Why Phonics Teaching Must Change

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Phonics instruction can become more engaging and effective if we teach students to write words before they read them.

Students enter school eager, vulnerable, and excited about learning. But too soon, many find themselves struggling with reading. Because reading is key to success in school, poor readers face a trajectory of failure and decreasing motivation: Students who are not at least moderately fluent in reading by 3rd grade are unlikely to graduate from high school (Slavin, Karweit, Wasik, Madden, & Dolan, 1994).

Young learners need to feel successful and empowered. But I have observed many 1st grade classrooms as a researcher and consultant, and reading instruction in a typical 1st grade class reveals a number of problems that can lead to frustration and reluctance. Too many precious minutes are spent waiting for another student to respond, working with material that's either too easy or too difficult, or doing unproductive, boring activities.

Can reading instruction become more efficient, fun, and successful? Indeed it can. In fact, recent brain research suggests that phonics instruction must change, because early instruction determines how the brain organizes itself for reading.

Many studies have established that phonemic awareness (the ability to identify the individual sounds in words) and phonics (the representation of those sounds with letters) are essential for skilled reading (Adams, 1994; Ehri, 2004; Torgesen et al., 2001). In an effort to insert phonics back into the curriculum for early readers, publishers have created curriculums containing worksheets and scripted lessons that introduce phonics in a tedious and unproductive way. But phonics instruction does not have to be tedious. It can be joyful and meaningful.

Louisa Moats (1998) put her finger on a crucial problem:

One of the most fundamental flaws found in almost all phonics programs, including traditional ones, is that they teach the code backwards. That is, they go from letter to sound instead of from sound to letter.... The print-to-sound (conventional phonics) approach leaves gaps, invites confusion, and creates inefficiencies. (pp. 44–45)
If Moats’s words had been taken to heart, phonics instruction today would focus on students constructing words before trying to read them—as I believe it should.

Recent research by neuroscientists and cognitive scientists provides ample data to support this turnaround (Aylward et al., 2003; Ehri, 2002; Simos et al., 2002). These studies point to the fact that the foundation of reading is speech and that the organization of reading skills in the brain must be built on this foundation.

Phonemes are not processed by the auditory system alone; they are articulated sounds. The powerful motor system of speech sequences and remembers phonemes. (How do you remember a phone number until you can write it down? You say it to yourself.) The process of learning to read should start with students constructing words—because this process requires them to pronounce words first.

What does pronunciation have to do with reading? Linnea Ehri (2002) shed light on how readers can look at thousands of words and instantly recognize their meaning. According to Ehri, the sight of a word triggers its pronunciation, and it is this pronunciation that has been stored in memory for convenient access along with the meaning of the word. Our lips may not be moving when we read, but our brains are "talking." Ehri’s studies show that trying to recognize thousands of words from their visual appearance alone (pattern recognition) is almost impossible. Speech memory is the key.

What Brain Research Shows

Because reading is a relatively new human skill, evolutionarily speaking, the brain is not preorganized for reading. It has to figure out how to organize this new information—where to store the different elements involved in reading and how to connect them instantly. Genetics plays a role here, as does the brain’s response to injury or illness. But for most children, their first experiences with letters and words dictate how the brain establishes neural networks that may become habitual pathways as reading skills develop.

Sally Shaywitz (2003) and others have determined with functional magnetic resonance imaging (fMRI) and magnetoencephalography (MEG) imaging technology that these networks are composed of three essential elements of reading: the pronunciation, meaning, and visual appearance of words. In good readers, these elements are typically stored in the left hemisphere; this connects the new visual experiences to areas already devoted to speech and comprehension.

Other studies (Aylward et al., 2003; Simons et al., 2002) have shown that dyslexics tend to activate right-hemisphere areas at some neural distance from where speech and comprehension reside in the left hemisphere. When dyslexic learners receive intense phonemically based intervention, however, as reading improves this activation tends to move to the left hemisphere, looking more like the activation pattern typical of strong readers. This finding suggests that early reading instruction can profoundly affect how the brain organizes this skill.
Decoding and Encoding

There are two ways to provide systematic instruction in phonemic awareness and phonics: decoding (reading words) and encoding (constructing words). Each approach involves a very different sequence of brain activation. To read an unfamiliar word, such as *cat*, a reader would go through the following sequence using decoding (moving from print to speech):

1. Look at the first letter, *c*. What sound does it make? Do the same with *a* and *t*.
2. Blend the sounds together. Does it sound like a familiar word?
3. If the learner successfully pronounces *cat*, he or she will, finally, recognize its meaning. (Oh! That word is *cat*.)

In contrast, to write *cat* using encoding (speech to print), a beginning reader goes through this sequence:

1. Access the word's meaning (activating speech and comprehension).
2. Pronounce the word and segment the sounds (analyzing articulation).
3. Remember which letter stands for the sound /c/? (and /a/ and /t/).
4. Assemble *c*, *a*, and *t* into *cat*.
5. Read what is written.

Several points about decoding make it a less-than-ideal place to begin reading instruction:

- Visual processing is activated first. A reader relies on analyzing and recognizing patterns, contours, shapes, and configurations (typically right-hemisphere processes). The reader achieves pronunciation and meaning only after successful visual analysis.

- Retrieval of knowledge about the alphabet code involves letter-to-sound associations. This process involves visually deconstructing a word that has already been written by someone else; often these words use more advanced rules of spelling or break the rules. When a student is trying to learn the alphabetic principle, it's confusing to encounter exceptions.

- Instructional activities tend to be divorced from meaningful experiences with text. Exercises often involve visually analyzing lists of unrelated words or sentences, such as counting phonemes, underlining blends and digraphs, or copying sentences from the board. Such activities do not elicit the joy of personal construction. They reinforce dependency on the teacher rather than independent learning.

For the following reasons, encoding instruction is a more powerful place to start:

- Pronunciation and meaning are immediately activated because the reader must pronounce the word he or she wants to build, either silently or aloud (which typically involves left-hemisphere processing).

- The reader segments phonemes primarily by using the motor system of speech, with its superior capability for sequencing and memory.
Retrieval of knowledge about the alphabetic code involves articulated sound-to-letter associations.

Activities involve meaningful interactions with text—primarily assembling letter tiles or using a keyboard, magic slate, or pencil to write dictated words or sentences. The teacher guides instruction of encodable consonant–vowel–consonant words in a systematic way so students gradually build up a repertoire of the 40 letters and digraphs that represent the basic phonemes in English. Neural networks for these 40 paired associations will thus be laid down consistently without the confusion of dealing with more complex spelling patterns. Writing becomes an efficient route to early reading rather than a separate subject.

These activities are empowering. Mastering the code enables a student to write any word. Even if the student does not spell a word perfectly, someone can usually read it. Successful communication makes clear to the student how words get on paper and what reading and writing are all about.

Students are generally eager to read what they have written. Encoding and decoding are both important, and students will have a better chance of developing decoding skills without frustration if they start by reading "decodable" (regularly spelled) words that they themselves have written. If letters are scrambled or missing, the teacher should give a mini-lesson about correcting the initial encoding.

Dealing successfully with written language as a writer or reader—the task of literacy—requires automatic skill with the alphabetic code. Practice with encoding enhances facility with decoding; they are two halves of the same learning task.

How Instruction Should Change

If encoding instruction truly results in greater phonemic awareness and skills, is more likely to activate speech memory and left-hemisphere processing, and is more efficient and engaging, then why do teachers spend so few minutes of each language arts hour encoding? Why not tip the balance toward more encoding? The activities that build phoneme awareness, such as rhymes, songs, and games that manipulate sounds in words, usually happen in kindergarten and continue into 1st grade for students who have difficulty identifying sounds. All children love to hear books read aloud and have conversations about the pictures and the stories—an essential preparation for reading and writing. When the alphabet is introduced, encoding should come to the fore so that children don't start to lean heavily on visual pattern recognition.

It doesn't take long for most children to master the 40 phonemes and their corresponding graphemes. If a teacher introduces three or four phonemes each week at the beginning of 1st grade, the entire 40 can be covered by Christmas. The teacher needs to pay attention to the natural pace of the class and to which students may require more practice to build automaticity and fluency. Once students have mastered phoneme awareness and the alphabetic code, language arts time can become a balance of reading and writing.
In addition to more time encoding, I suggest these seven changes in phonics instruction.

1. **Deemphasize the names of letters.** The only characteristic of a letter that is relevant to reading or writing is its sound. We should refer to letters more frequently by their sounds than by their names. The most frequent spelling error in 1st grade is the confusion of the name of a letter with its sound, such as "rm" for *arm* and "nhr" for *nature*.

2. **Stop counting phonemes.** If children are assembling letter tiles, writing, or using a computer to make words, they simply need to associate a letter (or letters) with each sound their mouth makes as they pronounce the word.

3. **Have students pay attention to their mouth movements.** Explain how the mouth strings sounds together like beads on a string. The more students pay attention to what their mouths do when they make a speech sound, the more likely they are to remember the association of sound to letter.

4. **Systematically teach one way to represent each of the basic 40 sounds.** There are thousands of encodable words students can sound out and spell with these—even big words, like *fantastic*.

5. **Avoid having students copy sentences.** Some curriculums instruct the teacher to write designated sentences on the chalkboard and have students copy each sentence, sometimes filling in a blank space with any word from a list. Students can accomplish this task mindlessly. They may remember the visual appearance of some words, but that won't aid long-term memory. Students are not using the code at all, merely practicing penmanship and copying. If we dictated phrases or sentences, students would activate verbal memory, pronounce the words silently, apply the alphabetic code, and produce the words without having to look back and forth at the board.

6. **Move beyond visually identifying blends and digraphs.** Some curriculums have teachers write a list of words on the chalkboard and ask a volunteer to identify a consonant blend in each word: 19 children wait, while Johnny tries to visually analyze a word like *flip* and figure out the blend. How does naming and identifying *fl* as a "consonant blend" help Johnny? Instead, Johnny could encode and write the word *flip*. If he fails to hear and feel the fact that his mouth has made two sounds, the teacher could say, "Say it again and feel what your mouth does after you say /f/." Johnny would then learn the concept of blending physically and store it in his brain with information about pronunciation. Similarly, underlining digraphs does not activate the crucial link between the letters and the articulated sound. It makes more sense to introduce digraphs systematically as part of the set of symbols that represent the 40 speech sounds.

7. **Encourage spelling by analyzing sounds.** When students ask how to spell a word, the reply should be "Sound it out!" If a student can't identify a sound, help that learner by pointing out that his or her mouth is moving differently to make the sound. Teachers can help correct the most commonly misspelled words, but they should introduce spelling rules and "outlaw words" gradually as students become fluent with the code.
Research on Encoding

Most studies of phonics instruction have primarily examined decoding instruction (Foorman, Francis, Fletcher, Schatschneider, & Mehta, 1998; Torgesen et al., 2001). In one study that did examine encoding instruction, Torgesen (2004) studied 1st graders identified as at risk for reading failure. In small groups, students received instruction using two different methods. One method focused students' attention on what their lips and mouth were doing as they produced speech sounds. The other, using primarily encoding instruction, systematically introduced the 40 phonemes and taught children to associate sounds with finger strokes on a computer keyboard to find the corresponding letters, and to type dictated words and sentences.

Students in both groups showed significant gains (of two full standard deviations) in phonemic reading skills, particularly on word-attack and word-recognition skills. Their gains for fluency were almost as strong as those for accuracy. Reading comprehension scores were higher than expected on the basis of the students' estimated general verbal ability.

We need more discussion about and more research into the advantages of incorporating more encoding into early reading instruction. The "reading wars" still rumble below the surface. Teachers who honor joyful learning, construction, and discovery are naturally put off by worksheets and counting phonemes. But throwing out phonics is not the solution. Instead, phonics instruction should be changed to produce more successful readers.

References


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