A Word Study Approach to Co-teaching for Spelling

Word study as we describe it is analytic. Students examine words they already know how to read, and sometimes even spell, as a way to gain insight into how the spelling system works.

(Johnston, Invernizzi, Bear, Templeton, 2009, p. 1).

Introduction

Spelling instruction is often marginalized in today's crowded curriculum (Schlagal, 2007). This represents a challenge for the effective teaching of a very important skill. Spelling needs explicit instruction because it is not an innate ability. Children with reading difficulties have particular and noticeable difficulties with spelling because of their weak phonemic skills and their weak visual memory (Berninger & Fayol, 2008).

There is increasing evidence that spelling is a linguistic skill and should be taught in the context of the English language and spelling system (Henry, 2003; Nunes & Bryant, 2006; Pinnell & Fountas, 1998). Learning to spell is also about the process of understanding the conventions that govern the structure of words and how word structure can signal the sound and the *meaning* of words (Berninger, 1995; Nunes & Bryant, 2006). This understanding is the result of research acknowledging that the skills of writing and reading draw on an underlying foundation of word knowledge (Perfetti, 1992; Templeton, 1992). In other words, the more children understand about the structure of words, the more fluent and efficient their spelling will be (Wolf, 2008).

Teaching Children to Spell

One common perception among teachers is that visual memory is the basis of spelling skill and is analogous to taking a mental picture of a word (Johnston, 2001). In this view, repetition and memorization are key to learning spelling. This can involve the teacher encouraging memorization by using flashcards, asking children to picture the visual features of the word, children writing and rewriting the spelling, and children saying the spelling orally, (Cassar, Treiman, Moats, Pollo, & Kessler, 2005). For instance, the Look, Say, Cover, Write, Check method of teaching spelling is based on the belief that spelling is a visual skill and that it is mainly learned by memorization (Treiman & Bourassa, 2000). This view encourages teachers to leave the task of learning spelling to children themselves (often with the help of their parents). Spelling therefore is seen as an independent activity, disconnected from the context and meaning in which it is used. Recent studies do not support the notion that visual memory is the key to good spelling. Firstly, spelling lists memorized for Friday spelling test are often forgotten by the following Monday (Schlagel, 2002). In addition, studies of children's spelling errors indicate that other strategies for learning spelling are at work. If children relied on visual memory then regular and irregular words should be misspelt equally. However, irregular words are more often misspelt (Treiman, 1993).

Research shows that some of the most ineffective ways of teaching spelling, and possibly the most common ways include (i) the Monday to Friday spelling list, (ii) writing words repeatedly, and (iii) orally repeating the letters of a word (Ganske, 2002; Henderson, 1990). While memory does play a role in spelling, it is not the most important aspect of learning to spell (Berninger & Fayol, 2008; Henderson, 1990).

Linguistic Knowledge Necessary for Learning Spelling

English is a highly irregular alphabetic language having a phonological consistency of only 12 per cent. This ensures that most words in English cannot be spelled using phonological strategies. English is called a *morphophonemic* language in which the meaning of words is very important to spelling words correctly. In addition, the goal of written English is to convey meaning. For example, if words that sound the same (homophones) such as *tow* and *toe* were spelt the same way, it would be more difficult to relay the meaning of the sentence containing the word (Joshi, Treiman, Carreker, & Moats, 2008-9).

Four types of linguistic knowledge are necessary to spell efficiently Henry, 1997, 2003; Masterson & Apel, 2010). They are:

Phonological Knowledge

English phonology is very complex and the skills are the most difficult to master as letters do not map in a predictable way onto sounds. Yet many spelling programmes prioritize and emphasize phonemic skills.

However, poor spellers often rely solely on phonemic skills which are taught and emphasized in schools from an early age. They therefore, are reliant on words matching directly onto sounds in a predictable way in order to spell. However, this is not the case with English spelling. As English is the most irregular alphabetic language, only 12 percent of words are phonologically consistent (Adams, 1990; Mann & Singson, 2003). However, if phonics is emphasized in the teaching of reading and spelling in the first few years of school, then children will favour this strategy as it is the best learned skill they have to tackle spelling (Templeton & Morris, 1999). Indeed it has been argued that emphasizing the phonological component of words weakens the important connection of spelling with meaning (Hilte & Reitsma, 2011) and hence results in spellers who lack flexibility in their approach to spelling. Children with weak spelling lack any other strategies for spelling words as they are unable to figure out the underlying structure of words, and they often have weak visual memory.

Orthographic Knowledge

This skill entails understanding letter sequences. For instance, which letters can be sequence together, and which letter sequences are plausible. Teachers must know that spelling is an orthographical representation of oral language, and this helps explain many of the apparent inconsistencies in phoneme-grapheme correspondences. All English accents use the same orthography, so although words sound different when we speak, we use the same spelling when we write. This further complicates the teaching of English phonology, because phonics programmes cannot account for different regional accents.

Etymological Language

English is a language that draws it's spelling from a range of different languages including Anglo-Saxon, Latin, and Greek (Henry, 2003). Therefore understanding word origins provides useful clues to the spelling of words (see figure 1 below). Approximately 60 percent of words are of Latin origin, 20 percent are of Anglo-Saxon origin, and the remaining 15-20 percent is of Greek origin (Henry, 2003).

GREEK

specialized words used mostly in science e.g., atmosphere, chromozome, thermometer

LATIN

Technical, sophisticate words used in more formal contexts such as literature and in textbooks e.g., disruptive, c instructor, retract, survival

ANGLO-SAXON

Short, common, everyday words used in ordinary situations. Many have nonphonetic spelling e.g., mother, laugh, mouth, blood, bird, cry, jump, wash, said, they

Figure 1 Layers of the English Language (Adapted from Henry, 2006).

Many Anglo-Saxon words, which are among the first words young children read, are irregular and cannot be spelled using phonological knowledge alone.

Morphological Language

Morphemes are the smallest units of words. They are the parts of words that carry meaning. For example, word roots, suffixes and prefixes are all morphemes. They can create new meaning, for example, bus/buses, and happy/happier, nuptial/prenuptial. Compound words are also built from morphemes. Morphemes are very regular (e.g., jumped/loved/hated) and therefore easy to teach. Many words that are spelt irregularly phonemically have regular morphemic structure. Understanding how words can be built from word parts, helps and supports the child not only to spell words but also to increase vocabulary. It is acknowledged however, that morphology is the least understood and least exploited linguistic skill useful in

the teaching of spelling (Nunes, Bryant, Hurry, & Pretzlik, 2006). Furthermore, children of all ages have difficulty spelling words when they cannot be predicted from their sounds. This difficulty can be eased by explicitly teaching about morphemes (Nunes et al., 2006). For example, the spelling of word magician is not predictable from the sound of the word. It comprises of a root magic and a suffix -ian. This suffix sounds like shun and someone with good phonological skill would spell it like 'migishun'. However, if you know that it consists of magic and -ian then it makes the spelling easier to remember and understand. The rule here is that -ian (rather than -ion) is used with practical words (e.g., electrician) while -ion is used with abstract words. This morphemic knowledge, and reference to the meaning of these words will help with the spelling of these words. Children and indeed many adults are not innately aware of the morphemes in words (Mann & Singson, 2003) so morphemic awareness needs to be taught and morphemic knowledge needs to be highlighted (Carlisle, 2003; Henry, 2003; Hilte & Reitsma, 2011; Nunes et al., 2006). In addition, only linguistically competent children will discover morpheme connections in words, leaving children with literacy difficulties to struggle with not only spelling, but vocabulary, reading, and indeed comprehension throughout the school years (Carlisle, 2003).

The Schwa

A schwa is the most common vowel sound in English but it is a weak vowel sound that is poorly articulated. There is no consistent way of spelling this sound based on letter-sound rules and so it is the cause of much confusion for children (Nunes & Bryant, 2003). Note the schwa in the last syllables of the following words for example:

happiness, onion, banana, magician, electrician, hasten, incredible, photography

Although the schwa has the same sound in all these words, it is spelled differently in each one. Therefore it is commonly thought that much of English words are spelled in a way that is illogical and inconsistent. However as Nunes and Bryant note, there is a set of principles at the morphemic level that can guide the spelling of these words.

Words that end in -ian and -ion

This morphemic information will help here: if the word is a noun, and the noun refers to a person or an animal, its ending is spelled as —ian (mathematician, magician, librarian, guardian). If the word does not refer to a person or animal and if it an abstract word, it is spelled as —ion (education, emotion, religion, position, discussion). There are very few exceptions to this principle, and the exceptions are very uncommon words (centurion).

The Past Tense -ed

Another example is the more common –ed (past tense) sound that cannot be spelled on the basis of its sound either. It can have three sounds as in jumped (-*t*), started (-*id*), banged (-*d*). Children need to be made aware of, and explicitly taught the different past tense –ed sounds. They should also be explored with children in their everyday texts and contexts.

Spelling Development

There are two trains of thought regarding spelling development. One believes that spelling follows a developmental pattern, starting from the smallest sounds and growing to morphemes. This progression can be seen in the following developmental spelling stage theory (Ganske, 2000).

Emergent Stage

This stage is similar to the emergent reading stage, where children know that word contains letters and sound, and words convey meaning, but they are not yet reading.

Table 1 Stage 1: Emergent Stage

Word Representatio	
cat	olc
look	cx

Letter-Name Stage

Children at this stage are beginning to master the alphabetic principle; they have some letter knowledge and know the letter names (Bear, Invernizzi, Templeton, & Johnston, 2004). They are learning phonemic awareness skills such as rhyming and letter-sound isolation. At this stage unconventional spellings are used such as hs (house) and bgn (begin). Instruction at this stage includes consolidation of letter sounds and names, vowels, explicit and systemic phonics instruction, initial blends and digraphs.

 Table 2 Stage 2: Letter Name Stage

Word	Representations
Man	Mn
Cat	Ct
car	cr
look	lk

Within Word Pattern

At this stage, many of the common CVC sight words are spelled correctly. Children at this stage have letter-sound knowledge, know their short vowel sounds, and have many beginning blends, so they can read texts at their age level (Bear, Invernizzi, Templeton, & Johnston, 2004). They suggest that at this stage teachers should focus on what children "use but confuse" (p.16). This includes CVCC patterns, r-control patterns (-ir, -er, -ur, -ar), and common letter strings (-ight, -ing). In addition, their needs to be a focus on antonyms and synonyms, and homophones (roll/role, toe/tow).

Table 3 Stage 3: Within Word Pattern

Word	Representation
man	man
Cat	Cat
dad	Dad
right	Rite
Boat	Bote
rock	rok

Syllable Division

Children at this stage can read and write proficiently. They can spell most common words correctly. At this stage instruction should focus on spelling rules such as doubling a consonant to divide syllables, consonant-le syllables, syllables with –tion, and –ssion, and an emphasis on affixes (prefixes, suffixes, and roots) (Ganske, 2000).

Table 4 Stage 4: Syllable Division

Word	Representations
candle	candel
election	elecshun
mission	mishun
collar	coller

Stage 5: Derivational Constancy

This stage starts in the teenage years and continues into adulthood. At this stage students are ready to learn about spelling based on how English words are derived from and impacted by their Latin and Greek origins. Here students focus on the etymology, word origins, and the meaning, rather than spelling patterns. They should be encouraged and given time to examine words closely, question the word parts, and maintain a curiosity about words. For example teachers can ask students about the interesting words they have seen and read in recent days (Bear et al, 2004). One really important factor in this process is that *teachers* will also learn about words from their students (Frey & Fisher, 2005). Some of the more difficult aspects of words should be explored at this stage, such as words that have silent and sounded consonants such as *fasten/fast* and *hasten/haste* (Ganske, 2000). Students should be encouraged to keep word journals and record certain words and their origin, as well as related words.

Table 5 Stage 5: Derivational Constancy

Word	Representations	
Malign	malignant	Latin
muscle	muscular	Latin
metre	metric	Greek
produce	production	Latin

volcano volcanic Late	in
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However, it is important to note that there is evidence that children don't always keep to a strict developmental pattern but that there is overlap between these stages of spelling development (Kesslar & Treiman, 2003; O'Sulivan, 2000). Thus children can use multiple sources of linguistic knowledge when they spell words. Some common terms useful in terms of studying spelling are noted in Table 5 below.

Table 5: Common Terms useful in teaching and learning spelling

Antonyms	Words that are opposite in meaning	Smooth/rough, broad/narrow
Synonyms	Words that are similar in meaning	Big/large, bill/beak,
		sturdy/strong
Homophones	Words that sound the same but are	Roll/role, our/hour,
	spelled differently	break/brake
Polysemy	A word that has many meanings	Fast, bank, funny, star,
		common

Effective Spelling Instruction for Students with Literacy Difficulties

Explicit teaching of spelling is important to the development of effective spellers (Bailet, 2004; Henry, 1997). It has been shown in research that systematic instruction and multiple opportunities for practice over the following days and weeks is essential for good spelling (Wanzek et al. 2006). As spelling is a linguistic skill, children need to become aware of the meaning-based nature of English spellings. This relationship helps reduce the confusion about some of the inconsistencies and irregularities of the English spelling system. Templeton (1983) gives some examples of *meaning groups* such as consonants that are silent in one word but sounded in another such as the silent and sounded consonants in sign/signature; autumn/autumnal; solemn/solemnity; sign/signal. As children become aware of this, they begin to see the fundamental principle of English that sound is not the most important factor when spelling, meaning is (e.g., bomb/bombard; soft/soften; vehicle/vehicular; assign/assignation. Here word relationship is all important for understanding English spelling. A further example can be seen in the derivational aspects of words such as Greek roots (because they can be noticed immediately as they are at the beginning or end of a word). Such word parts as the prefixes mono-, bi-, trio-, quad- are a good choice to introduce to children because of their frequency in words. After this foundation, students will be ready for some of the more difficult Latin roots. It is important to look at groups rather than pairs of words to see these patterns. Children at the early stages of spelling and older children with spelling difficulties benefit not only from phonological strategies when learning spelling, but also from guidance with the visual and structural aspects of spelling system (O'Sullivan, 2000).

In a meta-analysis of spelling interventions, four key elements of effective teaching of spelling for students with literacy difficulties were identified (Wanzek, Vaughan, & Wexler,

2006). They were (a) systematic study strategies, (b) immediate feedback on spelling, (c) repeated practice, (d) teaching morphemic awareness, and (e) important spelling rules.

Co-teaching of Spelling

It is recommended by the Department of Education and Science (DES) (2003) that where possible, schools should provide additional teaching for children with SEN in their mainstream classes (*Circular 24/03*). Co-teaching is specifically recommended in *Circular 02/05* (DES, 2005). Co-teaching spelling is an ideal method to teach spelling. As there are two teachers in the classroom, it is easier to manage and teach different groupings of spellers (Friend, 2008). It is an opportunity for co-teachers to share expertise. The learning support teacher may be more familiar with the morphological patterns in words and the etymology of words, so this may be an opportunity for the class teacher to focus on the weaker student groups and the LS teacher to facilitate and teach the more able speller groups. However co-teaching requires careful planning and preparation to implement (Murawski, 2012).

1. Teacher Planning for Effective Instruction

Word Knowledge for Teaching Spelling

Teachers need to know the rules and patterns of the English language. Co-teachers must discuss, and be clear about the rules (e.g., doubling rules, vowel-consonant-e rule), a range of morphemic knowledge, and word origins (e.g., Latin and Greek roots) of the words they are asking children to learn to spell. Some of the rules can be complicated. For instance, the doubling rule for two-syllable words states that if the stress is on the first syllable then you do not double the last consonant (secret/secretive, export/exported, reason/reasoning). But if the last syllable of a two syllable word is stressed, the last consonant is doubled (refer/referring, forbid/ forbidden, occur/occurring, regret/regretted). The 1-1-1 rule is another doubling rule. If a word has one syllable, one vowel, and one consonant the last consonant is doubled when we add the following vowel consonants (-ing, -ed, -er, -est, -en, -ish, -ery, -y (fat/fatten, put/putter, thin/thinner, hot/hotter, swim/swimming).

Planning will include gathering of materials and games for group teaching. Word activities such as Word study lists and morphemes as provided in Words their way "Word Sorts" (Johnston, Invernizzi, Bear, & Templeton, 2009).

2. Formative Assessment of Spelling

Effective co-teaching of spelling begins with identifying each individual child's needs and planning instruction around those needs. This will include identifying a range of specific, appropriate target words for these students.

Use two diagnostic spelling tests for formative assessment of spelling (Schlagal, 2002). Examination of word spelling errors will help ascertain the level of spelling of the child. Inspection of students writing is another useful way of gaining insight into what student difficulties are and what spelling level the student is at. Use the results of these informal spelling tests and writing samples to assign children to suitable groups for word study by

sound, word pattern, or meaning (morphemes/roots). They should receive a spelling list tailored to their needs

3. Assigning Students to their Spelling Groups

Assign children to different groups depending on their spelling level

- (a) Good speller groups: These children draw on a variety of spelling strategies form an early age.
- (b) Good readers-poor spellers: These children tend to use the phonemic route for spelling (tarantula/taranchula, election/elecshun). They may have weak visual memory (yacht/yot), so they do not use orthographic knowledge of word patterns to help them spell (right/rite). They tend to confuse homophones (role/roll).
- (c) Poor readers and poor spellers: These children have poor phonemic knowledge and poor orthographic awareness (O'Sullivan, 2000).
- 4. <u>Teaching Session (40 minutes approx.).</u> These sessions must be held on a regular basis, daily if possible.

Feedback time at end of session

Time for feedback must be included at the end of lesson so that different groups/children can reflect on and discuss the words they have been studying and what they have discovered about particular words during the session.

5. Weaving Word and Spelling Knowledge through the Day

Further attention must be given to the target spellings in different learning contexts throughout the day (e.g., history, geography lessons). Students must be encouraged to identify those target words throughout the day, so that learning of spelling resonates through other subjects being taught. In this way, those students who are at lower spelling levels will be given the opportunity to learn about word patterns and morphemes for example, from their peers. The teacher must also be prepared to draw attention to aspects of words in different contexts. Children can then become familiar with words of Greek origin for example, through science lessons, before they formally study these words in spelling sessions (see figure 1).

6. End of Day Recap

Have a spelling chart on the classroom wall. There should be a ten minute session at the end of the day to discuss interesting or target words noted during the day (and written on the wall chart). These words can be discussed and reviewed each day.

Developing a Model of Management

Co-teachers need to develop a plan for managing lessons that allows both teachers to teach particular spelling groups on a given day. It will be necessary that one or two groups will be working independently to allow this to happen. This independent learning needs to be rotated

among groups on different days. It is also necessary that *all* groups are taught at some stage during the week. This will take some planning and classroom management.

What to Teach and Spelling Activities to Consolidate Learning

When teaching spelling rules, both teachers need to verbalize the rule and the children also need to verbalize the rule (Berninger & Fayol, 2008). Children then need to demonstrate and explain the rule using examples of these words in isolation or/and in a text. This is important as often children can verbalize a rule such as the vowel-consonant-E rule (magic e rule), but they cannot demonstrate the rule at work or use it successfully. Teachers must also remember at all times to teach the connection between meaning and spelling.

The following ideas depend on the spelling level of the child. Some children may need to consolidate some of their letter-sounds, or their vowel sounds, and learn to spell simple CVC words. Others may have a solid bank of CVC words and need to learn some beginning blends 'gl' 'sp' 'th' and digraphs such as 'ee' and 'oo' which will also expand their decoding and word attack skills. Appropriate flashcards and word sorts will be needed for this learning. If children have more developed spelling skills, co-teachers can make a list such as the one below and plan for their groups:

- 1. Irregular words (Anglo-Saxon words) (see figure 1)
 - a. Use of mnemonics and visual mnemonics
 - b. 9 and 10 below will help teach these spelling
- 2. Letter strings (e.g., -ight, -tion, -r controlled words (ir, er, or, ur).
- 3. Polysemy
- 4. Homophones
- 5. Prefixes, affixes and suffixes and what they mean
- 6. Teaching Past Tense (-ed) followed by Word Sorting for different –ed sounds in words
- 7. Teaching Morphemes followed by Word Sorting
 - a. Teach the difference between -ian and -ion endings in pairs of words (emotion/electrician, protect/protection). Use analogies (electric/electrician, magic/?).
 - b. Following these discussions, these words can be written on cards, read and matched up, as well as mixed up to be paired again.
- 8. Use of baseword or Morpheme webs
- 9. Buddy study using *look*, *discuss*, *cover*, *write*, *and check* (in pairs)
- 10. Use of games
 - a. Spelling riddles
 - b. Rhyme Time
 - c. Hangman

Monitoring Progress

Weekly or fortnightly informal tests of spelling lists learned can be given. Children should be encouraged to examine their spelling tests for weak and strong aspects of their spelling. The

teachers should note progress of each child. Groups should not be introduced to new word aspects unless they have achieved mastery of whatever letter blend, letter string, word pattern, spelling rule etc. they were learning in that week. Overall mastery is 80% or above. Likewise, if a child masters a blend or letter pattern during the week, he/she should be moved on (or into another advanced group). Groups should remain flexible with the results of writing samples and informal spelling tests guiding placement in groups.

Seminal texts such as Henry (2003) provides information on *what* to teach, such as lists of common and less common Latin and Greek roots, morpheme patterns, how to make morpheme webs, and what spelling to teach advanced readers. Although there is a scarcity of research on the most important aspects of *how* to teach spelling, Nunes and Bryant (2006) provide a description of their work with teachers and their own research findings regarding the teaching of morphemic awareness to improve spelling. Details of both texts are in the reference list for this article. These two texts will help teachers build vital knowledge about words, their meanings, and origins so they can provide the linguistic knowledge of English words for children and students in a more holistic and meaningful way.

Conclusion

English spelling is more regular and rule-bound than is commonly believed, but it is not easy to teach. Instruction needs to be carefully planned and sequenced (Joshi et al., 2008/9). In addition, teachers need sound knowledge of the English language and spelling system (Berninger & Fayol, 2008; Nunes & Bryant, 2006; Schlagal, 2002). Such an important skill as spelling needs to have a central place in the primary school curriculum.

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