

Summary of the findings of Vousden et al (2011)

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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

CONTEXT · 9 DECEMBER 2025

On 9th December 2025 at a conference held by DE, a presentation made by Dr Buckingham advised that onset and rime should not be included for teaching reading and three references were provided to support her claim (QR codes that teachers can use to access the papers are provided in the handout on slide 32). However, none of these papers advised against onset and rime. The point that was made in two of the papers was that phoneme-to-grapheme correspondence should be taught first. The third paper did not mention onset and rime at all (Colenbrander et al, 2022). However, it is important to note the omission of some key points made in the papers by Vousden et al (2011) and Colenbrander et al (2022), and the role of onset and rime discussed in Ehri’s (2020, 2022 & 2024) papers. This leaflet provides a summary of the points made by Vousden et al.

Five key points made by the authors

- A** 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.
- B** Grapheme-phoneme mappings provide the simplest and most generalisable account of spelling-to-sound correspondence as reading vocabulary increases
- C** Onset and rime/body are more accurate predictors of pronunciation
- D** Not all grapheme mappings are equally useful
- E** Initially teaching a small vocabulary using whole word learning should overlap with teaching phoneme-to-grapheme correspondences

HOW TO READ THIS DOCUMENT

Gold panels like this one sit outside the paper. They carry commentary, qualifications, and evidence from the Harborton Reading Programme action research (McMurray, 2000–2002) and later studies. Everything in plain text is a report of what Vousden et al (2011) themselves argue.



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.

This paper takes a computational approach to the long-standing debate over which unit of language, i.e., whole words, onset-rime/body, or grapheme-phoneme correspondences, is most useful for learning to read. The authors apply the ‘Simplicity Principle’, which holds that the best representational system is the one that encodes spelling-to-sound mappings as efficiently as possible, but with the caveat that for very small reading vocabularies (up to around 50 words), whole-word representations are actually the simplest and most efficient (page 53).

LINKS TO PRACTICE

This was also a finding from the action research conducted when developing the Harberton Reading Programme for children with moderate learning difficulties (MLD) (HRP: McMurray, 2000-2002) and was established knowledge in the 1980s for children of primary age learning to read.



Grapheme-phoneme mappings provide the simplest and most generalisable account of spelling-to-sound correspondence as the reading vocabulary increases.

Once vocabulary size grows beyond the threshold of up to 50 words (learned as whole words), grapheme-phoneme mappings provide the simplest and most generalisable account of spelling-to-sound correspondence.

LINKS TO PRACTICE

A finding from the HRP action research (McMurray, 2000-2002) was that teaching children to read words, using a range of activities to develop orthographic knowledge, provided anchors in memory that enabled these children to start to develop PGCs that were retained and could be applied.



Onset and rime are more accurate predictors of pronunciation

The authors point out that onset-rime units are more accurate predictors of pronunciation than graphemes, but advise that they require so many more mappings that they are less efficient overall.

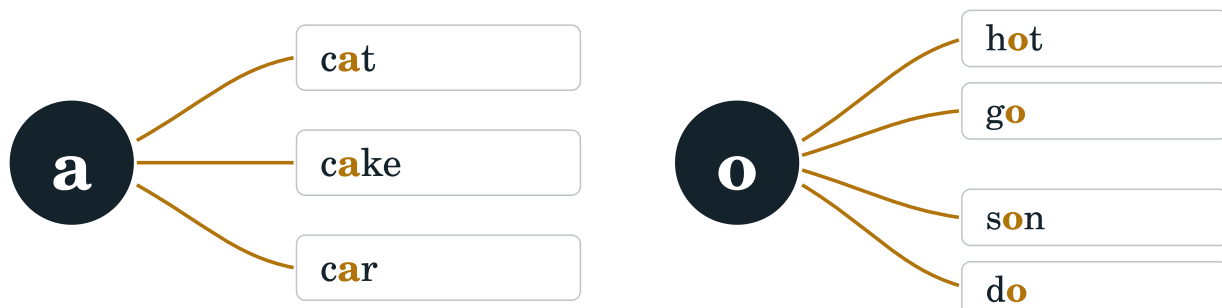
A POINT THAT VOUSDEN ET AL (2011) DO NOT MAKE

This statement about the number of mappings to be learned being greater for onset and rime, only applies if phoneme-to-grapheme correspondence has not been taught first. This is a point that Vousden et al (2011) do not make, but it is an important one. Adams (1990) review of research on early reading found that vowel sounds are more stable in rimes. As long as phoneme-to-grapheme correspondences are taught first, initial consonant blends and rimes are recognised as phonemes blended together, and do not put any additional burden on memory. Children who cannot recognise onset and rime patterns when reading often mispronounce vowel phonemes when decoding because some vowel sounds can be represented by up to 9 different spellings and the same letter can be pronounced in different ways. Consider the pronunciation of the letter 'a' in cat, cake, car, or the letter 'o' in hot, go, son, do. When letters have multiple mappings and children don't recognise the word, they have to guess which sound is the right one. This results in *mispronunciation* and *guessing* which does not lead to sight word recognition resulting in problems with reading fluency and over dependence on decoding phoneme-by-phoneme.

LINKS TO PRACTICE

McMurray (2006, 2020) provides robust evidence that the explicit teaching of onset and rime patterns through learning to spell provides a highly efficient vehicle for ensuring that children can utilise the benefits of onset and rime necessary for spelling accuracy and reading fluency ($p < 0.0001$; effect size 1.19).

ADDED ILLUSTRATION — THE SAME LETTER PRONOUNCED IN DIFFERENT WAYS



Added illustration of the examples given in the text above.



Not all grapheme mappings are equally useful

The Vousden et al (2011) paper also found that not all phoneme-to-grapheme mappings are equally useful. They identified a reduced set of the most frequent and consistent correspondences. The authors argue this provides a theoretically grounded rationale for beginning reading instruction with high-frequency, highly consistent grapheme-phoneme correspondences (PGCs) whilst acknowledging that whole-word learning is appropriate at the very earliest stages.

LINKS TO PRACTICE — AT KEY STAGE 2

McMurray et al (2026) provide evidence that high frequency PGCs are all that some children in KS2 have retained, despite repeated teaching of the advanced SSP code. Consequently reading is dysfluent and spelling errors are phonologically plausible, but incorrect.



Initially teaching a small vocabulary using whole word learning should overlap with teaching phoneme-to-grapheme correspondences

Vousden et al (2011) do not recommend a discrete stage of whole-word learning followed by phonics. They advise that arbitrary whole-word mappings are actually harder to learn than mappings that contain some letter-sound relationship, and that there is evidence sight vocabulary learning in the very early stages, is itself aided by some letter-sound knowledge. So the authors conclude that *“it is much more likely that the different strategy preferences should overlap”* rather than follow sequential stages. The authors are advising that teaching an initial small sight vocabulary using whole word methods, should be alongside teaching phoneme to grapheme correspondence, and should commence from the beginning so that some letter sound relationships can overlap and be applied.

ADDED ILLUSTRATION — THE OVERLAP DESCRIBED IN POINT E



A POINT THAT VOUSDEN ET AL (2011) DO NOT MAKE

Reading experience has been added to this diagram by the author. It is not a point made by Vousden et al (2011).