words into their component letter sounds and then fuse the sounds together. In a phonemic awareness lesson, a teacher might ask how many sounds are in the word (cat). The answer is three: ‘k’, ‘a’ and ‘t’. Then the class blends the sounds back into the familiar sounding word: from ‘kuh-aah-tuh’ to ‘kat’. The 26 letters of the English alphabet produce [44 phonemes](#), which include unique sounds made from combinations of letters, such as ‘ch’ and ‘oo’.

Many schools have purchased scripted oral phonemic awareness lessons that do not include the visual display of letters. The oral lessons are popular because they are easy to teach and fun for students. And that’s the source of the current debate. Should kids in kindergarten or first grade be spending so much time on sounds without understanding how those sounds correspond to letters?

A [new meta-analysis](#) confirms that the answer is no. In January 2024, five researchers from Texas A&M University published their findings online in the journal *Scientific Studies of Reading*. They found that struggling readers, ages 4 to 6, no longer benefited after 10.2 hours of auditory instruction in small-group or tutoring sessions, but continued to make progress if visual displays of the letters were combined with the sounds. That means that instead of just asking students to repeat sounds, a teacher might hold up cards with the letters C, A and T printed on them as students isolate and blend the sounds.

Meta-analyses sweep up all the best research on a topic and use statistics to tell us where the preponderance of the evidence lies. This newest 2024 synthesis follows three previous meta-analyses on phonemic awareness in the past 25 years. While there are sometimes shortcomings in the underlying studies, the conclusions from all the phonemic meta-analyses appear to be pointing in the same direction.

“If you teach phonemic awareness, students will learn phonemic awareness,” which isn’t the goal, said [Tiffany Peltier](#), a learning scientist who consults on literacy training for teachers at NWEA, an assessment company. “If you teach blending and segmenting using letters, students are learning to read and spell.”

Phonemic awareness has a complicated history. In the 1970s, researchers discovered that good readers also had a good [sense of the sounds that constitute words](#). This sound awareness helps students map the written alphabet to the sounds, an important step in learning to read and write. Researchers proved that these auditory skills could be taught, and early studies showed that they



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Many schools ignored the Reading Panel's recommendations and chose different approaches that didn't systematically teach phonics or phonemic awareness. But as the Science of Reading grew in popularity in the past decade, phonemic awareness lessons also exploded. Teacher training programs in the Science of Reading emphasised the [importance of phonemic awareness](#). [Companies sold phonemic programs to schools](#) and told teachers to teach it every day. Many of these lessons were auditory, including chants and [songs without letters](#).

Researchers worried that educators were overemphasising auditory training. A 2021 article, '[They Say You Can Do Phonemic Awareness Instruction "In the Dark", But Should You?](#)' by nine prominent reading researchers criticised how phonemic awareness was being taught in schools.

Twenty years after the Reading Panel's report, a [second meta-analysis came out in 2022](#) with even fresher studies but arrived at the same conclusion. Researchers from Baylor University analysed over 130 studies and found twice the benefits for phonemic awareness when it was taught with letters. A [third meta-analysis](#) was presented at a poster session of the 2022 annual meeting of the Society for the Scientific Study of Reading. It also found that instruction was more effective when sounds and letters were combined.

On the surface, adding letters to sounds might seem identical to teaching phonics. But some reading experts say phonemic awareness with letters still emphasises the auditory skills of segmenting words into sounds and blending the sounds together. The visual display of the letter is almost like a

subliminal teaching of phonics without explicitly saying, "This alphabetic symbol 'a' makes the sound 'ah'." Others explain that there isn't a bright line between phonemic awareness and phonics, and they can be taught in tandem.

The authors of the latest 2024 meta-analysis had hoped to give teachers more guidance on how much classroom time to invest on phonemic awareness. But unfortunately, the classroom studies they found didn't keep track of the minutes. The researchers were left with only 16 high-quality studies, all of which were interventions with struggling students. These were small-group or individual tutoring sessions on top of whatever phonemic awareness lessons children may also have been receiving in their regular classrooms, which was not documented. So, it's impossible to say from this meta-analysis exactly how much sound training students need.

The lead author of the 2024 meta-analysis, Florina Erbeli, an education psychologist at Texas A&M, said that the 10.2 hours number in her paper isn't a 'magic number'. It's just an average of the results of the 16 studies that met her criteria for being included in the meta-analysis. The right amount of phonemic awareness might be more or less, depending on the child.

Erbeli said the bigger point for teachers to understand is that there are diminishing returns to auditory only instruction and that students learn much more when auditory skills are combined with visible letters.

I corresponded with Heggerty, the market leader in phoneme awareness lessons, which says its programs are in 70% of US school districts. The company acknowledged that the Science of Reading has evolved and that's why it

could be taught as a [purely oral exercise without letters](#).

But science evolved. In 2000, the National Reading Panel outlined the five pillars of evidence-based reading instruction: phonemic awareness, phonics, fluency, vocabulary and comprehension. This has come to be known as the Science of Reading. By then, more studies on phonemic awareness had been conducted and oral lessons alone were not as successful. The Reading Panel's meta-analysis of [52 studies](#) showed that phonemic awareness instruction was almost twice as effective when letters were presented along with the sounds.

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revised its phonemic awareness program in 2022 to incorporate letters and introduced a new program in 2023 to pair it with phonics. The company says it is working with outside researchers to keep improving the instructional materials it sells to schools. Because many schools cannot afford to buy a new instructional program, Heggerty says it also explains how teachers can modify older auditory lessons.

The company still recommends that teachers spend 8 to 12 minutes a day on phonemic awareness through the end of first grade. This recommendation contrasts with the advice of many reading researchers who say the average student doesn't need this much. Many researchers say that phonemic awareness continues to develop automatically as the child's reading skills improve without advanced auditory training.

NWEA literacy consultant, Peltier, whom I quoted earlier, suggests that phonemic awareness can be tapered off by the fall of first grade. More phonemic awareness isn't necessarily harmful, but there's only so much instructional time in the day. She thinks that precious minutes currently devoted to oral phonemic awareness could be better spent on phonics, building vocabulary and content knowledge through reading books aloud, classroom discussions and writing.

Another developer of a [phonemic awareness program](#) aimed at older, struggling readers is David Kilpatrick, Professor Emeritus at the State University of New York at Cortland. He told me that five

minutes a day might be enough for the average student in a classroom, but some struggling students need a lot more. Kilpatrick disagrees with the conclusions of the meta-analyses because they lump different types of students together. He says severely dyslexic students need more auditory training. He explained that extra time is needed for advanced auditory work that helps these students build long-term memories, and the meta-analyses didn't measure that outcome.

Another reading expert, Susan Brady, Professor Emerita at the University of Rhode Island, concurs that some of the more advanced manipulations can help some students. Moving a sound in and out of a word can heighten awareness of a consonant cluster, such as taking the 'l' out of the word 'plant' to get 'pant', and then inserting it back in again. But she says this kind of sound subtraction should only be done with visible letters. Doing all the sound manipulations in your head is too taxing for young children.

Brady's concern is the misunderstanding that teachers need to teach all the phonemes before moving on to phonics. It's not a precursor or a prerequisite to reading and writing. Instead, sound training should be taught at the same time as new groups of letters are introduced. "The letters reinforce the phoneme awareness, and the phoneme awareness reinforces the letters," said Brady, speaking at a 2022 teacher training session. She said that researchers and teacher trainers need to help educators shift to integrating

letters into their early reading instruction. "It's going to take a while to penetrate the belief system that's out there," she said.

I once thought that the reading wars were about whether to teach phonics. But there are fierce debates even among those who support a phonics-heavy Science of Reading. I've come to understand that the research hasn't yet answered all our questions about the best way to teach all the steps. Schools might be over-teaching phonemic awareness. And children with dyslexia might need more than other children. More importantly, the Science of Reading is the same as any other scientific inquiry. Every new answer may also raise new questions as we get closer to the truth.

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