The Importance of Phonemic Awareness in Learning to Read
by Wesley A. Hoover

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Phonemic awareness is a critical skill for learning to read an alphabetically written language. Yet a fair amount of confusion, especially among educators, persists about what this skill is and why it is so important. Written for practitioners, this article
 describes phonemic awareness and discusses why it is a prerequisite for learning to read, how we have come to understand its importance, why it can be difficult to acquire, and what happens to the would-be reader who fails to acquire it. Our discussion of phonemic awareness is framed within a particular view of reading, to which we turn first.

**What is reading?**

Reading, or more precisely reading comprehension, is the ability to derive meaning, particularly that intended by the author, from the printed word Ñ in short, reading is understanding the meaning of written language. The major difference between the written and the spoken word is not what is being communicated, but how the communication is taking place, by eye rather than ear. In this simple view, reading is dependent on two major cognitive capacities. The first is comprehension, the ability to understand language. The second is decoding, the ability to derive a words’ phonological representation (one based in the domain of spoken words) from the sequences of letters that represent it. Skilled decoding allows the reader, through print, to retrieve the meaning of words known and organized through the learning of spoken language. Together, decoding and comprehension skills combine to permit language comprehension to take place via the printed word.

To foreshadow the discussion to come, while phonemic awareness is a linguistic skill, it is not a skill that is needed either for learning, or subsequently for understanding, language. Certainly, every competent speaker of a language has mastered its phonology. But since language learning is a tacit process, one that takes place without conscious attention, that mastery comes without the need for an explicit, conscious understanding of phonology. However, for learning to read, specifically for learning to decode, a conscious understanding of the phonological units underlying the spoken word is critical.

What is phonemic awareness?

Phonemic awareness is a cognitive skill that consists of three pieces. The first piece concerns a linguistic unit, the phoneme; the second concerns the explicit, conscious awareness of that unit; and the third involves the ability to explicitly manipulate such units. Phonemic awareness is thus the ability to consciously manipulate language at the level of phonemes. Let’s take each of these in turn.

A phoneme is an abstract linguistic unit, defined as the most basic unit of language capable of making a difference in meaning. As an example, the difference between the word pairs (each containing 3 phonemes) bit and pit, bat and bet, bin and bid, is a single phoneme, one occurring in these examples in the initial, medial, or final position, respectively, of the spoken word.

Phonemes are abstract because they are not the actual sounds of which words are composed; these are known as phones. Rather, they are the underlying category of which the phones are members. To illustrate this, think of how the sound represented by the letter p is different in the words pan and span. To make this readily apparent, hold your hand close to your mouth and notice that the puff of air that is released when saying the former is much stronger than that released with the latter. The puff, known as aspiration, is not distinctive in English, in that there are no pairs of words where this single difference in aspiration marks a difference in meaning. In short, these two sounds (or phones) are different, yet they represent the same underlying category (or phoneme). As we will see, the abstract nature of phonemes presents one of the obstacles a child must overcome in developing phonemic awareness.

It is also important to recognize that phonemes are linguistic units and not units of writing systems. Thus, while bit, bait, butte, and bought all differ in the number of letters they possess, they each represent words containing only three phonemes, which differ only in their second phoneme. Beyond the phonemic unit, the second piece of the phonemic awareness concept entails the explicit, conscious awareness of these units. Any child who has learned a language knows the phonemes of that language if she did not, she could not recognize the difference between spoken minimal pairs in that language, like bit and pit. But being able to use that linguistic difference in speaking and listening to language is very different from knowing explicitly that the difference being used is in the initial part of the word. This explicit knowledge is the metalinguistic nature of the skill, or the ability, to consciously reflect upon the linguistic units that underlies language.

More than just being conscious of the phoneme, the third piece of the phonemic-awareness concept requires some level of skill in manipulating phonemes. In learning to read an alphabetic language, it is not enough just to be aware of the phonemic units, the child also must be able to manipulate those units. Such manipulation is important because the child learning to read must be able to hold and contrast in memory both the phonemes and the letter strings that represent them. If she cannot, she will not be able to master the relationship between the letter units and the phonemic units. In learning to read, the child must be able to isolate, compare, and contrast phonemes and letter sequences Ñ for example, noting that the final phoneme in both bit and bought is the same, but that one is represented by a single letter and the other by three letters.

To sum up, the three pieces of phonemic awareness are knowledge of language at the level of individual phonemes, knowledge
 of these language units that is conscious, and skill at consciously manipulating language at this level.

**Why is a linguistic skill that is not needed to learn language so critical for learning to read a language?**

As mentioned earlier, phonemic awareness is not necessary for reading all written languages, only those that are alphabetic.
 For instance, writing systems that use logographic representations (where a single symbol represents a word) do not require would-be readers to possess phonemic awareness. But any system that links written letters to the phonemes underlying the spoken word requires phonemic awareness, because the would-be learner cannot connect the units underlying the written word (the letters) with the units underlying the spoken word (the phonemes) unless she is consciously aware of both and has the intent to learn the relationship between the two (known as the alphabetic principle). Thus, if you know the letters and you know there is some relation between the letters and the spoken word, but you do not know the units underlying the spoken word,
 then you will not be able to figure out what the relationship is between the two representations.

To summarize, knowledge of phonemes is critical to learn a language, but language learning is an unconscious process that only requires immersion in an active linguistic environment; explicit instruction is not necessary. In accomplishing this remarkable feat, the child’s language learning system responds to information at the phonemic level without the need for conscious awareness of that level. Learning to read that language, if it is represented alphabetically, does require explicit knowledge of the phoneme since, unlike learning language, learning to read is a process that requires more specific skill instruction.

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| Terms Often Confused with Phonemic Awareness |
| **Phonics:** An instructional approach for helping children learn the relationship between letters and sounds. |
| **Phonetics:** The process used by linguists to describe the speech sounds in natural language. |
| **Phonology:** The linguistic component of language that deals with the systems and patterns of sounds that occur in languages (distinguished from the other two components of language, which are syntax and semantics). |
| **Phonological awareness:** A general term for metalinguistic awareness of any of the phonological characteristics of language, including phonemic units, syllables, rimes, and words. |

**How do we know that phonemic awareness is critical for learning to read?**

Much research, conducted under a variety of research designs, converges on the conclusion that phonemic awareness is critical for learning to read in alphabetic languages. First, there is evidence from concurrent correlations, which are derived from research designs that simply measure two skills in a sample of students at roughly the same point in time and then determine how those skills vary with each within the student sample. For example, a typical design might use all the first-grade students in a school as a sample, measuring each student’s phonemic awareness skill and reading skill at the end of first grade. Positive correlations between these two measures exist when, in general, students with better performance on one skill (phonemic awareness) also have better performance on the other skill (reading) and vice versa (that is, when students with poorer performance on one skill also have poorer performance on the other skill). Such positive correlations are generally found when both phonemic awareness and reading skills are measured in the early elementary grades. This same positive relationship has been found whether reading skill was measured as skill in reading individual words, skill in reading letter sequences that do not form real English words but are constructed like English words (for example, the pseudo-word: splure), or skill in reading connected text where fluency or comprehension were measured. These correlations are consistent with a causal relationship between the two variables, where skill in one is the cause for the development of skill in the other, but they do not guarantee that the variables are causally linked (indeed, there might be a third variable that is causing the development in the other two skills). Nor, even if causally linked, do these correlations specify the direction of causation (that is, does phonemic awareness cause the reading skill or is it the other way round?).

Even more suggestive evidence comes from a closer look at the distributions between phonemic awareness and reading skills concurrently measured. If you plot skill in phonemic awareness against skill in decoding (measured as reading individual pseudo-words), you find triangular distributions. In these distributions, there are many instances of either low skill in both domains or high skill in phonemic awareness coupled with either low or high skill in decoding. However, there are no instances of low skill in phonemic awareness and high skill in decoding. This pattern suggests that phonemic awareness is a necessary, but not sufficient, requirement for skill in decoding. That is, you must have skill in phonemic awareness if you are to acquire skill in decoding, but having skill in phonemic awareness is no guarantee for successful development of skill in decoding. To get the latter, you need something in addition to phonemic awareness (you also need knowledge of the letters and of the alphabetic principle, plus lots of practice pairing written and spoken words).

*Predictive correlations*, derived from research designs where phonemic awareness is measured at one point in time and reading skill is measured at some subsequent point in time, are even more suggestive of causal relationships. Many studies report such correlations, where the time lag between the measure of phonemic awareness and the subsequent reading skill (measured either as decoding or reading comprehension skill) ranges from very small (a matter of months) to very large (a matter of many years). While providing stronger evidence than concurrent correlations do, these results could still appear even when the two variables were not causally related. For instance, as in concurrent correlations, there could be a third, unmeasured factor that is the cause underlying the development of both skills, where the two skills themselves are not at all causally linked.

There are no instances of low skill in phonemic awareness and high skill in decoding.

The strongest evidence for a causal relationship between phonemic awareness and reading comes from training studies. In the typical training study design, children who lack phonemic awareness skills are randomly divided into different groups, one receiving training designed to develop phonemic awareness skill and the other receiving training designed to develop a skill that is unrelated to reading (say, a mathematical skill like counting). After training, the different groups are given the same reading instruction, and one looks to see whether those groups that received phonemic awareness training in fact do better in both assessments of phonemic awareness and reading than those who did not. Many studies like this have now been conducted, and the majority of them report that the groups receiving phonemic awareness instruction subsequently did much better in reading development than those who did not receive such training.

Now it is true that reading by itself does advance skill in phonemic awareness Ñ reading practice advances reading skill, and the more skill in reading, the more skill in phonemic awareness. This indicates a reciprocal relationship between phonemic awareness and reading, where skill in one supports development of skill in the other and vice versa. But the critical question is whether some amount of skill in phonemic awareness is critical before skill in reading can advance; the evidence suggests (especially that from training studies) the answer to this question is yes.

**Why is phonemic awareness so difficult for some children to acquire?**

Current research suggests that most children who enter school at kindergarten do not come skilled in phonemic awareness. Research also suggests that if there is no explicit instruction in this skill, many will fail to acquire it. Further, for some small percentage of young people, even explicit training is insufficient to guarantee the development of phonemic awareness. So what is known about the reasons behind the difficulty in acquiring phonemic awareness?

First, as discussed above, phonemes are abstract, they cannot be isolated and presented to the child as objects. When we explain to a child that the first sound in bug is "buh," what we are actually pronouncing is neither abstract (for abstract things are by definition unpronounceable) nor something related to a single phoneme. In fact, what we are saying is a syllable, one that has two phonemes underlying it. Thus, one difficulty in developing phonemic awareness is that it is not possible to explicitly state to the child what she must become aware of, rather we can only lead her to try to induce for herself what must be acquired.

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| Some Examples of How Phonemic Awareness Skill is Demonstrated |
| **Isolation**: Say the first part of the word song; say the middle part of hop; say the last part of stick.**Deletion:** Say the word pies without the first part.**Addition:** Say the word you have when you add the sound s to the beginning of the word top.**Categorization:**Say the word that does not belong in this group of words: pig, pack, top, put.**Substitution:** Say the word you make when you take out the 2nd part of *stop* and replace it with the 2nd part of *lake*.**Segmentation:** Say how many parts there are in the word build. |

 Second, the sound units that are transmitted in speech that are derived from the underlying abstract phonemes do not arrive at the ear in a strict serial order. Rather the information that allows the hearer to detect the first sound in a word generally comes overlapped with information about the subsequent segment in the word Ñ linguistic information is transmitted in parallel. As an example, if we recorded our speaking of the word bug and then, starting at the end of the tape segment, cut off successive pieces and played what was left, we would never be able to isolate a piece of the tape representing only the initial phoneme of the word. Rather, the best we would come away with would be some resemblance of the first two sounds of the word. This is true because the positions of the articulators (those things we use to produce speech, like our tongue and jaw) are set to reflect both the beginning and subsequent sounds that are to be made. You can get a sense of this for yourself by noting the position of your lower jaw as you begin to say bug and bought. In the latter example, the lower jaw is lowered from the outset to prepare for the pronunciation of the vowel that follows. These co-articulation effects result in the parallel transmission of linguistic information. And this poses a significant problem for acquiring phonemic awareness, for in many cases we cannot isolate even the initial sound (phon-) that is a member of the phonemic category the child is attempting to become aware of. Again, the best we can do is to set conditions where the child will induce the phonemic category we are trying to have her attend to.

Third, what we are asking the child to do is counterintuitive. For the child learning language, meaning has been paramount, while the forms in which the meaning is represented have been unimportant, they are merely the medium, which is to be ignored in favor of the message. With phonemic awareness, we are asking the child to focus attention in the opposite fashion, ignoring meaning and attending only to form. Each of these features of language make difficult the task of acquiring the awareness of phonemes, but there are instructional approaches that can be helpful.

**What happens if a child does not acquire phonemic awareness?**

For the child having difficulty acquiring phonemic awareness, the prognosis is not good. First, such a child is not able to take advantage of the alphabetic principle. She might know the letters, even that the letters are somehow connected to the spoken word, but without phonemic awareness, she is baffled by what that relationship might be.

Second, we know that exposure to print is important for figuring out the relationships between letters and phonemes. With the prerequisites in hand (namely, knowledge of the letters, phonemes, and the alphabetic principle), the greater the opportunity to pair printed and spoken words, the greater the opportunity to learn the relationship between letters and phonemes. The child who lacks these prerequisites cannot take advantage of such opportunities, and print exposure is no longer efficacious for learning to read.

Third, we know that if the child is not making progress in reading by the third grade, there is very little likelihood that she will ever, regardless of the intervention used, be able to read at the same level as her same-age peers. Our challenge as educators is thus to do all that we can to make sure our students are making early progress, including mastering phonemic awareness early in their school careers. This is something that can be achieved, if only we understand what must be done and provide appropriate support mechanisms to help teachers master those techniques that can best help their students master this (and other) skills.

http://www.sedl.org/pubs/sedl-letter/v14n03/3.html