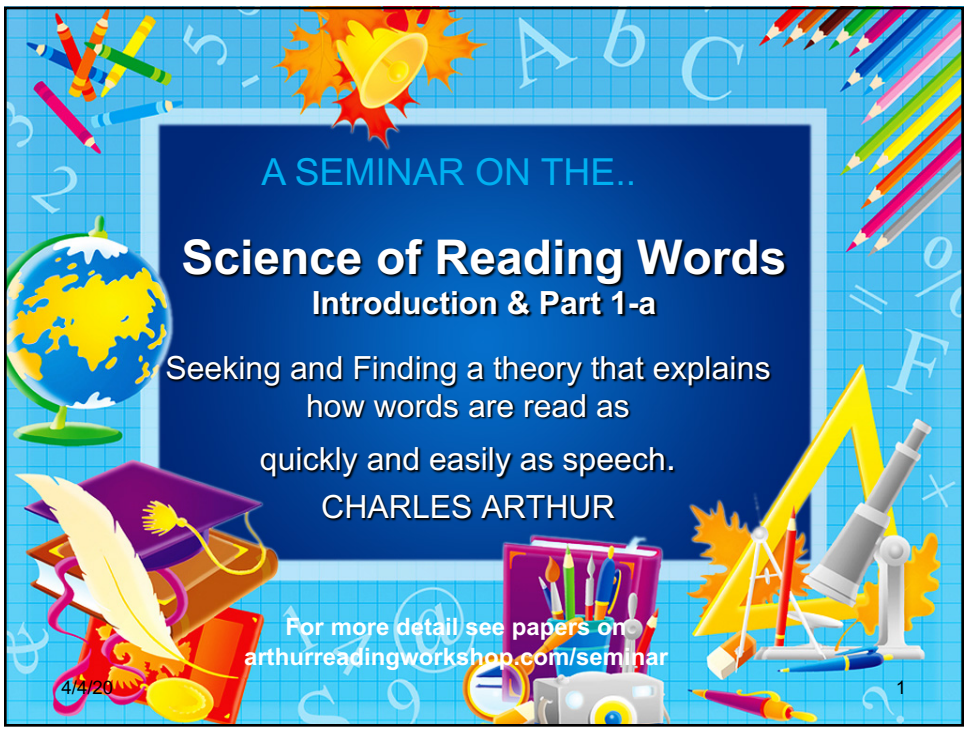

1

First Meeting:
Introduction: What's The Mystery

- How are readers able to read words as easily and quickly as they listen to speech and
- Paying little attention to the details of print?

"***One of the great mysteries that has challenged researchers" Linnea Ehri.***

- Learning to read words is also
  "One of the hardest parts of learning to read."
- *Yet, reading this easily is*
  *"*Perhaps the single most distinctive characteristic of skilled reading…"
- Solving this mystery is important because reading words lies at the place of entry to reading.
- It is also where the reading handicap of dyslexia lies.

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2

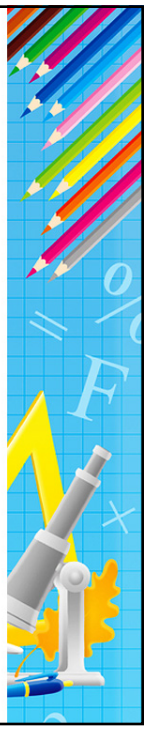
How necessary is this easy, fluent reading?

- Reading words rapidly, easily and accurately is necessary for comprehension.
- Though it may not guarantee comprehension.
- Reading words easily allows the reader to focus on meanings, not the small spelling details of words.
- Struggling with words can obstruct and interrupt the formation of ideas and over-all comprehension.
- Reading words quickly allows the reader to keep up to a normal rate of thinking during reading.

3

Where the Mystery first shows up.

- As early as in kindergarten.
- Most visibly in explicit/systematic teaching.
- In learning to decode words out loud, when recognition takes place.
- After a "transition" to instant reading, without decoding, at the very "epicenter" of reading words.
- Memory?, decoding? or something else?
- Linnea Ehri, a prominent scholar, calls it "cipher sight-word" reading.



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What do theories do?

- They seek to explain through general principles.
- They start out as an hypotheses, an educated guess,
- That can grow to a well-founded theory that explains why and how things happen.
- Two aspects of reading needing explanation:
  1. **Theoretical:** how reading is done and why.
     - All of reading: words + comp = reading
     - The Words: how they are mysteriously read so quickly and easily
  2. **Practical**: how best to teach.
     -- general principles
     -- details of planning and delivery

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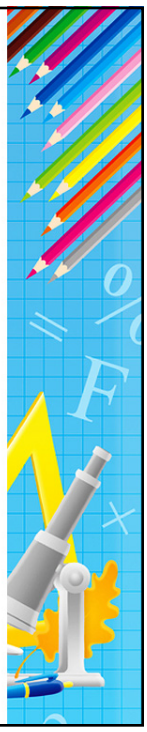

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At the theoretical level: A Paradox

- "How can a skill that feels so easy to the [good reader] be so difficult for the child to acquire?"
- Linnea Ehri, a pioneer in this effort at the theoretical level, proposed her theory,
  - Called Grapheme-Phonemic Correspondence GPC
- Which holds that the solution to the mystery lies within the relationship between speech and the alphabet.
- A theory that has held up in various forms as a consensus for explaining how words are read.
- Further Clarified and elaborated in brain-imaging studies.

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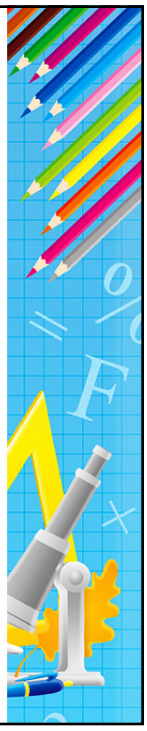

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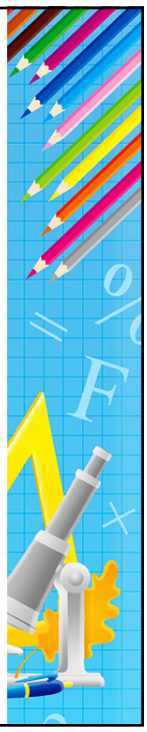
At the Practical level for Instruction

- Less consensus is found at the practical level regarding the best way to teach.
- Progress on research on instruction has occurred in parallel, at the same time, as theory and peaked with the NRP report of 2000
- A well-founded theory has given direction for what needs to be learned and has provided…
- …a clearer understanding of the importance of reading words and their component parts.
- Theory can help with deciding on basic questions of instructional approach.
- Detailed methods need separate research on how best to accomplish these ends.



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This Seminar has Three Parts

(Table of Contents)

Part Ia: Seeking a theory that solves the mystery

- Basic concepts and critical distinctions,
- How reading words can go wrong.

Part Ib: Speech and Print

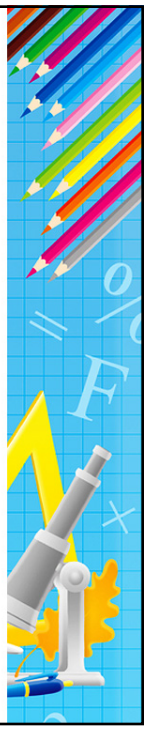
How the theory is derived from speech and extends to fluent reading of connected and varied vocabulary.

Part II: The New Science of Brain Imaging

- How it confirms and completes the theory.
- Especially regarding dyslexia

Part III: Critical implications for instruction.

- A. Directly drawn from theory
- B. The essentials



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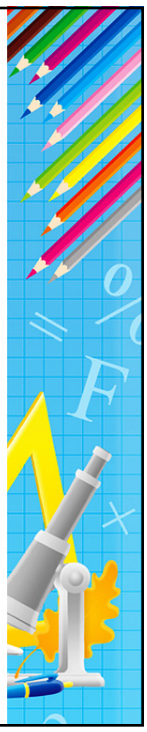
Focusing on the work of Linnea Ehri

- A leading, prolific and representative researcher and writer on behavioral studies of reading. 1970s+
- Helped establish a "Phonological Model" of reading at the word level.
- Stressed the importance of how alphabetic print represents speech in written language.

- A key conclusion:

All reading at the word level primarily uses, as a base, skills with, and knowledge of, phonological information from spoken language (speech), which is linked to print through an alphabetic writing system at the smallest level.

How does it work and how do we know?



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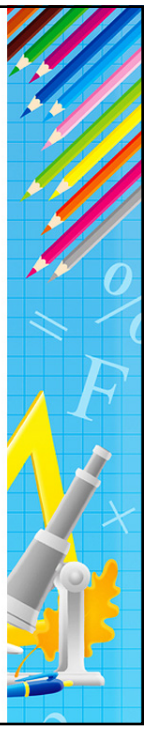
Ehri helped find the solution to the mystery on two levels.

1. At the most basic word level.
   - How words are recognized instantly.
2. At a larger text level
   - How more complex words in texts are continuously read the same way in spite of a high volume and many English variations.

A Secondary question: How is all of this learned so quickly within the first three years of schooling?

Hint:

We can read because we can speak



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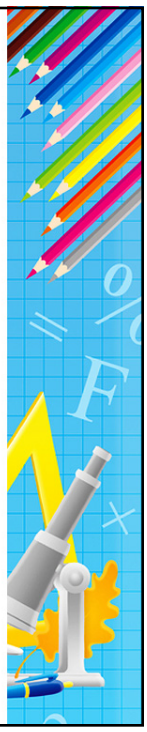
Ehri sought to find the answers.

- She calls skillful instant reading, "cipher sight-word reading", a new kind of sight-word reading.
- On the surface, it looks like fast memorization, but it isn't.
- How does this work, and how is its workings made known?
- At this point in the teaching, **at the very epicenter of reading each word**, **it is almost impossible to know for sure what readers do when they read words**.
- What readers do between seeing the words and recognizing them is hidden to the naked eye.
- But, when teaching is taught in a detailed phonetic way, it is hard to believe that they are just memorizing and leaving behind what was learned from decoding.
- What else can it be? How is the alphabet used in this kind of fluent reading? What's its role?
- Ehri's theory seeks to explain.



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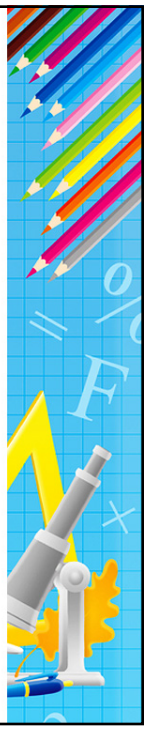
In Ehri's words via email 2014

- "To explain word learning that occurs this quickly, a powerful mnemonic system is needed, one that works like very strong glue to stick the words in memory. The glue consists of readers' knowledge of grapheme-phoneme connections." (Ehri, 1992).
- "Readers store sight words in memory by forming connections between the spellings of individual words and their pronunciations. The glue that bonds them is provided by the reader's knowledge of the letter-sound mapping system, that is, knowledge of grapheme-phoneme relations. This glue secures letters in the spelling of that word to sounds detected in its pronunciation."
- This involves two kinds of actions

1. The act of setting up the alphabetic principle of letter/sound bonding and spelling alignment.
2. The act of recognizing the words from those stored in memory.



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The first action: making connections

- Phonological information from speech is bonded to printed words.
  - "They (readers) need to apply their GPC knowledge to connect graphemes in spellings of individual words to phonemes in their pronunciations to bond the spellings to pronunciations and retain them in memory.:
- To create an alphabetic link to spoken language.
- These are the keys to accessing and finding words stored in memory.
  - Keys that find the correct words in storage from thousands of others.

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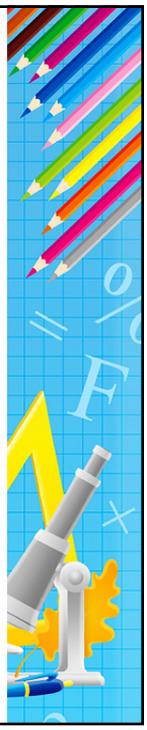
The second action: deeper automatic recognition.

- Once the letter/sounds gain entry into the word storage, the words need to be searched, found and recognized, instantly.
- Clarifying and verifying how this takes place is difficult.
  - What makes this happen is at the heart of the mystery.
- Ehri relies on the work done at the Haskin Laboratory for part of the answer.
  - Pioneer work on phonemic awareness
  - Its role in reading
- Is her explanation of this action sufficient?



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In describing these actions, Ehri makes two distinctions.

Based on two levels of observations,

1. A first look: words are not read by visual memory, only. There are too many.

   Reading requires letter/sound bonding,
   i.e. decoding of some kind

2. A second, deeper look : words are also not decoded. (recoded from print to speech)

   - This would take too much time.

This led to a new understanding of "sight-word" reading called "cipher sight-word" reading.

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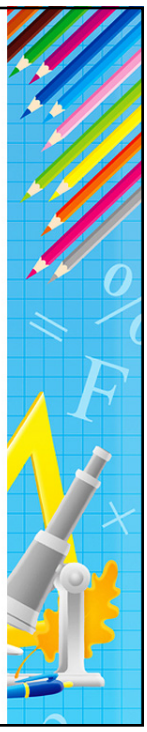

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The first distinction: It's not visual memory, only

- "We used to think that readers used visual cues and memorized the shapes of words to remember how to read them…
- But visual cues could not be the explanation for several reasons. You have too many words stored in your mental dictionary. The shapes of words are not sufficiently distinctive to discriminate among all these thousands of words. You should mistake similarly shaped words, yet evidence shows that word reading is highly accurate"… If visual cues were the basis for remembering words, lots of practice would be required because the connections are arbitrary."
- The L/S bonded connection **enables printed words to tap into, or access**, the oral storage of words to search and "find" words without memorizing every word.
- **The letter/sound bonding, learned through decoding strategies is the "set up"** for the hidden search.
- It only makes the recognition possible.

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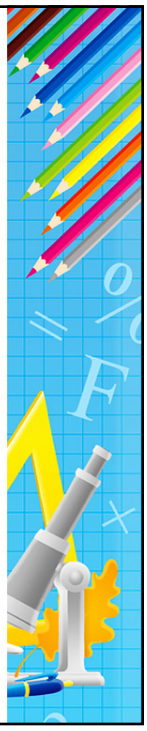

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The Second distinction, from a Deeper Observation:

It's not really decoding, either.

- Reading words is also not decoding, it is the result of *what is learned from decoding*.
- Decoding takes too much time. **Reading words is instant.**
- "If students decode the word by sounding out and blending letters, this will activate connections and secure the spelling in memory. When students decode words on their own as they encounter unfamiliar words in text, this strategy serves as a self-teaching mechanism to store words in memory (Share,1995)".
- **Once the set-up is firm,** at the most *minute* level**,** the hidden search and find takes place, within the oral storage of words, *where recognition takes place*,
- This is where the most hidden part of the mystery resides. Very difficult to confirm.

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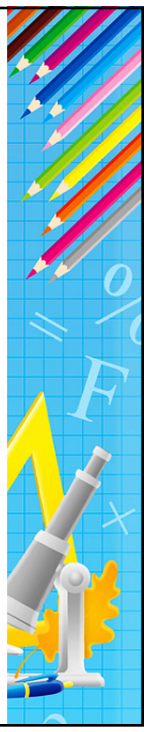

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Problematic Instructional Concerns

- Due to weak decoding, the bonding of certain letters in certain words may not be thorough,
  - creating either slow sounding-out decoding or word guessing.
  - too slow= "a bottle neck", &/or inaccuracies.
- A shift to instant "cipher reading" must take place, like in the K. illustration on pg. 3 (yet to be fully explained)
  - Through Planned instruction or spontaneous?
- Cipher reading is where learned letter/sound connections continue to function automatically, without decoding
  - **not requiring further out-loud decoding**.
- Question: what accounts for this instant "search, match and find" action, called cipher reading or the application of alphabetic knowledge ?

the core of the mystery, yet to be completely uncovered.

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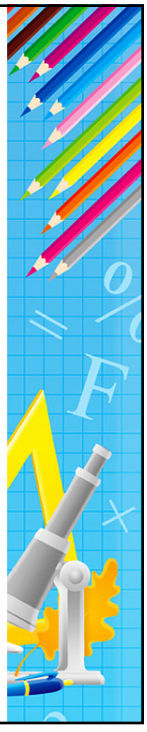

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Finding and Retrieving: the hidden level of the mystery

- The L/S connection makes the initial access to the storage of oral words. The word must be found and recognized as a known word in the oral vocabulary.
- From what is seen in print, the letter pattern must be matched, from thousands of possibilities, to the correct word and recognized INSTANTLY
- This action has been explored through various experiments and theoretical studies.
- They attempt to "see" inside, to get a glimpse of what is happening at the epicenter of reading words, to make the best inference?
- What mechanism does the searching , matching and recognizing of the correct word?

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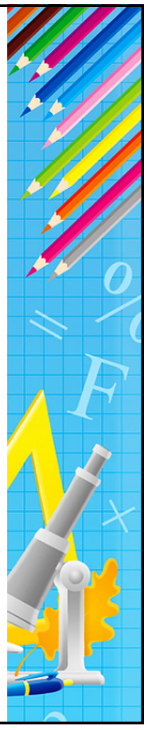
For this answer, Ehri refers to the Haskins studies on speech.

- The theory states that, due to the systematic alphabetic connections, the letters **gain cognitive access** to the phonemically structure of words, stored in memory.
- They are then changed instantly, lightning fast, almost involuntarily, into words, the same way oral words are instantly recognized in hearing speech**.**
- Ehri points in the right direction for this explanation by referring to the reading's relationship to speech as a driving force for how this is done.
- The L/S bonding can **tap into the innate speech prosesses** and mechanisms that govern spoken language for listening and speaking will then drive reading.
- It "piggy-backs" onto speech. *People can read because they can speak*. This will be examined further in Part Ib



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Background History on reading:
theory and practice first tended to be blended together.

- Ideas on how words are read (theory), directly determined instruction. (and visa versa)
- For centuries reading had been a matter of learning the ABCs.
- The turn of the 20th Century Challenge
  1. The first scientific experiment on words
     - The alphabetic principle became old fashion.
  2. Resulted in a theory of visual memory,
     - Explained reading and determined teaching.
  3. Influenced by social changes: a need for universal education.

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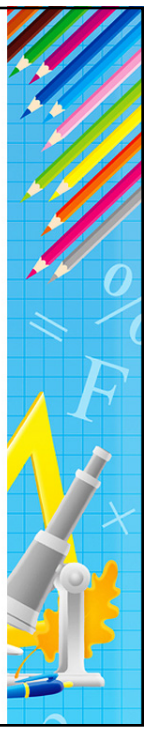

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In the 1970s: a more earnest effort took place to distinguish between theory and instruction

1. "Reading has too many components for a single theory. It would involve a description of the most intricate workings of the human mind." Perffetti (2014)
   - See sample models & definitions of reading (pg. 6)
   - The Simple Version of Reading. (SVR)
2. A New Focus on the words:
   as an essential "source of information" for reading.
   - See Gough, Handbook of RR, 1984

"Scientific knowledge and technology doubles every one to two decades."

C.E. Wilson

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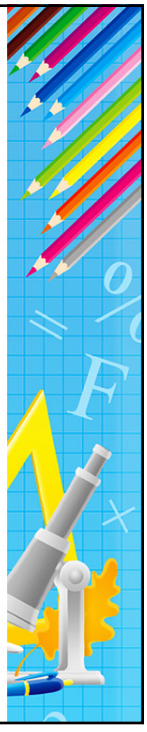

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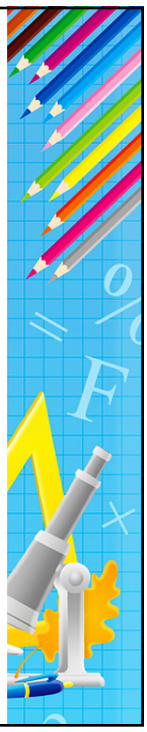
Jeanne Chall's 1983 up-date on THE GREAT DEBATE

documenting growth in theories

- "In the original edition, (1967) we noted that the research on beginning reading was not generally grounded in a theory of learning or of the reading process." (1983)
- "Since 1967, there has been a dramatic increase in basic research on reading and on the building of models and theories."
- With less "concern for research on problems of teaching and learning, particularly in classrooms."
- It was quickly found that the scientific basis for whole-word reading did not apply AS WELL to beginners acquiring the skill of reading.



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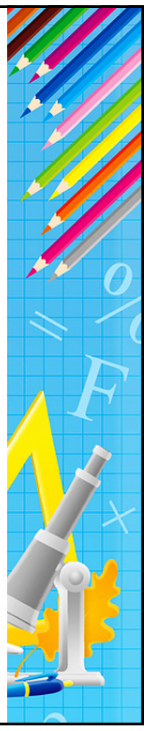
Up-dated theoretical findings, noted by J. Chall, (83)

Anticipating future directions.

- "pronounceable non-words are processed as efficiently as meaningful words."
- Reading "SOMEHOW" uses the common letter patterns to read. Not the word as a whole.
- "word recognition and the ability to decode individual words is basic to reading comprehension."
- "oral reading of a list of words and oral reading of connected text" were highly correlated
- "good readers decode nonsense words nearly as fast as the real word, but poor readers had to sound them out.".
- All of which challenged the whole-language theory at the time.



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