

# The science of reading

*Reading is recognised as a fundamental skill that should be acquired by children early in their learning. Here we explore the continuing debate over how this skill is best taught to our young learners, examining the case for systematic synthetic phonics*



“I trained as a teacher around 18 years ago and remember coming out of my training and going into school, and teachers saying, ‘we don’t really know how children learn to read.’ I didn’t think much of it at the time and after teaching a whole class for two years I became a support for learning teacher.”

“Two years ago I went on a course called Phonics Forever. It covered the science behind reading and explained things about the English language and the alphabetic code that I just didn’t know. I remember getting a bit tearful because I could think of so many people that I could have helped better if I’d actually

known the science behind teaching children to read. It was like an epiphany, a revelation.”

Since this one-day training session, support for learning teacher Alison Taylor has done a huge amount of reading on the subject, exploring research from different experts around the world.

Alison says: “It became apparent to me that much of our poor literacy is due to teachers not having been educated properly themselves about the English language.”

She now feels passionately that systematic synthetic phonics can make a huge difference in Scotland. →

## → The science of reading

Dr Sarah McGeown, Senior Lecturer in Developmental Psychology at the University of Edinburgh, has been carrying out research into children's reading acquisition and development for 15 years.

Dr McGeown explains that phonics is an approach to reading instruction which explicitly teaches children to use letter-sound correspondences in order to decode unfamiliar words. With synthetic phonics, if a child sees the word "cat", for example, they will have been taught that the letter "c" represents a /c/ sound, the letter "a" an /a/ sound, the letter "t" a /t/ sound, and they blend (synthesise) these sounds together to form the word.

"With systematic phonics instruction, children are taught letter-sound correspondences in a deliberate, planned sequence, starting with simple letter-sound correspondences that occur frequently within words (e.g. a, t), progressing to less frequent letter-sound correspondences (e.g. b, f) and digraphs (e.g. ch, ee). As children acquire more phonics knowledge, they are on a path to becoming independent and successful readers."

Dr McGeown explains that for effective reading instruction, this approach must be part of a wider reading curriculum that also focuses on developing children's oral language skills and vocabulary, so that when they come to a word they are not just decoding it but know what it actually means. She also stresses the importance of developing a love of reading in young children. "Phonics provides children with a self-teaching mechanism, that is, a very effective strategy to become independent readers. However, alongside phonics instruction, teachers also need to promote a love of books, words and stories, so that children have the desire to read once they are able to."

Following Alison's training and professional reading, her approach to teaching children to read has changed dramatically. "At the schools where I teach, we have taken systematic synthetic phonics on as a universal way to teach children to decode, all within the big five areas of teaching literacy."

"We have also bought cumulative decodable books to teach the children so that when they're learning to decode they have the books to practice that."

## The reading wars

This October, Professor Kathy Rastle from the Department of Psychology, Royal Holloway, University of London, delivered a keynote lecture at the University of Edinburgh about the science of teaching children to read. Her talk was entitled *Ending the Reading Wars*.

"The reading wars refer to a period of vociferous debate lasting about 200 years, but most intensively in the last 40 years, around how children should be taught to read," explains Professor Rastle. "Broadly speaking the reading wars have contrasted an approach based on phonics with an approach based on the principles of whole language. Whole language basically emphasises the discovery of meaning through immersion in a literacy rich environment; this has been rebranded

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over the years as multi-cueing, searchlights, or balanced literacy."

"From the perspective of a reading scientist the wars are very interesting because we know a huge amount about the processes by which children learn to read. Ultimately this is a psychological problem of how the brain learns to connect visual symbols to language, and a lot of very clear principles for instruction fall out of that scientific knowledge. Given consensus in this area, it's very hard to understand why these wars should still be raging."

Professor Rastle explains that this is a global war, occurring in all English-speaking countries, and only in England has the war been "won by science".

"England has put in place a national policy where primary schools are required to teach reading via systematic phonics."

A simple phonics screen check was recently implemented to test the effectiveness of this practice.

"When introduced in 2012, teachers in England were saying they were using phonics; however, in that year only 58 per cent of children met an acceptable standard in their phonics knowledge. Over each successive year that figure has increased dramatically, and it's now over 80 per cent."

In Scotland, phonics may also be used widely, but it is one of many methods that teachers may use to teach children to read.

In Alison's view, "A lot of schools think they are doing phonics and have bought certain resources, but they don't know enough about the alphabetic code themselves to teach it really specifically and far enough. Some children then become left behind and what many teachers do is to start using the multi-cueing system. So, look at the picture, try and work out what the word might be, what is the first sound, what is the rest of the sentence, can you have a guess at what the word is?"

"To me, using multi-cueing and mixed methods is not good practice because it doesn't allow children to become skilled, independent readers, because when a child comes across a word that they haven't seen before, multi-cueing and whole language doesn't give them any strategies to be able to decode that."

## The gap between research and practice

What is highlighted by both Dr McGeown and Professor Rastle is the wide gap that exists between the state

of research knowledge about learning to read, and educational policy and practice.

In Professor Rastle's view, the first step to reduce that gap is "to acknowledge and begin to treat learning to read as a scientific problem - it's not a political issue and it's not an issue about educational philosophy."

To help address this challenge she has recently co-authored a paper, also entitled *Ending the Reading Wars*, which has been made open access (find it at [bit.ly/ending-the-reading-wars](http://bit.ly/ending-the-reading-wars)).

"In the paper we distil what we believe are the most important findings from the last 100 years of reading research. We tried to go from the earliest foundation of alphabetic skills all the way through to comprehension, and offer ideas in each section for how the science can be translated into practice."

"I think the most important thing that a primary school teacher could do is to implement rigorous systematic phonics in their classrooms. And that doesn't mean phonics with a bit of guessing or pictures, it means proper systematic phonics. Teachers should also insist on a phonics screen to test the effectiveness of that practice," says Professor Rastle.

Professor Rastle does stress however that there's much more to reading beyond phonics. "Every reading researcher would agree with that," she says, "and we talk in our paper about some of the ways that these other aspects of reading, and the science behind those, could be translated to the classroom."

### What next for Scotland?

Sometimes referred to as "the great equaliser", both Dr McGeown and Professor Rastle stressed that, if implemented at an early stage, phonics has the ability to put children on a more level playing field, helping to reduce the Matthew Effect which sees the attainment gap widen over time.

Alison, too, feels passionately that if more teachers learned about the science of reading, our learners could have better outcomes.

"The statistics show that up to 60 per cent of children learning the English language will learn to read however you teach them. But that means 40 per cent won't, unless you explicitly teach them how the alphabetic code works."

Alison is keen to see a change in teacher education. She says: "It's not because teachers are bad teachers, it's just that they haven't been taught about the alphabetic code."

Literacy Consultant and Trainer Anne Glennie, who runs the course Phonics Forever which Alison attended, lodged a petition in August 2017 calling for national guidance, support, and professional learning for teachers in research-informed reading instruction, specifically systematic synthetic phonics; and for teacher training institutions to train new teachers in research-informed reading instruction, specifically systematic synthetic phonics.

In Anne Glennie's view, a "teaching gap" exists

in Scotland, largely because current advice given by Education Scotland does not draw on the latest international research and reinforces "the status quo"; "reading practice in primary schools is led by resources"; and "new teachers are not trained in current, evidence-based reading pedagogy".

Dr McGeown, speaking for the petition at the Scottish Parliament's Public Petitions Committee, made the important point: "This is not about removing teacher autonomy and it's not about implementing a prescriptive approach to the teaching of reading. This is about empowering teachers by ensuring [they] have access to the most up-to-date research on children's reading instruction and then allowing them to make decisions about how best to apply this."

## GTCS WEBINAR

Dr McGeown will deliver a GTCS webinar on "The Science of Reading" on 13 December. Join us online from 4pm to learn more about systematic synthetic phonics, the alphabetic code, the big five and more. Send your questions in advance to [teachingscotland@gtns.org.uk](mailto:teachingscotland@gtns.org.uk)

Read Professor Kathy Rastle's paper at: [bit.ly/ending-the-reading-wars](http://bit.ly/ending-the-reading-wars)

Watch the keynote at: [bit.ly/ending-the-reading-wars-keynote](http://bit.ly/ending-the-reading-wars-keynote)

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### NOTE FROM THE EDITOR

GTC Scotland does not hold a policy position on teaching children to read. This article was written and published following correspondence with one of our readers, Alison Taylor. Alison's letter can be read on page 8.

We would like to thank Alison for her request for an article exploring the science of reading and encourage our readers to get in touch with any ideas, comments or suggestions for further articles in *Teaching Scotland*.

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