Teaching the Brain to Read

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The Neural Challenge

We have not evolved brains for reading.

We use our culture to create reading brains.
Visual Word Recognition

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Word Recognition as Integration

Orthographic

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Phonological

Semantic

[Image of umbrella]
The Concept of a Lexical Route

Do we build this in our brains?

umbrella
Literacy and the Visual Word Form Area

VWFA neurons code distinct word forms.
Disrupting the VWFA disrupts word recognition
The Concept of a Lexical Route

Do we build this in our brains? -- YES
What if the printed word is unfamiliar?

**meep**

![Diagram showing the lexical and non-lexical routes in reading comprehension with a focus on the word "meep".](image)
What is the neural scaffold?

Skilled reading network
Decoding scaffold
Decoding builds orthographic knowledge

The graph shows the accuracy of reading aloud and concurrent articulation for adults and children (Kyte, 2006). The graph includes the words "meap", "meep", "meab", and "meeb".
Putting the Ideas Together

Lexical route

- Letter Analysis
  - Orthographic Lexicon
  - Semantics
    - Phonological Lexicon
      - Phonemic Buffer

Nonlexical route

- Letter-sound Conversion
  - Decoding
  - Orthographic learning
Many thanks

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