

SSP: Problematic Strategies

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Taking each phoneme in turn all through the word

Taking each phoneme in turn all through a word trains children to identify the letter or letters that represent each individual phoneme from left to right. For example, **stand** has 5 phonemes represented by 5 letters = s/t/a/n/d. The word **house** has 3 phonemes represented by 5 letters = h/ou/se. Children with orthographic processing difficulties will always identify each phoneme in a word because they cannot group (unitise) phonemes into spelling patterns that represent more than one phoneme without structured and explicit teaching. Children who do not have orthographic processing difficulties can detect orthographic patterns (onsets, rimes and syllables) implicitly from their reading experience without teaching. They will recognise from reading experience that **night**, **right**, **bright**, **fight**, **light** have the same end pattern 'ight' (rime), and that only the initial consonant sounds change (onsets) and that **bite**, **kite**, **write**, **quite**, **white** have the same end sound but the pattern is different. They internalise these patterns in groups by spelling and sound consistency (onset and rime patterns) which facilitates correct spelling and reading fluency. It also enables this group of children to advance their reading and spelling skills well beyond their disadvantaged peers who get stuck decoding (reading) and encoding (spelling) every word phoneme-by-phoneme because they have only been taught phonics at the alphabetic level, and not the orthographic representations for larger units of sound that have more than one phoneme.

How can this disadvantage be addressed?

In the 1970s and 1980s children were taught consonant phonemes first and when these were secure they were immediately taught to blend them into initial consonant two-letter orthographic patterns that occur at the start of many words: (br, cr, dr, fr, gr, pr, tr) (bl, cl, fl, gl, pl, sl) (sc, sk, sl, sm, sn, sp, st, sw). This teaching had two main benefits. It enabled children to overcome the difficulties blending words with more than two phonemes (which is beyond the working memory capacity of the majority of 5-7-year-old children), and it taught children to recognise initial consonant orthographic units (onsets). Difficulties blending are now well recognised in relation to Systematic Synthetic Phonics (SSP). The DfE core phonics criteria specify that children should not be taught consonant onsets or end rimes. The research evidence, however, has found that orthographic patterns (onsets, rimes, syllables) and the sounds they represent are essential for reading fluency and spelling accuracy (Ehri, 2020, 2024; Mather and Jaffe, 2021; McMurray, 2020; McMurray, Morrow and Bower, 2026).

Blending

Another important issue is that when each phoneme is said individually, the phonemes sound nothing like the word. For example, saying each of the 4 phonemes in the word 'best' from left to right does not sound like the word best. This is a point made by Uta Frith in her 2020 YouTube video.

Frith explains that if you hear the word 'cat' it is actually one sound. *'When you are literate, when you're a person who can spell C-A-T. It seems to you that you can separate cat into c-a-t. But actually you can't put them together and make cat. It is just completely separate. It is a very artificial way of breaking up the sounds of speech'.* Frith (2020)

<https://www.youtube.com/watch?v=bYrxiiq9gsU&t=1s> (1.52 minutes to 2.24 minutes)

Because most syllables in English have more than two phonemes, blending is extremely difficult, unlike blending in Spanish or Italian where a very large proportion of syllables are two phonemes long. The blending difficulties associated with SSP are well documented and as a result additional strategies have been developed to help children correct the mispronunciation problems associated with SSP. These were not needed in the 1980s and early 1990s before the introduction of the whole language and SSP approaches to teaching reading.

Why does blending appear to work for some children?

If the teacher has to tell a child what a word says after the child has said each phoneme in turn, any success in learning and remembering the word on the next attempt cannot be attributed to this phoneme-by-phoneme process.

Children with orthographic processing difficulties have difficulty noticing patterns in words and words as a whole. They can identify the phonemes in words because of the intensity of the teaching to achieve this, but they cannot read the word and have to be told what the word is by the teacher. A child with orthographic processing difficulties will not recognise the word on subsequent attempts and will go through the same process of taking each phoneme in turn all through the word, on every attempt.

Children with good orthographic processing, when the teacher has told the child what the word is, will be able to recall the word on the next attempt because the child's orthographic processing ability will have noted each letter in turn and in parallel (the pattern of the word) and the name of the word itself will activate the word's meaning (semantic processing) and associate it with this orthographic memory of what the word looks like. If the word is in a sentence, syntactic processing (usage) will also provide a supporting connection.

Orthographic, semantic and syntactic processing are the other processes needed to develop automatic word recognition and if they are working well, these other processes support the decoding strategy enabling learning to take place. These processes working together secure learning because they form connections, not just to the sound of the word, but also the orthographic pattern of the word as a whole, and the word's meaning and usage (semantic and syntactic processing). Prohibiting the use of context (meaning) for word identification and training children to rely on phonics is extremely problematic and it is important to understand why this is an issue. Phonic, orthographic, semantic and syntactic processes must work together in an integrated way.

Why blending individual phonemes into words is difficult

According to Alloway (2011, page 2), children with average working memory can hold:

1 item

in working memory at 5
years of age

2 items

in working memory at 7
years of age

3 items

in working memory at 10
years of age

52%

of syllables in English have
more than 3 phonemes

According to Gathercole and Alloway (2008), in a class of thirty seven-year-olds there is likely to be a six-year range in working memory capacity.

Three children will have the working memory capacity of a four-year-old and three children will have the working memory capacity of a ten-year-old. These working memory capacity differences have a greater impact on learning than IQ, and a significant impact on the ability to blend phonemes together. This limited working memory capacity makes blending many words in English difficult for children with average working memory and impossible for those with poor working memory. Only 5% of syllables in English have two phonemes and 43% have three phonemes. This means that 52% of syllables in English have more than three phonemes.

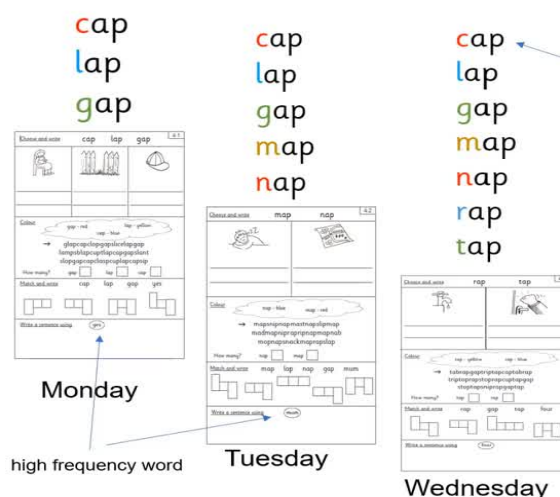
Blending individual phonemes or onset and rime

What are the implications for blending phonemes and for blending onset and rime? Children with average working memory will struggle to blend phonemes together in words with more than two phonemes. They should, however, be able to blend words if they can identify the onset and rime because identifying the onset and rime reduces blending to two units which is within the working memory capacity of the majority of 7-year-old children. Children with poor working memory and those with dyslexic-type difficulties, however, may not be able to blend onset and rime patterns together even though there are only two units of sound to blend, but it is still really important for them to be able to identify the onset and the rime. The strategy to enable children with poor working memory to use onset and rime to enable word recognition is different.

How to teach children to use onset and rime without having to blend

How to teach children to use onset and rime without having to blend

- When teaching onset and rime do not break/segment the word into two separate units as children with very poor working memory and children with dyslexia who have difficulty unitizing sounds, cannot blend two units together
- Learning to spell provides a very effective way for teaching onset and rime patterns enhancing the development of orthographic knowledge
- The onset and rime pattern is built up over three days as seen here



The initial consonant sound for each word should be in different colours and the end rime should be the same colour

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When teaching onset and rime, do not break the word into two separate units as children with very poor working memory and children with dyslexia who have difficulty unitising sounds cannot blend two units together. Learning to spell provides a very effective way for teaching onset and rime patterns, and the method above enhances the development of orthographic knowledge without having to artificially break syllables into two parts.

The example on the diagram above is for 5 to 6 year olds (Year 2) and demonstrates how the spelling pattern can be built up over Monday, Tuesday and Wednesday.

SSP and the alphabetic code guessing game

When reading, some children are so heavily engaged in decoding phoneme-by-phoneme they cannot use meaning to direct them to the correct pronunciation of letters that represent more than one phoneme. As well as excluding onsets and rimes, the DfE core phonics criteria specify that children should not be taught to use context. Vowel sounds have multiple mappings and Adams (1990) advises that vowels are more stable within 'rimes'. Children who cannot recognise 'rime' patterns have to guess what vowel phoneme the letter or letters in a word make. This guessing (mispronunciation) problem is so predominant in children with orthographic processing difficulties taught to read using an SSP only approach, that to address this a mispronunciation strategy has been developed and researched by Colenbrander et al (2022).

Choosing the right pronunciation for letters that represent more than one sound, when you cannot use context, results in the child guessing which pronunciation is the right one.

R E A D

- 'Can you read?'
- 'Have you read?'

B O W

- The bow on a dress
- The bow of a ship
- A bow and arrow
- A violin bow
- You bend over to bow

Five ways to pronounce 'ough'

- cough
- bough
- though
- through
- rough

The issue of 'tricky' words

- If children with orthographic processing difficulties are taught to identify phonemes and take each sound in turn, from left to right, all through the word, they are being trained to read phonemes not words.
- Because they have orthographic processing difficulties they are unable to recognise patterns in print without explicit teaching, therefore they cannot identify letter patterns that represent more than one phoneme and they cannot recognise whole words because they have been taught to default to a decoding phoneme-by-phoneme strategy
- For every word they see, they focus on the phonemes in turn, thus entrenching their orthographic processing difficulty

- These children do not know when a word is tricky or not tricky if they have been trained to identify phonemes only and not to use any other strategy
- Children who are successful in knowing when to decode a word at phoneme level, and when to read a tricky word on sight as a whole, are successful because they have good orthographic processing. This orthographic processing is supporting the use of the phonemic strategy and this enables learning to take place

The fact that the primary teaching focus is systematic synthetic phonics does not mean that other cognitive processes such as orthographic processing are switched off. Orthographic processing supports learning on an ongoing basis at an implicit level detecting patterns in print without being explicitly taught them, and orthographic memory builds despite the phoneme-to-grapheme only strategy. It is this orthographic processing ability that enables sight word recognition, not decoding phoneme-by-phoneme alone, the two must work together. For children who cannot abstract and process orthographic knowledge implicitly, the application of phoneme-to-grapheme correspondences fails to develop sight word recognition.

Whole word reading

- Due to variations in understanding the term ‘whole word reading’, it is necessary to clarify what is meant by the term. Whole word reading is defined by Dehaene (2013) as a focus on ‘*the global shape of the word*’ without attention to the letters in the word.
- This notion of ‘*whole shapes*’ (DfE, 2021, Note 1) or ‘*the global shape of a word*’ as described by Dehaene (2013), raises the concern that methods to develop sight word recognition from the beginning, when the teaching of phoneme-to-grapheme correspondence is being introduced, are not understood.
- Gough and Hillinger (1980), Vousden et al (2011) and McMurray et al (2023) provide evidence that whole-word learning is the simplest and most efficient way to learn at the very earliest stages of learning to read for a very small reading vocabulary of up to 50 words. Initially teaching a small sight vocabulary using whole word learning should overlap with teaching phoneme-to-grapheme correspondences. The sight words being learned serve as anchors for the phoneme-to-grapheme correspondences being learned.
- Activities to develop orthographic memory are now absent from teaching and this is to the detriment of children who are unable to establish and apply any, some, or all phoneme-to-grapheme correspondences without anchors in memory to attach this learning to. These difficulties may be due to one, more than one, or all of the following:
 1. orthographic processing difficulties
 2. working memory difficulties
 3. difficulties with the discrimination of sounds in words or within the speech stream
 4. speech and language difficulties such as poor articulation and pronunciation

While teaching the alphabetic code (phoneme-to-grapheme correspondences) is an essential part of any phonics programme, in a complex orthography such as English, prohibiting phonics at orthographic levels as stipulated by DfE core phonics criteria for SSP programmes, means only those

children who can learn implicitly from reading experience develop the orthographic knowledge needed for reading fluency and spelling accuracy.

Why the advanced code is difficult for some children

- Teaching the advanced code is confusing for children with orthographic processing difficulties and can have a negative impact on spelling development. This is because making the right choice of letters for phonemes with multiple mappings cannot be done unless the child already has the spelling of the word in memory. The advanced code involves teaching the increasingly complex and variable relationships between phonemes and graphemes in English, including alternative graphemes for the same phoneme and alternative phoneme correspondences for the same grapheme. (Please see the leaflets on phoneme-grapheme mappings and grapheme-phoneme mappings in the 'Letter Names' section of the Education Associates Ireland web page).

How better learning outcomes can be achieved

- For this group of children at 4-5 years of age, it is important to teach the commonly occurring initial consonant blends as soon as the individual initial consonant phonemes are known, and before teaching any vowel sounds
- The vowel sounds are best learned within spelling patterns consistent in sound and spelling. The research from my PhD provides evidence of the significant gains that can be made
- Spelling provides a vehicle for the structured and systematic teaching of phonemic, orthographic and morphemic knowledge within an integrated approach from 5-8 years (Research outcomes: $p < 0.0001$, effect size 1.19, reported in Lavan & Talcott, 2021)
- Squires and Wolter (2016) also found that spelling interventions with an orthographic pattern focus contributed to significant improvement in spelling skills in kindergarten and beyond, for children with, and those at risk of, reading disabilities (dyslexia)

Letter names

SSP teaches phonemes as labels for letters and not letter names. There is no research evidence to support this. Letter names can provide a useful memory cue. 23 of the 26 English letter names contain a phonological cue to at least one phoneme represented by the letter (18 of the 44 phonemes). Controlled studies show that children can use this relationship when learning letter-sound correspondences.

Letter names provide stable labels for the 26 letters of the alphabet. A letter has a conventional name, while the same letter (grapheme) can represent different sounds in different words (for example, c in cat and circle). Letter names can therefore give teachers and children a stable way to identify and discuss how a word is spelled or communicate a spelling to another person. Children should be taught to learn to spell using letter names from the very beginning. Sounds can be used as a supporting strategy, but should not be the primary focus.

The evidence does not show a benefit from teaching letter sounds before letter names and research evidence on learning to spell has found that SSP has a negative impact on spelling development. It is

important to read the leaflets on letter names to more fully understand the complexity of English orthography. Please read McMurray (2020) and McMurray, Morrow and Bower (2026) to better understand the negative impact of teaching phonemes as labels for letters.

Please see the 4 spelling categories and samples of writing in McMurray, Morrow and Bower (2026: pages 10-13) to assess the extent to which children, on entry to Year 5 (KS2) in your school, have entrenched spelling difficulties that will be difficult to remediate. Children in Year 5 in N. Ireland are 8-9 years of age.

References

- Adams, M. J. (1990). *Beginning to Read: Thinking and Learning about Print*. MIT Press.
- Alloway, T. P. (2011) *Improving Working Memory: Supporting Children's Learning*. London: SAGE
- Colenbrander, D., Kohnen, S., Beyersmann, E., Robidoux, S., Wegener, S., Arrow, T., Nation, K., & Castles, A. (2022). Teaching children to read irregular words: A comparison of three instructional methods. *Scientific Studies of Reading*, 26(6), 545–564.
- Dehaene, S. (2013) How the brain learns to read. Video. <https://www.youtube.com/watch?v=25GI3-kiLdo> Accessed 2/10/2026 (14 mins 37 secs).
- DfE (2021) Essential core criteria for phonics programmes: Note 1, published 1st April 2021 www.gov.uk/government/publications/phonics-teaching-materials-core-criteria-and-self-assessment/validation-of-systematic-synthetic-phonics-programmes-supporting-documentation
- Ehri, L. C. (2020). The science of learning to read words: A case for systematic phonics instruction. *Reading Research Quarterly*, 55, S45–S60. doi: 10.1002/rrq.334
- Ehri, L. C. (2024). Clarifying the role of orthographic mapping in sight word reading. *Reading League Journal*. 4–13.
- Frith, U. (2020) Dyslexia: learning to read in Italian. Video. Accessed 5/10/22 <https://www.youtube.com/watch?v=bYrxqq9gsU&t=1s>
- Gathercole, S., & Alloway, T. P. (2008). *Working Memory and Learning*. London: Sage.
- Gough, P. B., & Hillinger, M. L. (1980). Learning to read: An unnatural act. *Bulletin of the Orton Society*, 30(1), 179–196.
- Lavan, G., & Talcott, J. B. (2021). Brooks's What Works for Literacy Difficulties?. Accessed 2/10/26 <https://www.theschoolpsychologyservice.com/wp-content/uploads/2020/11/The-CSP-6th-Ed.pdf>
- Mather, N., & Jaffe, L. (2021). Orthographic knowledge is essential for reading and spelling. *Reading League Journal*, 2, 15–25.
- McMurray, S. (2020) "Learning to spell for children 5-8 years of age: the importance of an integrated approach to ensure the development of phonic, orthographic and morphemic knowledge at compatible levels". *Dyslexia*, 26:4, 442-458 Available for download from www.educationassociatesireland.com
- McMurray, S., Bower, P., & O'Neill, G. (2023). The importance of simultaneous interconnected processing when learning to read: evidence from a case study school. *The Journal of the Association of Teachers of Students with Specific Learning Difficulties (Patoss Bulletin)*, Volume 36, No. 1, pages 38–56.
- McMurray, S., Morrow, M., & Bower, P. (2026) An examination of the orthographic and phonological spelling knowledge observed in a sample of independent writing completed by 267 children with specific literacy difficulties. *Frontiers in Education*. Online OPEN ACCESS.
- Squires, K. E., & Wolter, J. A. (2016) The Effects of Orthographic Pattern Intervention on Spelling Performance of Students with Reading Disabilities: A Best Evidence Synthesis. *Remedial and Special Education*, 37(6), pp. 357-369.
- Vousden, J. I., Ellefson, M. R., Solity, J., & Chater, N. (2011). Simplifying Reading: Applying the Simplicity Principle to Reading. *Cognitive Science*, 35, pp. 34–78.