



Reading and Dyslexia

Lessons from Research

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Today's Questions

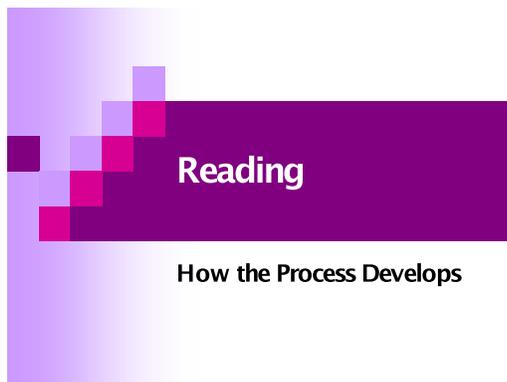
- What does "research-based" really mean?
- Why should we consider research?
- What research are we talking about?
- What does research say about how normal reading development occurs?
- What does research tell us about dyslexia?
- What are the implications of research?

Why we should consider research

- Historically, teacher preparation and teaching itself has been “driven more by fads and philosophies than by facts” (Moats)
- Educational practices and policies tend to be guided by **philosophical** and ideological factors rather than scientific factors (Lyon)
- Evidence from language about the language (Bowers, Cooke, Real Spelling)

What research are we talking about?

- Scientific
 - Controlled
 - Randomized
 - Longitudinal
 - Replicable
 - Peer-reviewed
- United States Federal Agencies
- International Partners
- Multiple Locations
- National Reading Panel
- Ongoing research



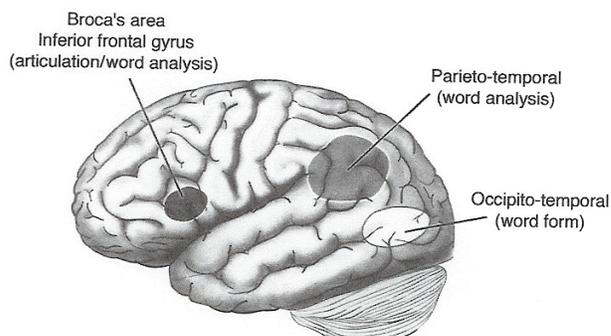
Reading is a developmental process

- Chall (1996) suggested a series of 6 stages
 - Pre-reading
 - Decoding
 - Confirmation & Fluency
 - Information
 - Multiple Viewpoints
 - Constructing Viewpoints

Reading is different at different stages

- Beginning stages
- Middle stages
- Later stages

How reading develops in the brain



- The brain is hardwired for speech
- Reading is NOT innate

- Reading skills need to be directly and explicitly taught



What is dyslexia?

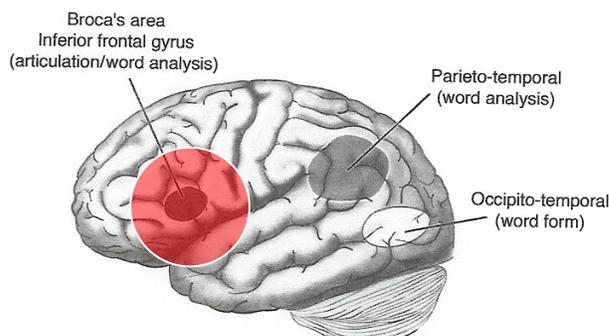
- Dyslexia is dimensional, not categorical
- “The notion of dyslexia as a discrete entity has provided the basis for a special-education policy that provides services only to those who satisfy what are seen as specific, unvarying criteria...Children who do not meet these arbitrarily imposed criteria may still require and benefit from special help.”
(Shaywitz)
- Dyslexia is common

Research definition of dyslexia

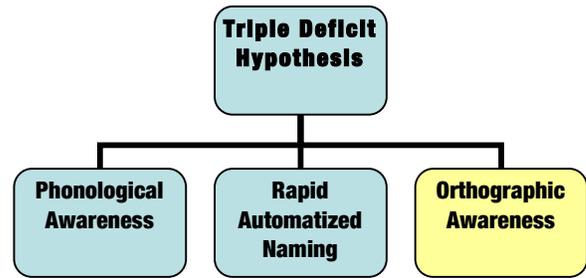
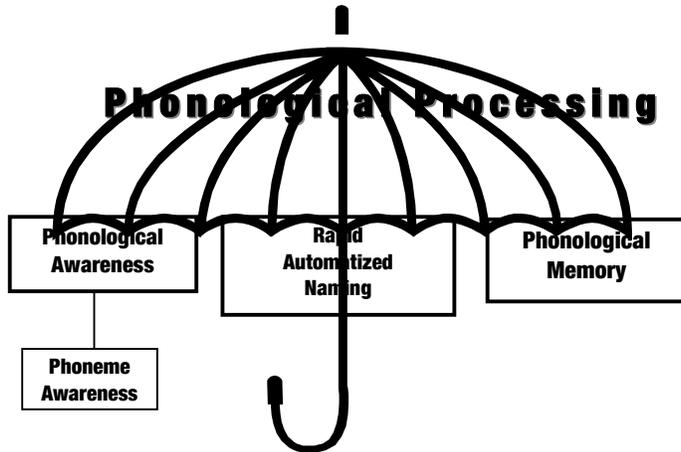
Dyslexia is a specific learning disability

- The cognitive characteristics associated with deficits in basic reading skills have been defined.
- The term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps; of mental retardation; of emotional disturbance; or of environmental, cultural, or economic disadvantage.

Dyslexia is neurobiological in origin



Dyslexia is a phonological deficit



Dyslexia is a word recognition difficulty

Dyslexia is difficulty with spelling

Dyslexia is unexpected

Dyslexia is common

Dyslexia is persistent

Dyslexia may have other effects



Important factors in evidence

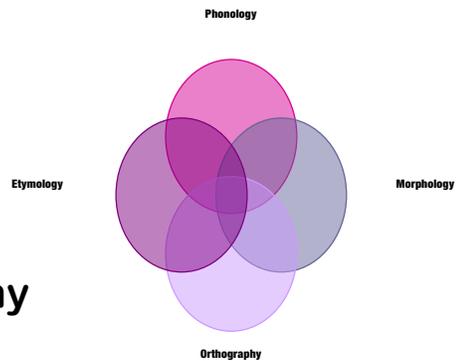
- Communication
- Collaboration
- Cumulativity
- Convergence
- Comity (Foreward by Snow in McArdle)

Areas identified for effective instruction

- Phonemic Awareness
- Systematic Phonics
- Fluency
- Comprehension
- Vocabulary (National Reading Panel)

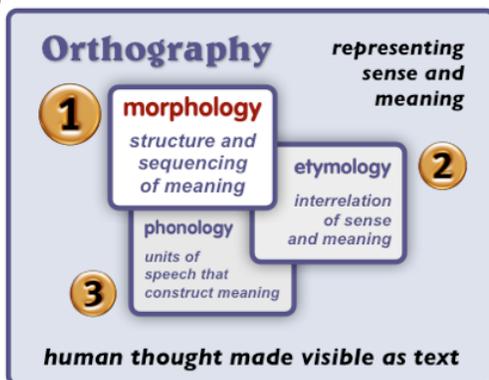
Components of language instruction

(Winters)



Concept Model of English orthography

(Real Spelling)



Teaching reading is complex

Train Teachers

- **Teacher education and professional development are required to provide students with high-quality reading instruction** (Kamil in McArdle)
- **The many children who learn reading only with difficulty, must be taught directly, explicitly, and by a well trained and informed teacher** (Lyon)
- **Learning to read is a complex linguistic achievement, and the teacher whose work is guided by an understanding of reading psychology, language structure, and proven methods is most likely to enable that achievement** (Moats)
- **Don't forget about spelling: train teachers in the linguistic structure of the writing system** (Bowers, Cooke)

Problems for modern research

- **Research since the 1970s has been enormously biased toward phonology and phonological processing** (Brady & Scarborough)
- **Past claims about morphology instruction** (Adams, Graves) **as an "advanced" or "upper grades" topic were groundless** (Bowers)
- **Morphological interventions help the most at-risk children make the most significant gains** (Bowers & Kirby)
- **Nature versus nurture in genetic markers**
- **Gender distribution of dyslexia**

Directions for modern research

- **Additional areas of linguistic processing**
- **Cerebrodiversity™: moving beyond the disability model** (Sherman)
- **Cross-linguistic studies**
- **Genetic mapping and subtypes**
- **The advantages of dyslexia** (Sherman, Wolf)
- **The impact of technology**
- **The ever-changing landscape of literacy in the digital age**