Webinar Series 1

Literacy Development

Ros Lugg

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Key Questions:

- Why do some learners struggle, but others don't?

- How can we stop learners falling through the gaps?

2

A key model developed by the USA National Reading Panel in 2000

Describes the progression of skills as reading develops.

- Sequential
- Cumulative

The **5** Big Ideas in Beginning Reading

Comprehension	5
Vocabulary	4
Reading Fluency	3
Phonic Knowledge	2
Phonological Awareness	1

USA National Reading Panel, 2000

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Slide 4

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Slide 5

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Slide 6

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USA National Reading Panel, 2000

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Slide 7

A key model developed by the USA National Reading Panel in 2000

Describes the progression of skills as reading develops.
- Sequential
- Cumulative

The **5** Big Ideas in Beginning Reading

Comprehension
Vocabulary
Reading
Phoni
Phonolog

Plenty of opportunities to fall through the gaps!

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Slide 8

Benefits of reading to your child at home

- Direct effect on vocabulary and comprehension
- Develops creativity and imagination
- Greater understanding of the world around them
- Better academic performance
- Cognitive improvements
- Better phonological awareness

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Slide 9

Essential early development – the importance of oral language

Comprehension
Vocabulary
Reading Fluency
Phonic Knowledge
Phonological Awareness

USA National Reading Panel, 2000

Listening to stories
Language interaction

Listening to language
Nursery rhymes
Rhythm of language

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Literacy Methodology

How have we traditionally taught children to read?

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Two opposing approaches

- Whole language

- Phonics

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Whole Language

Recognising words as whole units. Language should not be broken down into letters and letter patterns.

Instead, language should be a complete system of making meaning.

Emphasis on comprehension and context. Users should look for the context and pictures for help, rather than decoding.

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Phonics Approach

Letters and letter patterns are the 'building blocks' of written language.

It is essential to understand how written language is structured, so learners can develop independent decoding and encoding skills – in other words, work words out for themselves.

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The 'Code'

There is a 'code' for how we represent sounds with symbols (letters or letter patterns).

h / o u / s e

decoding = reading

(working out the sounds from the symbols)

encoding = spelling

(representing sounds with symbols)

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Summary Statement

National Reading Panel, USA

"It is important to emphasize that systematic phonics instruction should be integrated with other reading instruction to create a balanced reading program…..

Phonics should not become the dominant component in a reading program, neither in the amount of time devoted to it nor in the significance attached."

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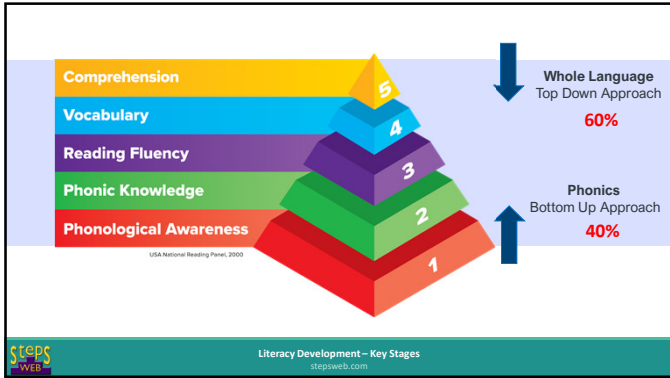
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So why do some learners struggle?

"She's got a reading problem."
"She's got a spelling problem."

Don't look at the symptom – identify the cause!

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Processing and perceptual skills – the Big Five

Motor Development	Sequencing
Visual Perception	Phonological Awareness
Memory (working)	

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Phonological Awareness

or

Phonemic Awareness

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Phonological Awareness

Phonemes

Phonemic Awareness

Onset + Rime

Rhyme   Syllabification

Foundation Skills

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So where are the gaps?

Comprehension — 5
Vocabulary — 4
Reading Fluency — 3
Phonic Knowledge — 2
Phonological Awareness — 1

← **First Gap**

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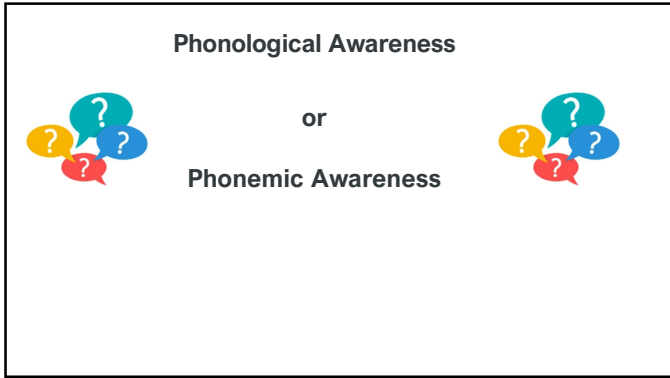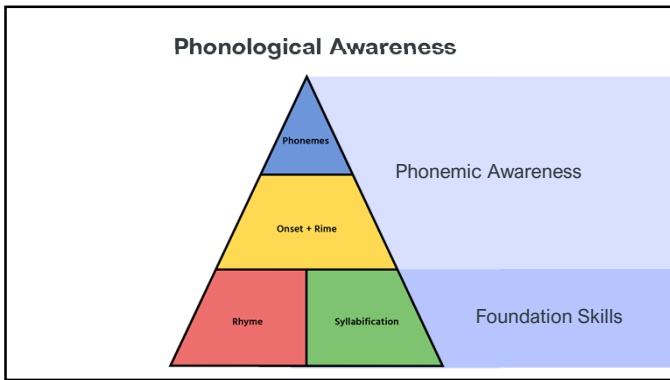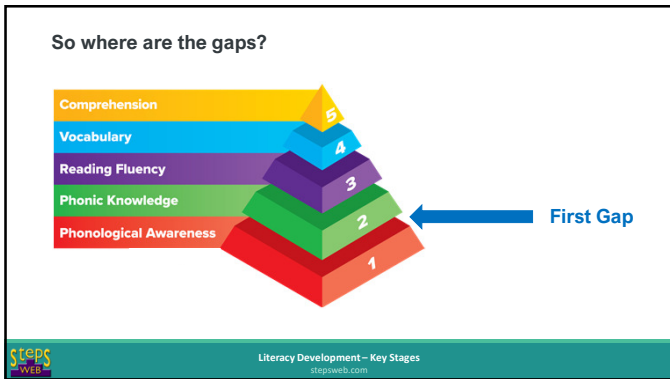
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Visual perception aspects which are related to literacy

- **Visual Discrimination**
- **Visual Memory**
- Visual-Spatial Relationships
- **Visual Sequential Memory**
- Visual Closure
- **Visual Figure-Ground**

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Processing and perceptual skills – the Big Five

Problems with these are associated with:

Visual Perception	Phonological Awareness
Poor sight vocabulary	Poor decoding and spelling

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Memory

Aspects particularly related to literacy are:

Visual memory
Visual sequential memory
Auditory sequential memory
Working memory
Long-term memory and retrieval

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But do we need visual memory for reading?

Current trend is for all of the focus to be on phonemic awareness and decoding/encoding.

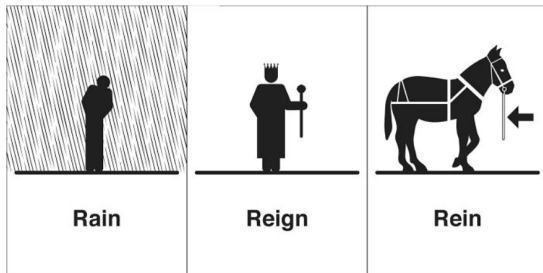Certainly important, but memory plays a role as well. Look at these examples:

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Rain   **Reign**   **Rein**

26

Band   **Banned**

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Slide 28
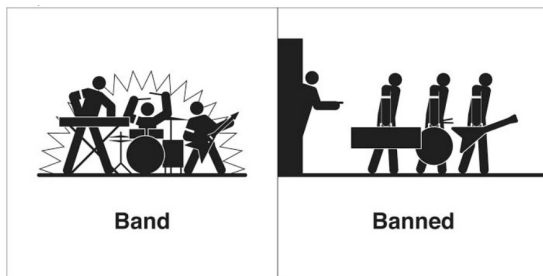
stream

streem	*as in*	seem
streme	*as in*	theme
striem	*as in*	fiend

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Slide 29

So why 'stream'?

Visual Memory

Kinaesthetic Memory

Auditory Memory

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Slide 30

Memory implications

A non-impaired reader needs only 4-10 exposures to a word to fix it into long-term memory.

A dyslexic learner may need 500 – 1300 exposures!

(Bateman, B., 1991)

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Key phases of literacy development

Logographic Phase

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Logographic Phase

Typically 3-5 years of age

Logographic Phase

A young learner may be able to read a *tiny* number of very high frequency words or words with a particular significance - their own name, for example.

Only using visual recognition – this learner doesn't yet have the phonemic skills and phonic knowledge to decode words.

Won't be able to read unknown words.

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Logographic Phase

Typically 3-5 years of age

Logographic Phase

Also likely to be confused with words of a similar shape.

David   Daniel

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Key phases of literacy development

Logographic Phase → Alphabetic Phase

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Alphabetic Phase

Typically 6+ years of age

Alphabetic Phase

The learner is acquiring key skills and knowledge:

Phonemic Awareness

Phonic Knowledge

Using those skills to learn to decode (read) and encode (spell)

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Phonemic Awareness

Alphabetic Phase

The awareness of individual sounds in words.

"Can you hear the sounds in cat?"   **c - a - t**

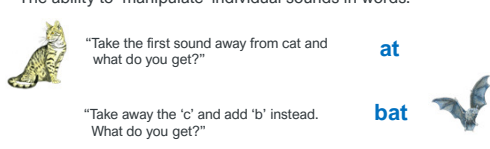"What is the first sound in rabbit?"   **r**

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Phonemic Awareness

The ability to 'manipulate' individual sounds in words.

"Take the first sound away from cat and what do you get?" **at**

"Take away the 'c' and add 'b' instead. What do you get?" **bat**

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Phonic Knowledge

Alphabetic Phase

Knowing what letter or letters go with each sound.

"What sounds can you hear in this word?"

"Let's see if we can write those sounds"

| f | igh | t |

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Phonic Knowledge
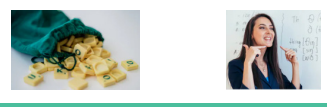
Alphabetic Phase

Much more complex than alphabet knowledge!

How many letters do we have?

How many sounds do we have?

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Alphabetic Phase

So what can we expect a learner in this phase to be able to do?

Read unknown words – providing they're reasonably regular!

Write unknown words.

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Alphabetic Phase

Errors are likely to be phonetically correct.

coff   cough

Actually, this error would be a good sign from a learner at this level. It shows us that the learner is accurately hearing the sounds and encoding them in a logical way according to their current level of knowledge.

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Alphabetic Phase – reading

Main reading strategy: conscious decoding

With associated drawbacks:
Slow and laborious
Difficult to follow the sense of the passage
Not a lot of fun!

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Key phases of literacy development

Logographic Phase → Alphabetic Phase → Orthographic Phase

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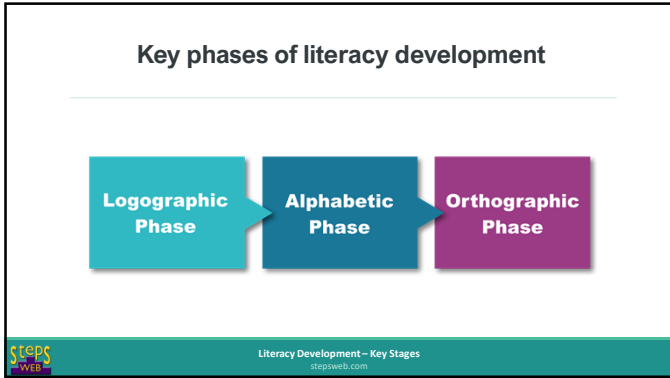
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Orthographic Phase

Orthographic Phase

So what can we expect a learner in this phase to be able to do?

Be aware of the more complex phonic patterns and be able to use them for reading and spelling.

Recognise words automatically without having to consciously decode them.

(Ehri, L., 1998)

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Orthographic Phase

Orthographic Phase

How does this happen?

Competent 'decoders' start to acquire a memory for common patterns, which no longer need to be consciously decoded.

Once a new word has been decoded for the first time, the word or letter pattern is associated with (mapped to) similar patterns in long-term memory.

(Kilpatrick, D., 2015)

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Orthographic Phase

Orthographic Phase

This process is known as Orthographic Mapping.

Crucial for reading fluency and, hence, vocabulary acquisition and comprehension.

(Kilpatrick, D., 2015)

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Key phases of literacy development

Logographic Phase	Alphabetic Phase	Orthographic Phase
Visual recognition – tiny number of words.	Ability to decode regular words.	Visual recognition of words without conscious decoding - reading fluency!

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So where is the second gap?

Comprehension — 5
Vocabulary — 4
Reading Fluency — 3 ← **Second Gap**
Phonic Knowledge — 2
Phonological Awareness — 1

USA National Reading Panel, 2000

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Orthographic Phase

Key points:

Orthographic Mapping is essential for reading fluency.

Dehaene & Cohen 2011

If you're still reading by a mainly decoding strategy, you can't effectively follow the sense of the passage.

Decoding is not fun!!!!!

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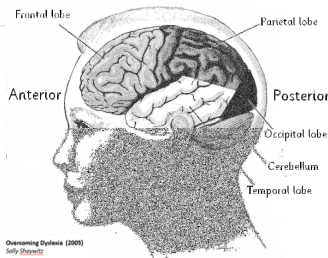## Neurological Aspects

Overcoming Dyslexia (2005)
Sally Shaywitz

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Left hemisphere brain activation

Left inferior frontal gyrus (Broca's area) – associated with articulation and phonological processing

Temporo-parietal cortex - involved in grapheme-phoneme conversion

Occipito temporal region – important for visual and orthographic encoding (whole word recognition). Includes the VWFA **(Visual Word Form Area)**

Broca's area
Inferior frontal gyrus
(articulation/word analysis)

Parieto-temporal
(word analysis)

Occipito-temporal
(word form)

Overcoming Dyslexia (2005)
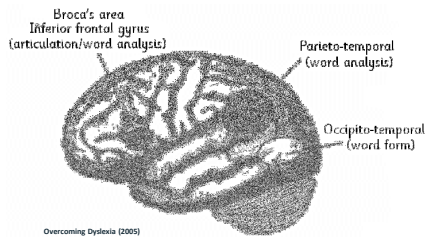Sally Shaywitz

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Overcoming Dyslexia (2005)
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Neural Signature for Dyslexia

Nonimpaired   Dyslexic

Overcoming Dyslexia (2005)
Sally Shaywitz

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Compensatory Systems

right   right
ANT   ANT
POST   POST
left   left

Nonimpaired   Dyslexic

Overcoming Dyslexia (2005)
Sally Shaywitz

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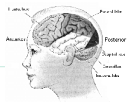
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Conclusion

Dyslexic Learners have:

An impaired occipito-temporal (Visual Word Form Area)

They therefore:

Over-rely on the wrong areas:

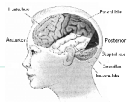- Broca's area and parieto-temporal in left hemisphere
- Right hemisphere areas

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Consequences

- Decoding areas (over)develop as instruction progresses.

- Wrong reading strategies being employed for fluency.

- Wrong areas of the brain being activated and developed.

Reading fluency never develops!

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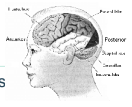
Correct process

- Learner analyses and reads the new word the first few times
  - using the decoding areas of the brain.

- Neural model of the word is formed
  - stored in the occipito-temporal.

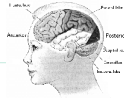- Word can now be recognised automatically.

Fluency achieved!

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Understandable question

How do I know when my student starts to use the Visual Word Form Area for Orthographic Mapping?

Some research studies suggest that the Visual Word Form Area operates at around 150ms or faster.

It is now possible to measure this speed.

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Visual Recognition Speeds by age

Age	Low 0-19%	Low Average 20-35%	Average Range 36-65%	High Average 66-80%	High 81-100%
5:00–5:11 yrs	700-800	600-700	450-600	350-400	50-300
6:00–6:11 yrs	600-800	450-550	300-400	200-250	50-150
7:00–7:11 yrs	550-800	400-500	250-350	150-200	50-100
8:00–8:11 yrs	450-800	250-400	150-200	100	50
9:00–9:11	350-800	200-300	100-150	50	-
10:00 +	300-800	150-250	50-100	-	-

Exploring the relation between visual recognition speed, teacher literacy assessment and age. Analysis of the StepsWeb Visual Recognition Speed Test for ages 5.0 – 8.9
Cowie S., Plimmer B., & Lugg R., 2017
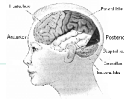
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What the 40% need:

Literacy progression – not a spelling programme.

Every word seen and used in context.

Structured progression, which includes:

Comprehension 5
Vocabulary 4
Reading Fluency 3
Phonic Knowledge 2
Phonological Awareness 1

USA National Reading Panel, 2000

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But also…..

A structure which enables every learner to work at his or her own speed and level.

Individualized reinforcement to cater for struggling/dyslexic learners – up to 1300 exposures, if necessary!

Transfer between online/computer work and written work.

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And more specifically…
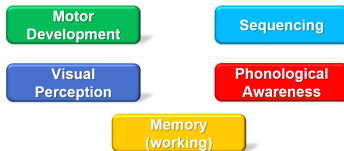
The right help and support to develop the core underpinning processing

and perceptual skills needed for literacy:

Motor Development

Sequencing

Visual Perception

Phonological Awareness

Memory (working)

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In conclusion……

Thanks for joining us – and we hope you've found this useful.

Feel free to send us any questions and check out answers on the link we'll be sending you.

Don't forget to join us again for the next webinar – we'd love to see you here again!

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