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Yes, spelling should be taught

Sue Dymock explains that while many students are very good spellers, many find spelling incredibly difficult. For some, spelling can be "caught" through extensive reading and writing, but many students need spelling to be "taught". She explains that with careful assessment and diagnosis teachers can identify what to teach and how to teach it effectively to enable spelling success.

There is little doubt that some students are very good spellers. I recall, in my first year of teaching, teaching a 9-year-old student whose spelling was nearly perfect. In a recent study of 7-year-old spellers we encountered a speller who was able to spell equally well. She could correctly spell Latin based words such as 'extraordinary' and 'imagination' (Nicholson & Dymock, 2018). We also know that many children struggle with spelling. In the same class of 7 year olds there were students who were experiencing difficulty spelling common everyday words such as school [scool], what [wat], have [hav] and said [sed]. Why some children in the same class are good spellers and others are not, despite being exposed to the same learning experiences, is not easy to answer. What we do know is that teaching spelling helps students to write. Rightly or wrongly spelling makes a first impression - either good or not-so-good. In addition, it is not only important for the writer to know what they have written – the reader must also be able to read the text. Would the envelope below make a positive first impression or a less-than-positive one (see Figure 1)?

It is not only students who make spelling errors. Adults do as well. What is your reaction (or impression) when you read the display below (see Figure 2)? It is part of a display at an aquarium that is frequented by school groups, families and overseas tourists. According to the journalist: "The kids are in for a real education if you take them to Kelly Tarlton's these school holidays." [Sunday, 30 September 2018, NZ Herald]

The purpose of this article is to discuss what research has to say about teaching spelling; provide an overview of the structure of the English language and why having an understanding about the layers of English is important not only for teaching spelling but also for learning to spell; discuss strategies for teaching spelling; and discuss the importance of assessing and analysing spelling errors.

Teaching spelling: What the research has to say

Should spelling be taught or is it caught? This is a question that many primary teachers ask when planning a spelling programme. While some writers appear to 'catch' spelling many struggle to spell well. Dictionaries and spell-checkers can be helpful, but "writers cannot completely offload the task of spelling to outside tools. Use of these tools takes time, and it diverts attention from the goal of producing a well-reasoned and polished piece" (Treiman, 2017a, p. 83).

Treiman (2017b) explains that English spelling is a challenge because sound-letter relationships are not one-to-one. For example, there are many ways of representing the long 'a' vowel sound, rather than just one way (e.g., paid, pay, made, weigh).

Henry (2010) and others (Calfee & Patrick, 1995; Crystal, 2012; Treiman, 2017a) argue that while there is not one-to-one matching for every sound and letter there are many regularities to English spelling. Research indicates that 50% of English words can be spelt accurately based on taught sound-letter relationships (Joshi, Treiman, Carreker, & Moats, 2008-2009). In addition 34% can be spelt apart from one sound such as spelling the word cat as *kat* or school as *skool*. Spellers who have an understanding of word origin (French, Latin and Greek, for example) as well as the meaning of word parts (e.g., that the Latin root *–rupt* means 'to break' or 'to burst') then only 4% of words are

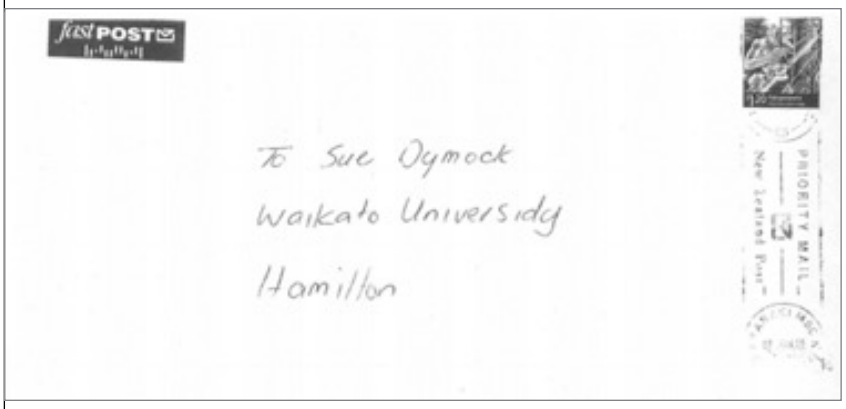

Figure 1. Envelope addressed to author

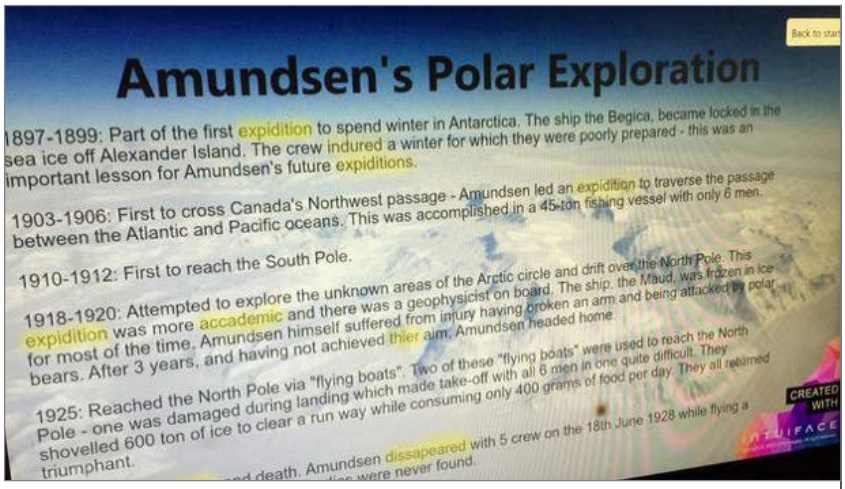

Figure 2. Display sign at Kelly Tarlton's aquarium

irregular (e.g., words such as *the*, *was*, *were*, *of*). Many irregular words are common everyday words that young spellers simply need to learn. The word 'the' is an irregular word and is the most common word in English writing. It is often the first word spellers are taught to spell.

Treiman and Kessler (2006) argue that a good speller is dependent upon a "statistical learning view" (p. 642). What this means is that knowledge about sounds and spellings requires an understanding of general rules *as well* as the way sounds are spelt in various contexts. Spellers build up knowledge about words through exposure – noticing the patterns in words.

Exposure to print is important for spelling but students also need to be explicitly taught how to spell. Graham and Santangelo's (2014) meta-analysis of over 50 studies on the teaching of spelling concluded that students benefit from spelling instruction. They found that more spelling instruction was better than less spelling instruction and better than no instruction at all. Equally important was that the gains made as the result of spelling instruction were maintained over time. Their analysis also found that teaching spelling was better than relying on spelling being 'caught'.

The structure of the English language and why knowledge about the layers is important for teaching spelling and learning to spell

Nicholson and Dymock (2018) and others (Calfee & Patrick, 1995; Henry, 2010) suggest that in order to have an understanding of the English spelling system spellers need to have an understanding of the history of English, including the layers of English.

The English language is characterised by three layers: Anglo-Saxon, Norman French which is embedded with the Romance-Latin layer, and Greek (see Figure 3).

Anglo-Saxon layer. The Anglo-Saxon layer is the largest layer of English. This layers consists of everyday words like *house, dog, bed, father, ship, chair,* and *room*. There are over 80 strategies spellers need to learn in order to spell Anglo-Saxon words. These include the 21 single consonants, consonant blends, consonant digraphs, short vowels, long vowels, *r-* and *l-* controlled vowels and vowel digraphs.

Romance-Latin layer. This layer of English is associated with academic learning. Students begin encountering this layer from about the age of 9 when the content area becomes a key focus of learning. Latin-based words follow a different structure to words in the Anglo-Saxon layer. Latin-based words have a Latin root (e.g., *-rupt*) that carries the major meaning of the word; a prefix (e.g., *dis-*) and or a suffix (*-tion*): disruption.

Greek layer. This layer of English is the smallest layer and is associated with science, mathematics and philosophy. Greek based words are characterised by having two word parts (i.e., two Greek combining forms or two Greek roots) where each part carries equal meaning. Words such as *television, biology, cosmonaut,* and *agoraphobia* are from the Greek layer of English.

The spelling errors in Figure 2 are primarily Latin based words. The misspelt words are *expidition (expedition), indured (endured), expiditions (expeditions), accademic (academic), thier (their), and dissappeared (disappeared)*. Their is from the Anglo-Saxon layer (non-phonetic or irregular word) but the remainder are Latin based words indicating that spelling strategies should continue to be taught in upper primary school and beyond.

Strategies for teaching spelling

There are many spelling strategies that are associated with each layer of English. Students who do not have an

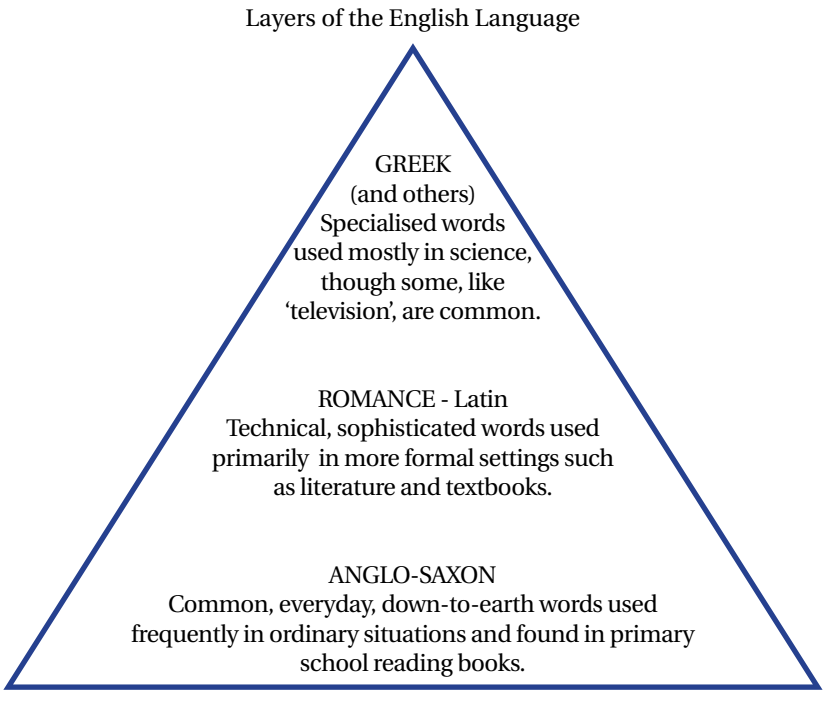

Figure 3. The layers of the English language (adapted from Calfee & Patrick, 1995)

understanding of the strategies need to be taught.

Anglo-Saxon layer. Beginning spellers need to learn the Big 10 Spelling Rules, or strategies (see Appendix 1, from Nicholson & Dymock, 2018).

Latin layer. Latin words consist of a Latin root and will also include a prefix, suffix or both. Teach students to identify the word parts (word analysis) – by identifying the prefix, Latin root, and suffix (syllable breaking or word-part breaking).

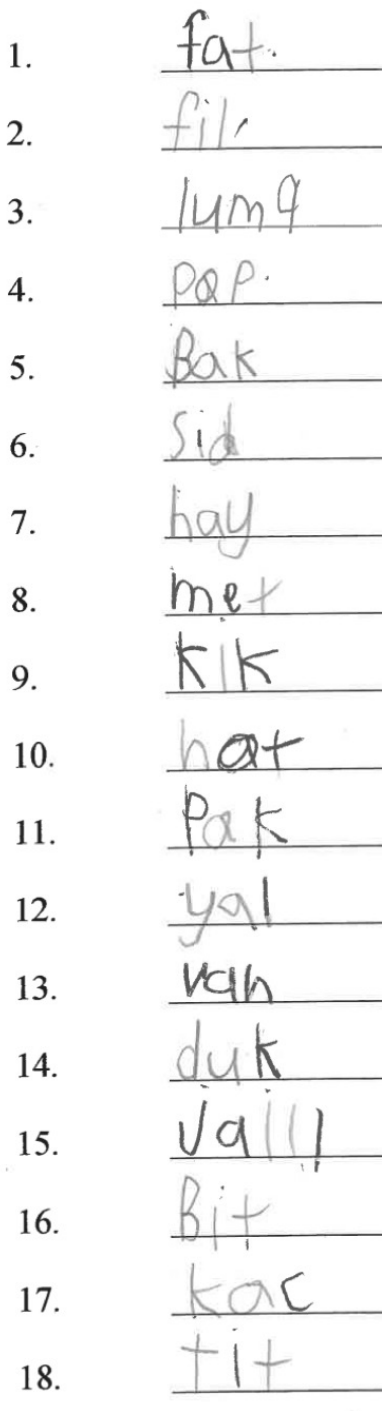

Figure 4. Invented Spelling Test (Year 3; 8 years 1 month)

1. Latin syllables or word parts are primarily closed or open syllables. A closed syllable follows a CVC, CCVC, CVCC, or CCCVC type pattern and the vowel is short. An open syllable is when the syllable ends in a vowel (e.g., *pre-* is an open syllable) and the vowel is long. Many Anglo-Saxon spelling strategies are also common in the Latin layer of English.
2. Many Latin roots are either closed syllables (as in *rupt*) or r- controlled vowel syllables (as in *port*).
3. Latin suffixes often contain vowel digraphs as in *–tion, -cian*, and *-sion*.
4. When adding suffixes the two main rules are doubling the consonant or not.
5. Some Latin prefixes are known as chameleons in that their spelling changes according to the first letter of the Latin root that follows. For example the prefix *in-* (meaning not) when added to the word legal becomes *il-* + legal (illegal).

Greek layer. Greek words have two equal parts (e.g., tele + scope = telescope). Both *tele-* and *–scope* carry the major meaning of the word *telescope*.

> … learning spelling patterns [is] a powerful strategy, better than simply memorizing lists of words.

Although there are some new spelling patterns associated with the Greek layer of English they do include many spelling patterns from the Anglo-Saxon layer. The more common Greek spelling patterns are ph for the /f/ sound as in the word *photograph*; ch for the /k/ sound as in the word *psychologist*; and the letter y for the short /i/ sound as in the word *gym*. The less common new spelling patterns found in Greek-based words are *mn* for the /n/ sound; *rh* for the /r/ sound; *pn* for the /n/ sound; and *ps* for the /s/ sound.

Why assessing/ analysing spelling is important for teaching

Having an understanding of the spelling strategies and how to teach them is critical to being an effective spelling teacher (see Dymock & Nicholson, 2017). We found that teaching the spelling patterns of words enabled students to transfer their knowledge to new words that had the same patterns. This makes learning spelling patterns a powerful strategy, better than simply memorising lists of words. The next step in determining what spelling strategies to teach is to assess and analyse spelling errors. From the analysis an instructional spelling programme can be developed. Figure 4 shows a completed Year 3 student's *Invented Spelling Test* (Tunmer & Chapman 1995). The student was aged 8 years 1 month. It is expected that most words on this test would be spelt correctly by the age of 8. An analysis of each spelling error helps the teacher to identify the next teaching steps.

The above student was able to spell 6 of the 18 words correctly. A score of 6/18 does not help the teacher determine what the speller knows nor the next teaching steps. However, an analysis of the spelling errors will identify what spelling strategies the speller knows and the ones that need to be taught. Table 1 provides an analysis of what the speller knows and what strategies the speller might like to learn. Note that there is a pattern to the writer's spelling errors. The student nearly always spells the /k/ sound with the letter *k* where the letter *c* or *ck* is needed (5 errors). Using the letter k as a default works as a temporary spelling but the student might like to learn how the /k/ sound is spelled with a k only if followed by e, i, or y. Also, the /k/ sound at the end of a word is usually spelled ck after a short vowel sound; k after a long vowel sound.

The student might like to learn about the consonant blend *nk* (one error); the silent e rule (also called split vowel digraph) (2 errors); vowel digraphs *ea* and *igh*; and doubling the final l in a single syllable word (three errors).

Conclusion

Spelling is an important skill for written communication. Being able to spell well frees up mental energy so the writer can focus on the message they are wanting to convey. Teachers need to be able to analyse students' spelling - identifying what the speller knows and does not know, then teach the appropriate spelling strategies.

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Word	Spelling	Phonemes correct order	What the student knows	What the student needs to learn	Big Spelling Rule (Anglo-Saxon layer of English)
fil	fill	✓	Beginning sound /f/ Short *i* vowel	Doubling rule for one syllable word*	10
lum[p]	lump	✓	Beginning sound /l/ Short *u* vowel	Letter orientation (letter p was reversed)	n/a
bak	bank	✗	Beginning sound /b/ Short *a* vowel sound	Final consonant blend nk pattern	3
sid	side	✓	Beginning sound /s/ End sound /d/	Silent e pattern for long vowel sound	6
met	meat	✓	Beginning sound /m/ End sound /t/	Vowel digraph pattern for long vowel sound	7
kik	kick	✓	Beginning sound /k/ Short *i* vowel sound	Rule about when to spell /k/ sound as either c, k, or ck	4
pak	pack	✓	Beginning sound /p/ Short *a* vowel sound	Consonant digraph pattern for final /k/ sound	4
yal	yell	✓	Beginning sound /y/ Short *a* vowel sound	Doubling rule for one syllable word *	10
duk	duck	✓	Beginning sound /d/ Short *u* vowel sound	Consonant digraph pattern for final /k/ sound	4
jaill	jail	✓	Beginning sound /j/ Long *ai* vowel sound	Doubling rule for one syllable word*	10
kac	cake	✓	Knows how to spell each sound with a plausible letter	Rule about when to spell /k/ sound as either c, k, or ck Silent e pattern for long vowel sound	2 6
tit	tight	✓	Beginning sound /t/ End sound /t/	Vowel digraph pattern – igh only for small set of words like fight, light etc.	7

Note: * The doubling rule also applies to single syllable words that end in the letters f, s, z, and l (e.g., staff, press, buzz and yell).

Table 1. Analysis of Invented Spelling Test (see Figure 4)

two most recent co-authored books, published by NZCER Press, are The New Zealand Dyslexia Handbook (2015) and Writing for Impact: Teaching Students How to Write With a Plan and Spell Well (2018).

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Appendix 1

The Big 10 Spelling Rules

1 **Turtle talk**	Rule 1, say the word slowly like a turtle, count the sounds (e.g., 4 sounds in "train"), then write one letter pattern for each sound /n-o/, /s-ea-t/, /t-r-ai-n/	
2 **Single consonant sounds**	Rule 2, does the word start with a single consonant sound like …? p, g, b, d, c, w, l, r, t, f, j, m, n, s, h, k, q, v, x, y, z NB: /k/ can be spelled "k" or "c" or "ck", /j/ can be "g" as in "giant", /s/ can be "c" as in "city", /z/ can be "s" as in "was", /f/ can be "ph" … /ee/ can be spelled "y" - "baby"; /ie/ can be spelled "y" - "my")	
3 **Consonant blends** Hint: spell /chr/ as "tr"; spell /jr/ as "dr"	Rule 3, if the word starts with 2 or 3 consonant sounds, try these blends: **Starting:** bl, br, cl, cr, dr, fl, fr, gl, gr, sl, pr, tr, sc, sk, scr, spl, sm, squ, sn, str, sp, st, sw, tw, thr. **Ending:** -ft, -mp, -nt, -lk	
4 **Consonant digraphs**	Rule 4, is the sound a consonant digraph? **ch** – chicken, **sh** – ship, **wh** –when, **th** – that, **ph** – phone	If the digraph is a final sound it could be spelled: -**ng** – ring -**ck** – duck -**tch** - catch
5 **Short vowel sounds**	Rule 5, is the vowel sound short like in "at"? There are five short vowels: **a**t, p**e**t, p**i**n, h**o**p, c**u**t	
6 **Long vowel sounds (silent e rule or split digraph rule)**	Rule 6, is the vowel sound long like in "ate"? If yes, use one of the five vowels and add the silent e to tell the reader it is long: **a**t**e**, P**e**t**e**, p**i**n**e**, h**o**p**e**, c**u**t**e**	
7 **Vowel digraphs**	Rule 7, Maybe the sound is spelled with a vowel digraph which is 2 vowels that make 1 sound /ay/ – say, sail /ee/ - bee, eat /ie/ - pie, sigh /oe/ - oat, bow, toe /ue/ – few /oo/ - boo, true, you, blew /ow/ – out, cow /or/ – saw /oy/ – oil, toy	
8 **r- and l- controlled vowel sounds**	Rule 8, Vowels can change their sound before an r or l **ar** – car, **er** – her, **ir** –sir, **or** – for, **ur** – fur	**al** – tall, talk
9 **Syllable splitting**	Rule 9, if it is a long word, break the word into syllables cat-nip, ketch-up, mag-net, o-pen, con-crete Then break each syllable into sounds – spell the sounds c-a-t, n-i-p, m-a-g, n-e-t	
10 **Doubling rule ("Rabbit Rule")**	Rule 10, if there are two syllables, use the doubling rule (sometimes called the "Rabbit Rule") – use it if the first vowel has a short vowel sound ho**pp**ed, ru**nn**ing, ra**bb**it, di**nn**er	