

Teach Students *How Words Work* and Lay the Foundations for Literacy Success

English is a complex language to learn to read and spell but despite what many people believe it is not an illogical language. How many times have students asked why a word is spelled the way it is, only to be told "that's just how it is - there's no logic to English!" Unfortunately, this kind of answer does not reflect how written English works; it reflects how little the speaker really knows about how written English works.

Can you answer these questions?

- Why does *fitter* have two ts but *later* only one?
- Why is the 'k' sound written with a c in *cattle* but a k in *kettle*?
- Why is the 'ch' sound written *ch* in *peach* but *tch* in *fetch*?
- Why do the words *bridge*, *badge*, *hedge* and *fudge* end in *dge* but *stage*, *huge* and *page* end in *ge*?
- Why is the long 'a' sound written *ea* in *great* and *ai* in *train* but *ay* in *play* and *ey* in *they*?
- Why do you write the 'oy' sound with an *oy* in *enjoy*, *voyage*, *toy* but with an *oi* in *ointment*, *voice*, *toil*?

Many teachers know very little about how written English works because they have not been taught about it. How can teachers explain concepts to students if they do not have the knowledge themselves? If students were to ask one of the questions above and the teacher could not explain the reason behind the way the word is written, chances are the student will be told, "That's just how that word is written, put it in your spelling list and learn it this week." Wouldn't it be better to be able to explain, for example, that the 'oy' sound is usually written *oy* when it is at the end of a syllable and *oi* when it is at the start or in the middle of a syllable? Armed with this knowledge the student will then know how to spell this sound in hundreds of words, rather than just the one that they put into their weekly spelling list.

In order to teach students *how words work* in written English, teachers must have this knowledge themselves. Teachers need to be able to analyse spelling and reading errors to discover the nature of students' errors to inform instruction. In order to do this, they need an in-depth knowledge of the language itself (Treiman, 1998). There is concern in many English

speaking countries that teachers are inadequately prepared for teaching reading and spelling. The American Federation of Teachers (1999) says "Few teachers...are sufficiently well prepared to carry out such instruction - not through any fault of their own - but because their preparation programs, instructional materials, and teaching environments have not asked them to understand language with any depth or specificity." (pp.18, 19)

How does written English work?

The structure of written English is based on the sounds of the language (phonology - the 'b' and the 'oy' in *boy* for example), the spelling patterns that represent these sounds (orthography - the *sh o p* spelling patterns in *shop*), the meaning attached to parts of words (morphology - the *ed* in *jumped*, the *s* in *hats*) and the rules and conventions that underpin why words are written in particular ways (why *hopped* has two *ps* but *hoped* has one). Good readers and spellers can read and spell not only familiar words, but also words they have never seen before. They do not rely simply on recognising what a word *looks like*, but can work out how it should be read or written through using their knowledge of phonology, orthography, morphology and the rules and conventions of written English.

Here are three exercises that illustrate how knowledge of structures underpinning written English helps us read unfamiliar words.

1. Try pronouncing these made up words.

bridilfusion croytenderful moiling zeeth

When you read these made up words you were able to recognise letters and spelling patterns that were familiar, turn them into sounds (pronounce these orthographic units) and blend these sounds together to pronounce the whole word. When students are reading unfamiliar words - words they have never seen before, they must be able to use similar skills. They need orthographic knowledge (to recognise spelling patterns) and phonemic awareness (knowledge of sounds, and skills with blending and manipulating these sounds) to pronounce the word. They also need a good oral vocabulary to know how the word should sound and what it means, if it is to be useful to them.

2. Try reading these words - they are real words that have the first and

last letters in the correct position but other letters out of sequence.

uesufl pruhcsae esay waht appilaciton

These words were probably relatively easy to read, despite the letters being out of sequence. They might have been even easier if they had been in a sentence with context contributing to their readability.

This is a vrey uesufl pruhcsae. It is vrey esay to use no mtater waht the appilaciton.

3. Try reading these words - they are also real words that have the first and last letters in the correct position but other letters out of sequence.

pauolpr msot anacitiplops saarntdd msoue bntouts

The two words that were probably the easiest to read were the one syllable words - most (most) and msoue (mouse). The others were probably much more difficult. Putting them in a sentence may or may not make them easier to read.

You can use saarntdd msoue bntouts in msot pauolpr anacitiplops.

Why were the words in exercise 3 so much more difficult to read than those in exercise 2? The sentences came from the same piece of text.

When you are reading written words you are trying to turn what is written into the spoken word. If the whole word is recognised it can be pronounced without the need to "sound it out". If it is not recognised, it can be sounded out through recognition of letters and letter patterns, linking these to sounds and blending the sounds together (the way you read the made up words). If the letters and letter patterns are out of sequence, particularly in two or more syllable words, you are likely to search for vowels and vowel patterns to chunk the word into syllables. (A syllable is a sound unit of a word which contains a vowel *sound*). You are using *orthographic* units to help you chunk the word *phonologically*. In exercise 2, you were able to do this because the letters were only mixed up *within each syllable*. That means that it was still relatively easy to recognise the spelling patterns within the words. In exercise 2, the structure of each word still revolved

around the syllabic unit (a phonological unit) which means the out of sequence letters remained close together.

ues/ufl	pru/hcsae	esay	waht	appilaciton
use/ful	pur/chase	easy	what	app/lic/a/tion

In exercise 3, the first and last letters of the word are in the correct position, as they were in exercise 2, but the letters in the middle are not jumbled *within a syllabic unit*. This means they are much harder to read - the word cannot be broken into syllables first and worked out in small chunks. Reading it means relying entirely on trying to recognise the whole word visually or, if the word is in a sentence, relying heavily on context to help predict the word.

To summarise:

In order to read the made up words in exercise 1, you used your visual memory for whole words, your knowledge of phonology (sounds and sound patterns in words), and orthography (spelling patterns in words) to read and pronounce the words correctly. You may also have used your knowledge of morphology and rules and conventions.

To read the words in exercise 2 you used your knowledge of whole word images, phonology and orthography to read them when they were in isolation, but when they were in a sentence you might also have used your oral language skills to assist you.

To read the words in exercise 3, when they were in isolation, you could not use a whole word image or your knowledge of orthographic structures to help you sound through the multi-syllabic words, because the letters were too jumbled up. This meant you were unable to use your knowledge of phonology to pronounce the words and they were therefore difficult to read. When these words were in a sentence they may have been more predictable when your oral language skills were able to be engaged.

This is a vrey uesufi pruhcsae. It is vrey esay to use no mtater waht the appilaciton. You can use saarntdd msoue bntouts in msot pauolpr anacitiplops.

(This is a very useful purchase. It is very easy to use no matter what the application. ... You can use standard mouse buttons in most popular applications.)

Notice how much easier the word *application* is to read when the letters are jumbled within the syllables - *appilaciton* - compared to *anacitiplops*, where the letters are jumbled throughout the word.

So what does this mean?

The strategies we use to read and spell unfamiliar words are critical for successful reading and spelling. Good readers and spellers can read and spell words they have never seen before because of what they know about *how words work* in written English. They can use knowledge of phonology, orthography, morphology and rules and conventions to read and spell unfamiliar words accurately *when they need to*.

Why are these skills necessary?

Written English is an alphabetic language. It is not the same as a pictographic or logographic language such as Chinese where every word has a unique visual image that must be memorised and where reading words depends on recognising the visual features alone. English, like other alphabetic languages, is based on the alphabetic principle. Alphabet letters are used on their own and in various combinations, to represent or write down the *individual sounds* of the language. Letters do not *make* sounds and they do not *write words*, they represent sounds. In some languages there is a direct relationship between each sound and the way it is written - there may be only one way of writing a sound and one way of pronouncing most letters and letter patterns. These languages are said to have a shallow orthography and the letter-sound and sound-letter relationships are predictable. English has a deep orthography - there are many ways of writing one sound (the 'k' sound in *cat, kettle, lick, account, Christmas* for example) and many ways of pronouncing a letter (the *a* in *apple, water, came, was, about*) or a letter pattern (the *ch* in *chef, chat, Chris*). However, despite this complexity, the foundation of English is still the alphabetic principle. When you are trying to write a word which you don't have in your visual memory, you must break the word into sounds, link each sound to its possible spelling patterns and use your knowledge of rules, conventions, morphological structures and other words that sound the same to decide which patterns to use in that particular word. When you are trying to read an unfamiliar word you use your knowledge of spelling patterns to break the word into visual chunks, link each chunk to sounds, blend the sounds together

to pronounce the word.

The role of alphabet letters is to turn the *sounds* of English into visual images. These letters and letter patterns can be recognised and linked back to sounds and patterns of sounds for reading and spelling words. With practice and exposure to the images of words, students begin to recognise the visual images of *whole words* and to read and spell them without the need to break them into sound or letter patterns. However, good readers and spellers can always use their knowledge of orthographic and phonological units in words when they need to, as well as knowledge of what whole words look like. Poor readers and spellers are frequently unable to read or spell words that they can't recall as whole-word visual images because they lack phonological awareness skills, orthographic knowledge or awareness of how sounds and letters work together in words. They haven't developed the skills and knowledge to understand *how words work*.

With the same instruction, why don't all students learn to be successful readers and spellers?

One of the many factors that influence students' learning success is their learning preferences. A number of researchers have studied the individual differences that exist in students' reading and spelling styles. Baron and Strawson (1976) introduced the terms "Chinese" and "Phoenician" readers to describe the differences that exist in the strategies students use to read words. "Chinese" readers are described as those who rely on word-associations to read words; they rely on recalling the visual images of known words to read unfamiliar words. "Phoenician" readers are described as those who rely more on spelling-sound rules to read unfamiliar words. They rely more on knowing the connections between sounds and letters to sound out words, rather than recognising whole word images. A study by Treiman (1984) demonstrated similar preferences for the approaches students used for spelling unfamiliar words. She found that similar profiles existed. Some students preferred to use spelling-sound rules when spelling unfamiliar words - relying on what the words *sound like* and how those sounds could be written. Their spelling attempt might look like this - the word *awesome* spelled *or/some*. Other students relying on word associations - what other words with similar sounds or meaning *look like*, might spell *awesome* *aw/some*, associated it with the word *awful*.

Baron and Strawson found evidence for a "Chinese" - "Phoenician" continuum which reflects the learning preferences students adopt to read and spell words.

If we look at the "Chinese" end of the continuum we would see students who rely heavily on remembering what words *look like* to help them spell unfamiliar words. To become efficient readers and spellers "Chinese" readers must also work out that although words may look the same, they might not sound the same - *said* and *maid*, *though* and *through*. "Chinese" processors have a significant advantage over "Phoenician" processors when they are learning to read and spell English because they seem to store the visual images of words more readily and more efficiently which helps them remember words with irregular spellings and words that use less common spelling patterns. This is definitely an advantage in a complex language like English which has many different spelling patterns for the 43 sounds. However, simply relying on *what words look like* is not enough. "Chinese" processors must also learn to understand how letters and letter patterns map to sounds. They can learn to do this by studying the spelling patterns in words and linking them to sounds. They will find it easy to learn **from print to sound**, because they can readily access their print memory for words.

For example: "Write down as many words as you can think of that contain the *oo* pattern and then work out how this spelling pattern can sound in words."

The "Phoenician" processor, on the other hand relies on understanding how *sounds are written* in words. Those at the "Phoenician" end of the continuum may spell words the way they sound (*bed*, *sed*, *hed*) because they only remember one or two spelling patterns for sounds. Because only two of the 43 sounds of English are just written one way (the 'a' sound as in *cat*, and the 'y' sound as in *yes*), "Phoenician" processors will struggle to read and spell English effectively if they don't develop knowledge of the other spelling patterns and knowledge of what words that use less common spelling-sound patterns *look like*. They need to learn, for example, that not only is the short 'e' sound most commonly written with the letter *e* (*bed*, *pet*, *yes* etc), but also that the word *said* has an *ai* pattern for the short 'e' sound and that there is a group of other words that use the *ea* pattern to write the short 'e' sound (*feather*, *lead*, *instead*, *wealth* etc).

What this suggests is that in order to become efficient readers and spellers, students need to learn to remember *what words look like*, *what they sound like* and *how the sounds inside words can be written*. "Chinese" processors seem to find it easier to store the visual images of words and will probably have quite a large store of words to refer to when they are working out how spelling patterns and sounds work together. Teaching strategies that go from print to sound will be more effective with "Chinese" processors.

For example:

"Think of all the words you can that contain the *ough* pattern and tell me the sounds it represents"

"Here is the *ea* pattern. It sounds like a long 'a' in *great*, a long 'e' in *meat* and a short 'e' in *head*. Think of some other words that have this *ea* pattern and put them into groups according to their sound."

These tasks rely on students having a large store of sight words which they can access. Beginning students do not have a large store of images of words to refer to and neither do many students on the "Phoenician" end of the continuum. Beginning students and the more "Phoenician" processors may not know what words *look like* but they do know what words *sound like* and can use their knowledge of the sounds of English to build their knowledge of print. Beginning readers and spellers and the more "Phoenician" processors seem to respond better to learning about the sound-letter relationships in English when they work from **sounds to print** rather than print to sounds.

For example:

"Tell me as many words as you can think of that have the short 'e' sound in them. Let's see how the short 'e' sound looks in these words - we'll see how many patterns we can find to write the sound. We've found an *e* in *bed*, an *ai* in *said* and an *ea* in *head*."

In New Zealand, the emphasis in much of our teaching is on developing memory for *what words look like* and working with the visual images of words, which is of course an essential part of learning about written English. This favours the "Chinese" processors but both "Chinese" and "Phoenician" processors need to learn about the alphabetic principle if they are to master written English. They need to develop their knowledge of phonology, their

understanding of how sounds can be written in English (the phonological-orthographic relationships), they need to learn to recognise spelling patterns that give meaning to words (the morpheme *ed* on the end of a word that indicates past tense, for example) and they need to learn about rules and conventions that underpin the way words are written.

Focussing on word recognition for reading and using partial cues plus prediction to read words is insufficient for developing efficient readers. Providing students with hundreds of words to learn by sight in graded spelling lists is insufficient for developing efficient spellers. Both these approaches favour visual memory for *what words look like* and favour the "Chinese" processor. Whether students have strengths as "Chinese" processors or "Phoenician" processors, they must all understand how to work with the alphabetic principle that underpins written English. They must learn how sounds can be written using letters and letter patterns.

We must develop flexible teaching strategies to ensure we do more than teach students *what words look like*. Students must learn *how words work* in written English if they are to become efficient readers and writers.

References

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