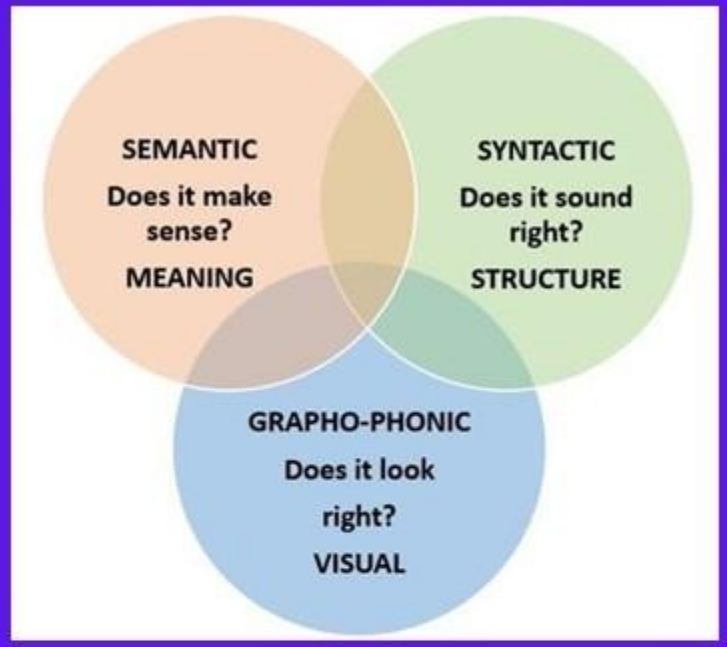
Q Q
Q



The 3 Cueing Systems

Clarifications

Dr. Andy Johnson

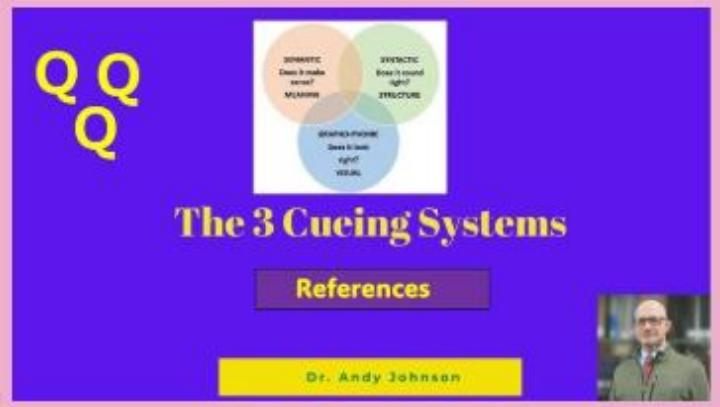
The International Literacy Educators Coalition

www.ILEC-Reading.com

International Literacy Educators Coalition

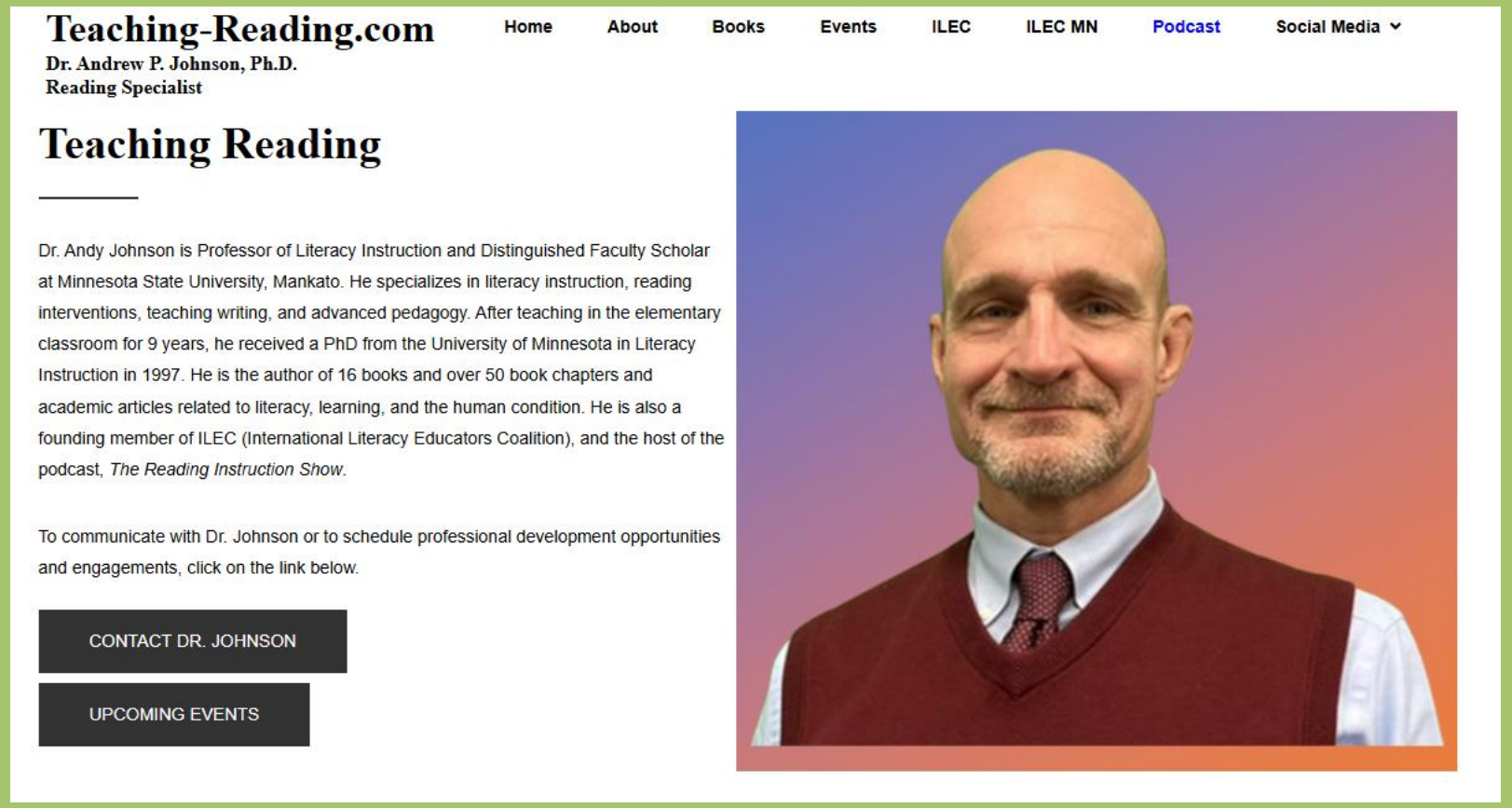
Home | Webinars | Conversations and Interviews | Articles and Resources | The Journal

Articles and Resources



Reference for 3 Cueing Presentation

references at www.ILEC-reading.com



www.teaching-reading.com

The Reading Instruction Show

podcasts and YouTube videos

Dr. Andy Johnson

www.teaching-reading.com

The Introduction

Expert teachers have four kinds of knowledge:

a. content knowledge – (know about reading)

b. pedagogical knowledge – (general teaching strategies – discovery learning, question-discussions)

c. pedagogical content knowledge – (specific content strategies, strategies for teaching reading)

d. knowledge of learners and learning – (human development, how humans learn)

Part I: Defining our Terms

A. Defining the Current State

1. State legislators are making reading laws, stating how reading should be taught

2. Laws against 3-cueing

3. But, if you're against something, you should know something about the something of which you are against.

4. Strawman argument - arguing against a false or distorted version of things.

a. 3 queuing

b. whole language

c. balanced literacy

d. the work of Ken Goodman

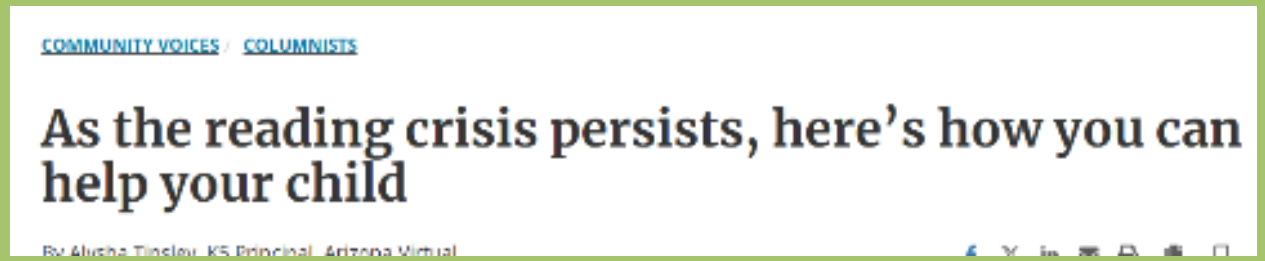
e. teacher preparation programs

f. classroom teachers

g. anybody who disagrees

B. Defining Our Terms: Crisis

1. A crisis is a time of intense difficulty, trouble, or danger.



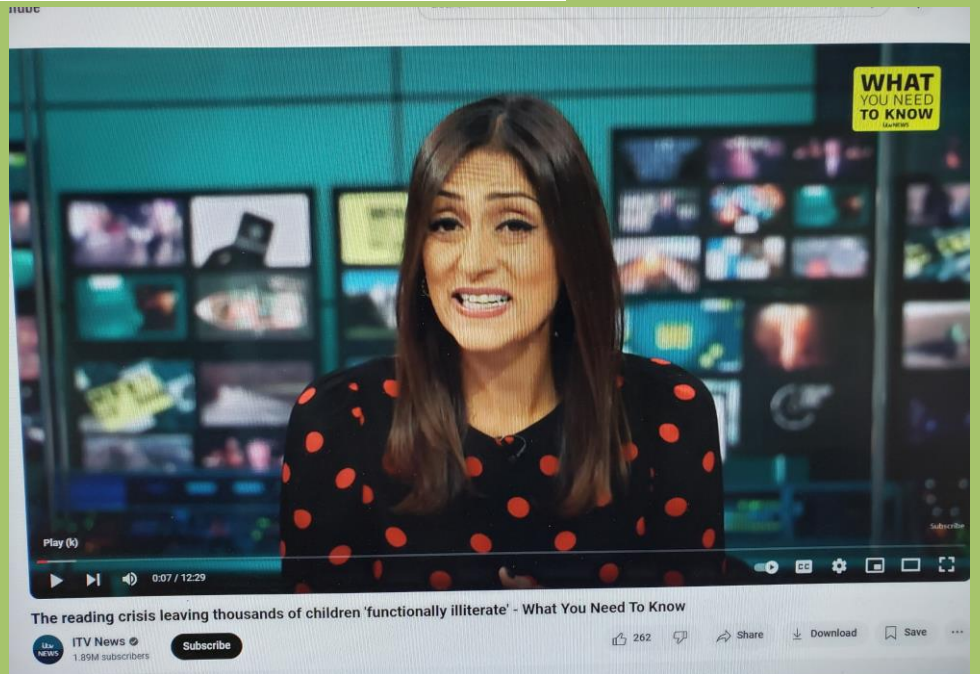
Curriculum Alone Won't Fix America's Reading Crisis — Teachers Must Have a Say

Stone & Hirsch: Gaps between materials required by districts and those used in classrooms put the mission of improving student literacy at risk.

How phonics is making a comeback as millions of kids struggle to read

"I will get teared up because I think I can't read," fourth grader Raven said.

By Arthur Jones II, Tal Axelrod, and Jay O'Brien
September 8, 2023, 4:12 AM



The reading crisis leaving thousands of children 'functionally illiterate' - What You Need To Know

ITV News
1.89M subscribers
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262

How many teachers? 2? 4? 6?

From Policy to Action: Why 8 States Banned Three-Cueing from K-3 Reading Instruction

Blog | Florida, Indiana, North Carolina, Ohio, South Carolina, Texas, West Virginia, Wisconsin | Tom Greene

January 10, 2024

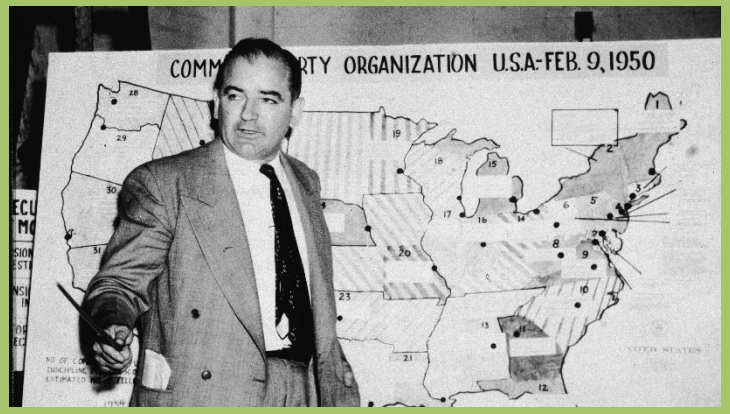

The Sky
is Falling

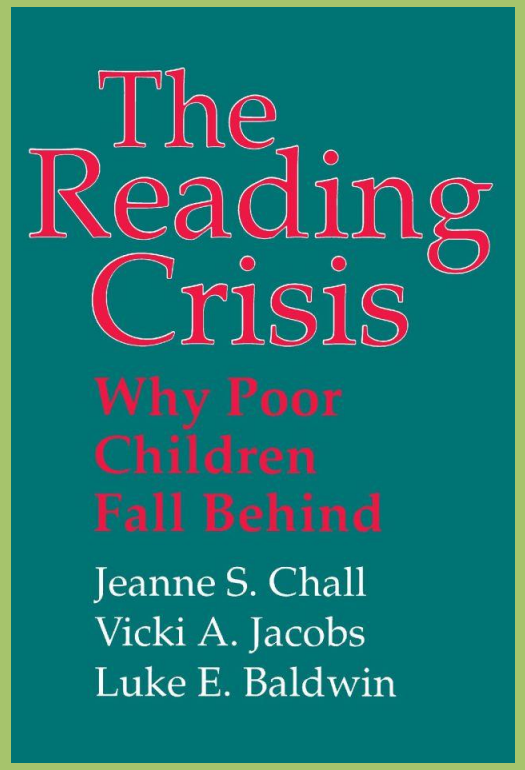

THE SKY IS
FALLING!
THE SKY IS
FALLING!

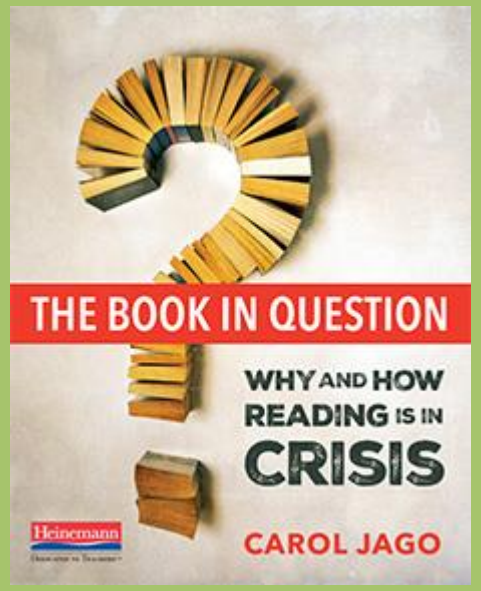

PANIC

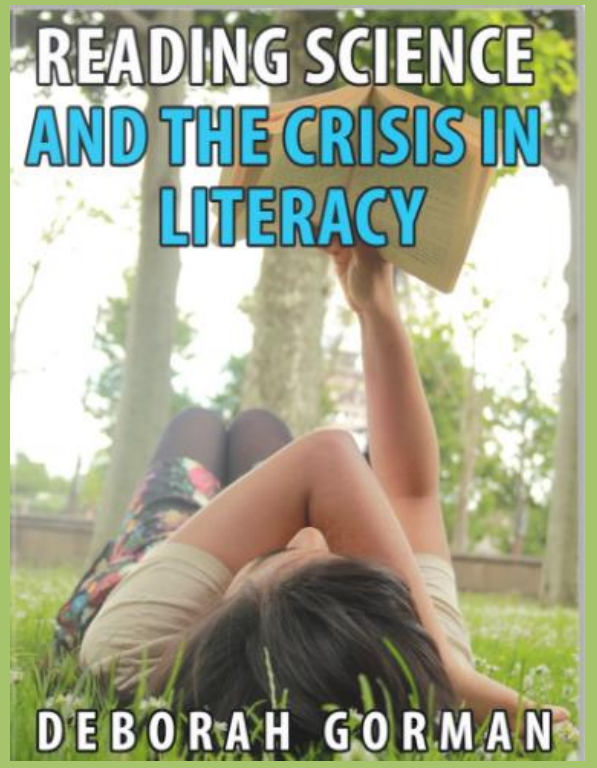
The Context of Crisis or the Illusion of a Crisis

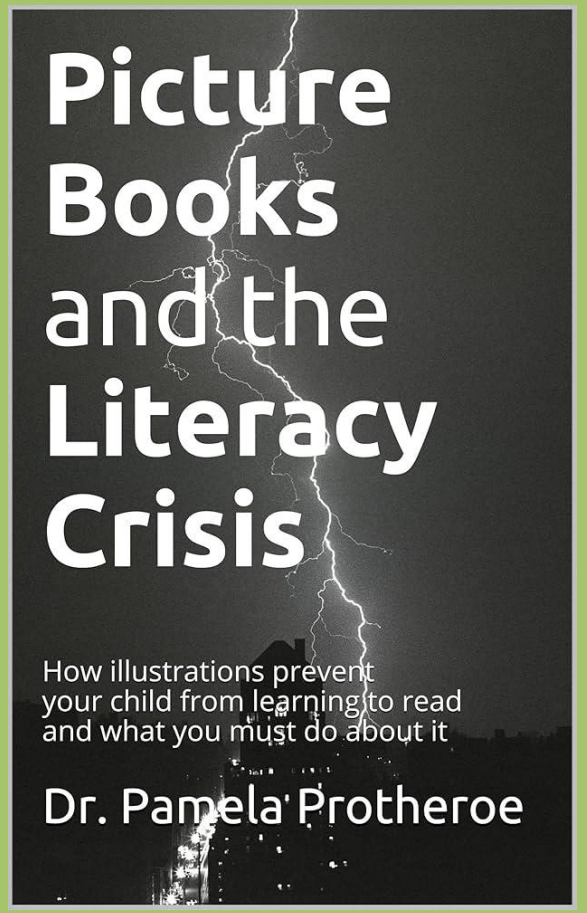
There have always been people willing to use a crisis or the illusion of a crisis for personal benefit.




The Reading Crisis
Why Poor Children Fall Behind
Jeanne S. Chall
Vicki A. Jacobs
Luke E. Baldwin

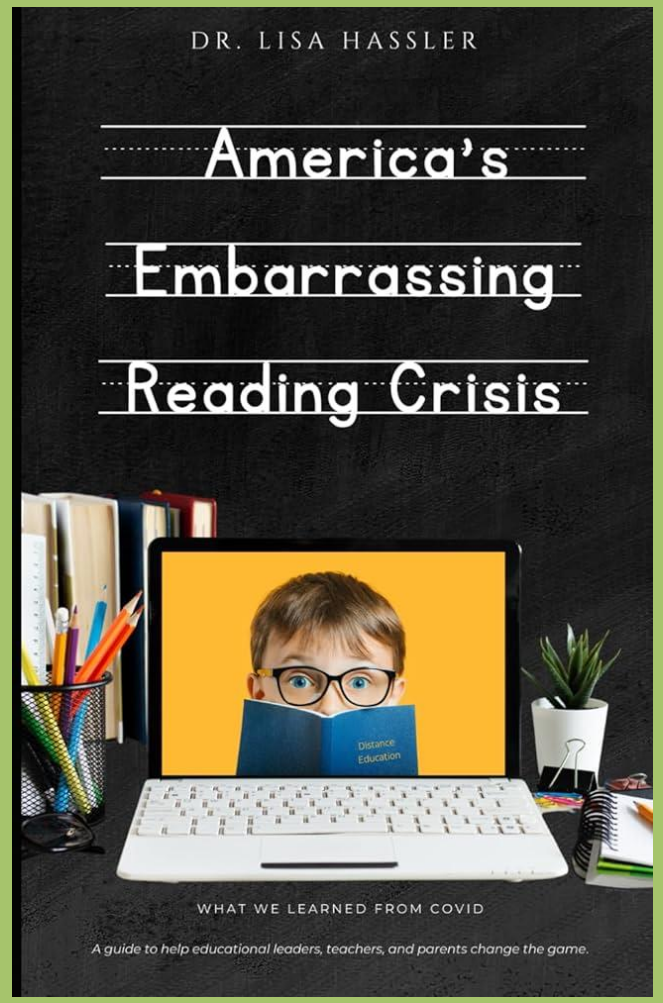

THE BOOK IN QUESTION
WHY AND HOW READING IS IN CRISIS
Heinemann
CAROL JAGO

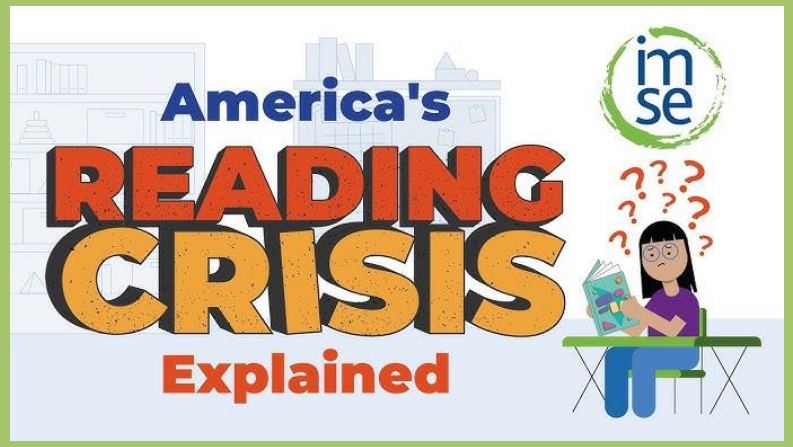

READING SCIENCE AND THE CRISIS IN LITERACY
DEBORAH GORMAN


Picture Books and the Literacy Crisis
How illustrations prevent your child from learning to read and what you must do about it
Dr. Pamela Protheroe


WHAT YOU NEED TO KNOW
itv NEWS
Inside children's reading crisis
HARRY POTTER
and the Philosopher's Stone

We have a crisis of people claiming there's a crisis when there isn't.





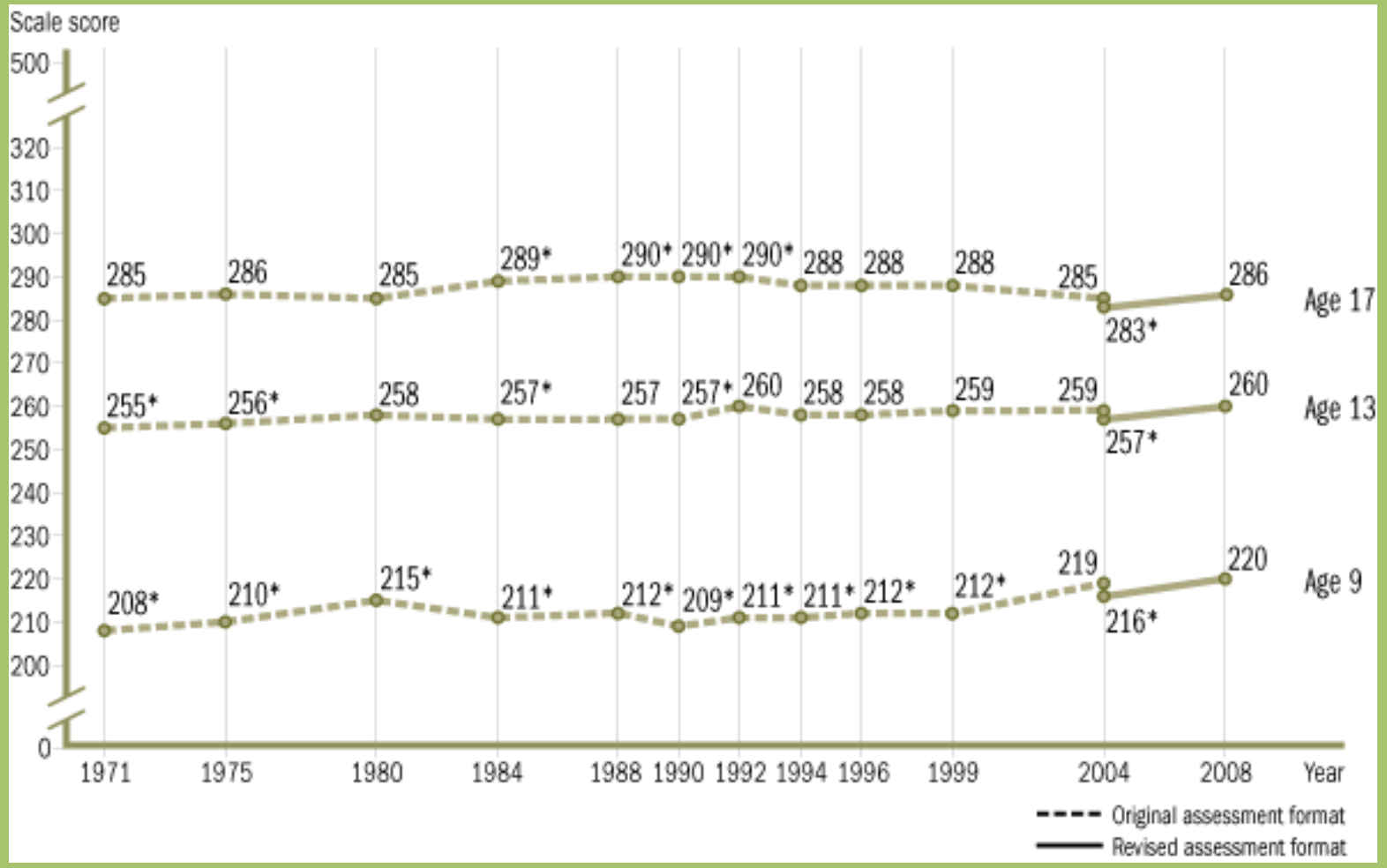
Using numbers to legitimize baloney doesn't make the baloney any less baloney. It just makes it quantified baloney.

1 in 5 Indiana 3rd-Graders Struggles to Read. How the State Is Going to Fix That

Behning: Science of reading, literacy coaches, stipends & professional development for teachers anchor Indiana's response to this crisis

There is NOT a crisis of reading achievement in the US.

1. National Assessment of Educational Progress, part of the U.S. Department of Education.



The Nation's Report Card
National Assessment of Educational Progress

Grades 4, 8, and 12, every 2 years

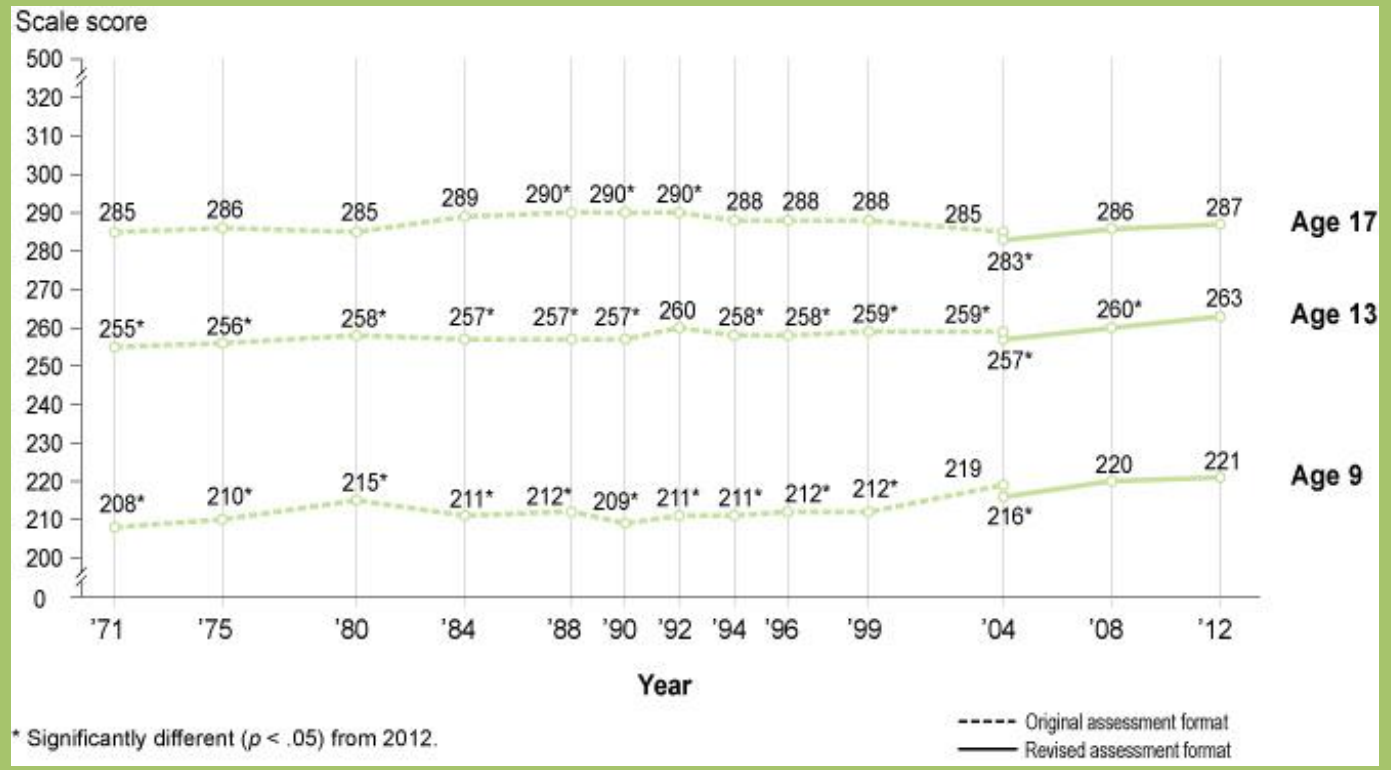
Can't randomly determine causality.

Far too many variables involved.

JURISDICTION	Score	Difference from National public (NP)	At or above *Basic*	At or above *Proficient*
DoDEA	250	15 ↑	92	51
Wyoming	243	8 ↑	84	44
Massachusetts	242	7 ↑	79	43
Nebraska	242	7 ↑	80	43
Florida	241	6 ↑	81	41
Wisconsin	240	5 ↑	79	43
North Dakota	240	5 ↑	81	40
Iowa	240	5 ↑	80	40
Utah	240	5 ↑	78	42
New Hampshire	239	5 ↑	80	40
New Jersey	239	4 ↑	77	39
Indiana	239	4 ↑	78	40
Minnesota	239	4 ↑	78	41
South Dakota	239	4 ↑	80	40
Texas	239	4 ↑	78	38
Montana	239	4 ↑	80	38
Ohio	238	3 ↑	76	40
Pennsylvania	238	3 ◆	76	40

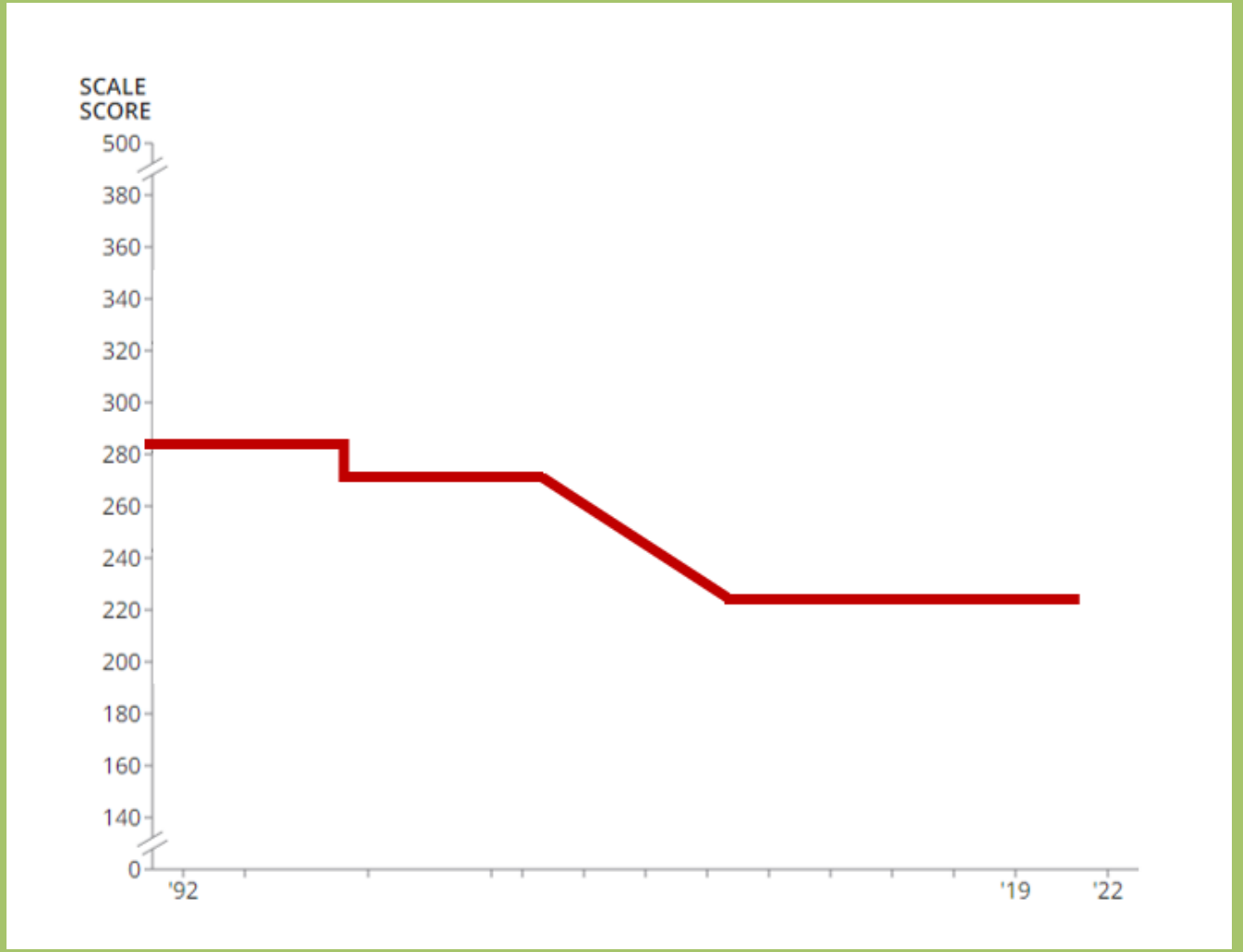
2. There is no irrefutable evidence that we are experiencing a national literacy crisis (Reinking, Hruby, & Risko, 2023).

Reinking, D., Hruby, G. G., & Risko, V. J. (2023). Legislating Phonics: Settled Science or Political Polemics? *Teachers College Record*, *0*(0). https://doi.org/10.1177/01614681231155688

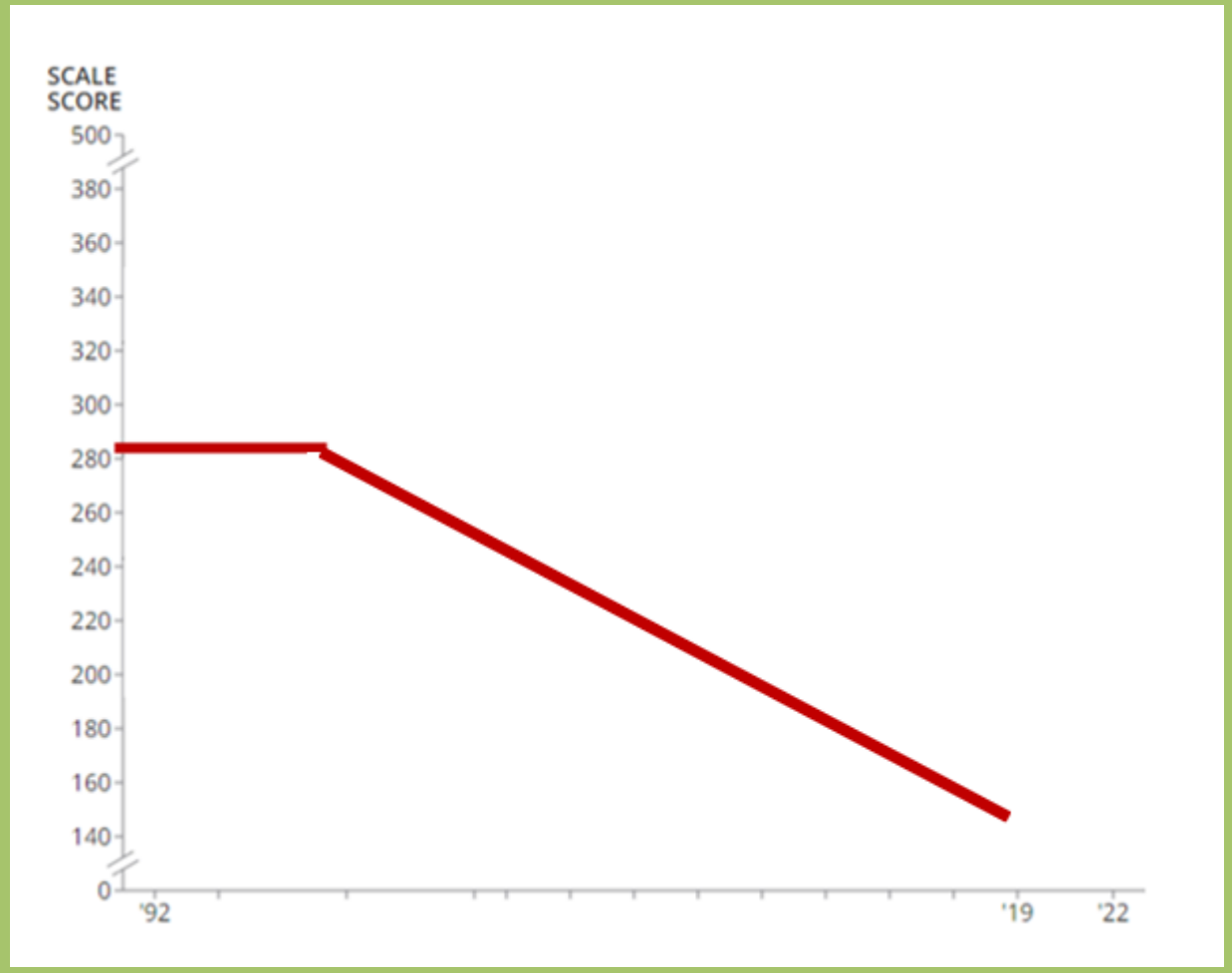


NAEP - long term trends in reading.

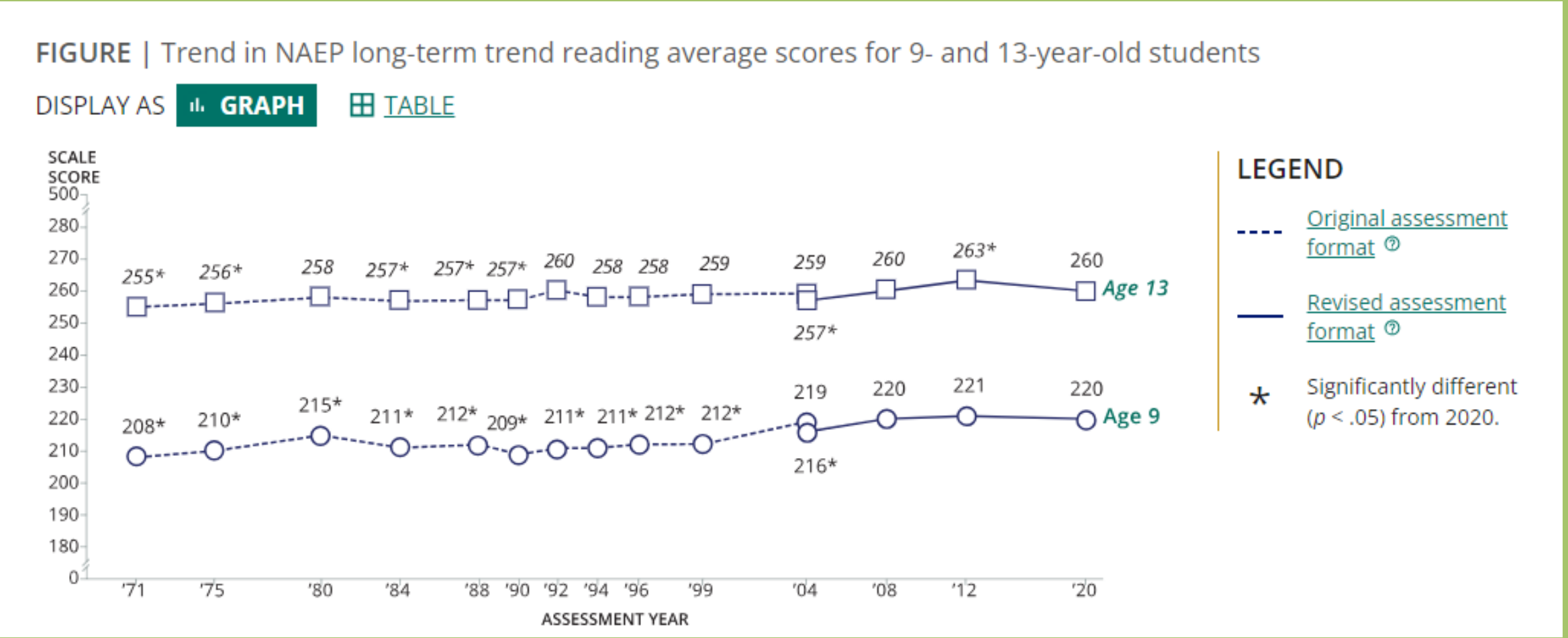
A crisis would look something like this.



Or something like this.



It would not look like this.



Even if there were a crisis (which there is not), SoR claims to have isolated the causal variable? They have determined both the cause and the solution to a problem that does not exist?

That's not science. That's baloney.

Some variables that can affect student achievement

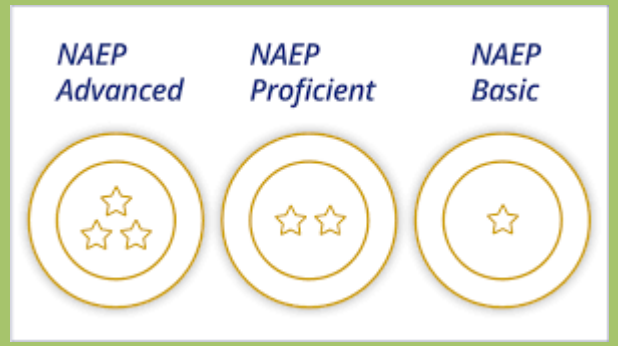
• parent level of education	• parent SES	• economic base
• class size	• level of technology in classroom	• unemployment rate
• enrolment by grade level	• percent of English language learners	• percent of special education students
• teacher quality/proficiency	• teacher attitude	• class size
• teacher certification	• inclusion vs. segregation	• school size
• legitimate teacher professional development opportunities	• teacher autonomy	• research-based strategies used
• expectations of teachers, parents	• type and amount student writing instruction and opportunities	• gender differences
• number and types of books in classroom and school library	• amount of free reading time	• the use of standardized testing
• diet	• access to health care	• safety at school
• school funding	• stress or anxiety factors	• amount of study time
	• systemic racism	• parent involvement and support
		• implicit bias

NAEP categories:

(a) advanced

(b) proficient

(c) basic



Categories, levels, and content are arbitrarily defined

Bracey G. W. (2008). Cut scores, NAEP achievement levels and their discontents. *School Administrator*, 65(6), 20–23. https://eric.ed.gov/?id=EJ797406

Ravitch D. (2012, May 14). What do NAEP scores mean? *Diane Ravitch's Blog*. https://dianeravitch.net/2012/05/14/what-do-naep-scores-mean/

Reinking, D., Hruby, G. G., & Risko, V. J. (2023). Legislating Phonics: Settled Science or Political Polemics? *Teachers College Record*, *0*(0). https://doi.org/10.1177/01614681231155688

3. Norm referenced test – compared to a normal population (bell shaped curve).

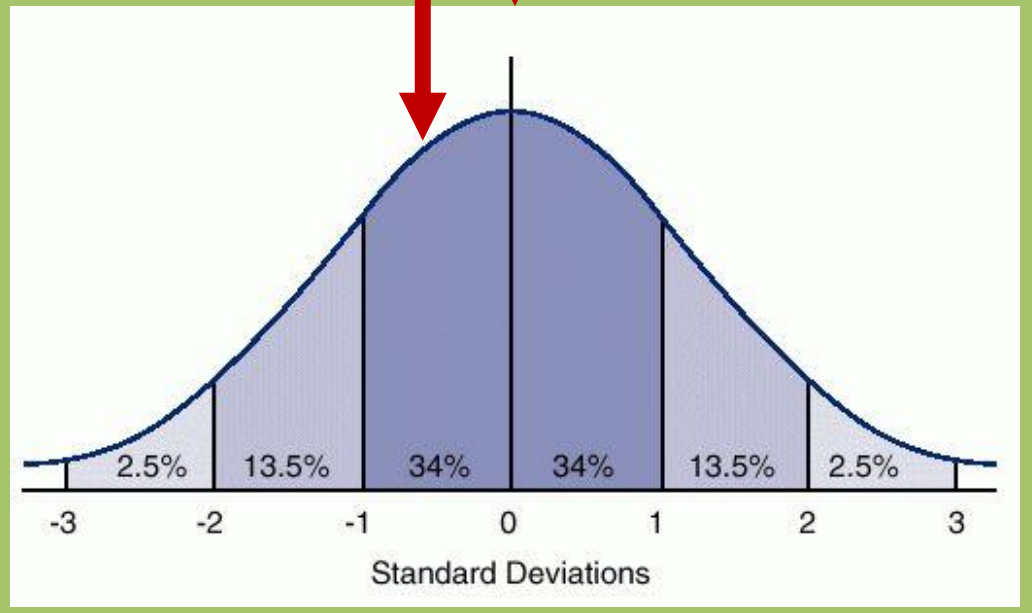
NAEP Basic Level

Even here, 1 out of 3 would be blow the basic level

NAEP Advanced

NAEP Proficient

NAEP Basic



The idea of every student reading "at grade level" is absurd. It simply creates winners a losers.

50% above and below the mean.

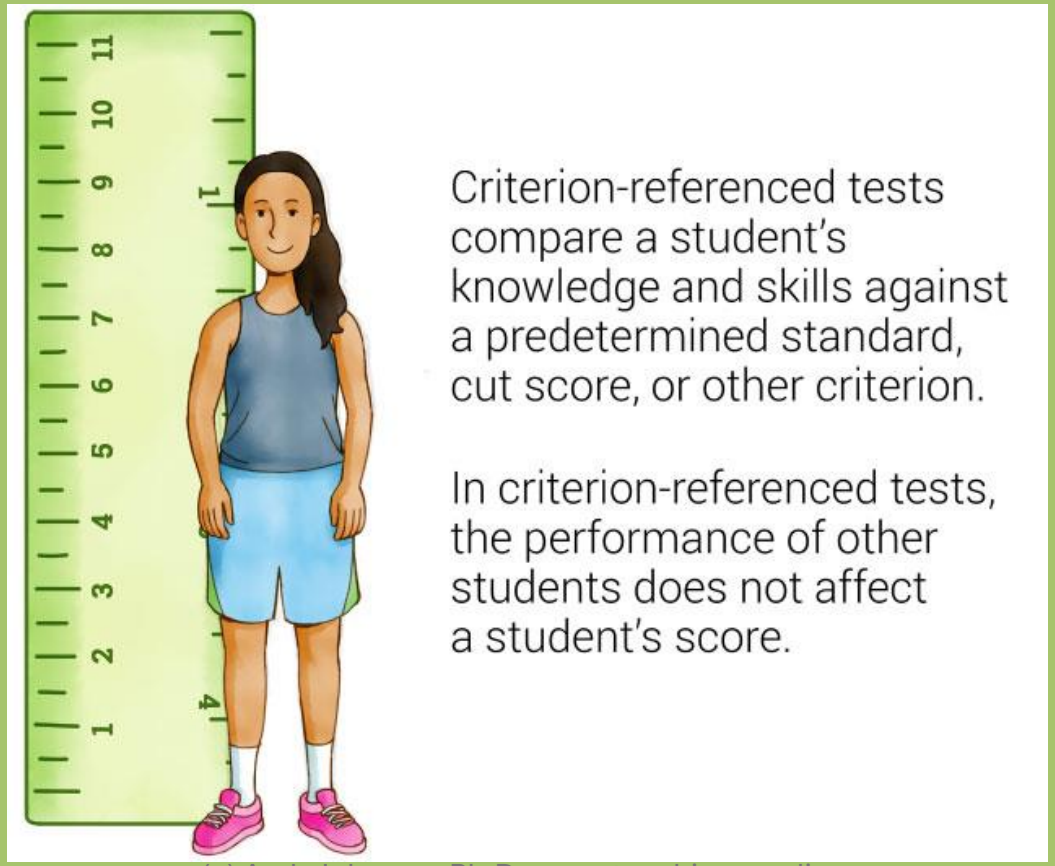
1 in 2 students can't read at the basic level.

4. State tests - criterion-referenced tests –

a. establishes a criterion that must be met

b. an arbitrarily defined set of criterion.

c. given every year at each grade level



Who decides the criteria?

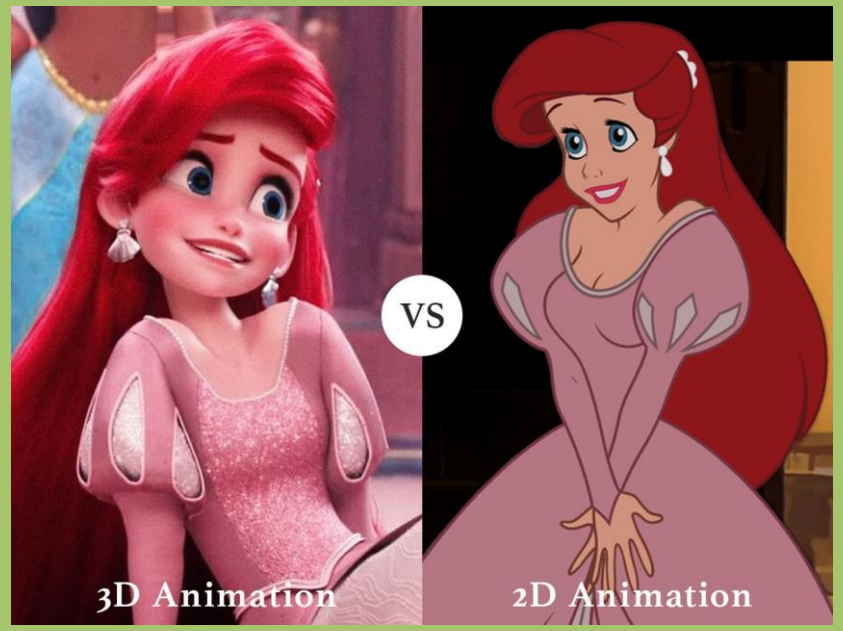
Who decides the content of a criterion reference test?

Who decides what's advanced, proficient and basic?

How are these decisions made?

5. Minnesota Comprehensive Assessment exams for Reading in Minnesota –

- **took three-dimensional CCSS benchmark standards** (what students should know about be able to do at each grade level)
- **converted them into 2-dimensional criterion-referenced tests**



Criterion-Reference Test – MCA, Based on CCSS Standards for 3rd Grade

Key Ideas and Details (Standards 1, 2, 3)

1. Use implicit text evidence to quote accurately and make logical conclusions
2. Identify relevant details that support conclusions from text
3. Make generalizations and predictions
4. Sequence plot events, real events, and steps in a process
5. Use text evidence to understand cause/effect relationships
6. Make inferences based on implicit text
7. Distinguish fact from opinion in explicit text
8. Use evidence from text to justify interpretations of meaning
9. Compare and contrast based on implicit text
10. Summarize from a section of text or text as a whole:
    - main idea
    - central message
    - supporting details
    - plot
    - subject
    - theme
    - topic
    - similarities and differences among ideas and events
11. Distinguish among literary elements (e.g., plot, characterization, setting, theme)
12. Differentiate methods of characterization (e.g., dialogue, appearance, behavior)
13. Define meaning of literary terms (e.g., tale, moral)
14. Compare and contrast presentation of literary elements

How often in your adult life have you had to do any of these?

White, Eurocentric perspective

Craft and Structure (Standards 4, 5, 6)

Who decided that 3rd grade students needed to be able to do these?

1. Identify literary devices (e.g., puns, end rhyme)
2. Identify figures of speech
3. Connect connotations to meaning
4. Use reasoning and evidence to understand word meanings
5. Categorize technical terminology in content area texts
6. Identify transitional words and phrases (e.g., for example, first, second, third)
7. Use etymology (word history) and morphology (word structure) to construct meaning of a word or phrase
8. Analyze the features, format, and function of complex text structures (e.g., chronology) and their impact on meaning
9. Recognize how parts of text relate to the whole Identify author's use of perspective (personal point of view) and tone (attitude toward what she or he has written)
10. Interpret authors' purposes within and across text(s)
11. Identify mood (emotional atmosphere of text)
12. Identify style (author's techniques and approach to meaning—e.g., word choice, sentence structure, use of literary devices, voice)

Are these an end or a means to an end? What is the end? 3rd grade? Really?

Integration of Knowledge and Ideas (Standard 8, Informational Text substrand only)

1. Analyze author's credibility based on sources used
2. Identify methods of argumentation (e.g., analogy, details and examples)
3. Recognize validity of reasoning
4. Recognize relevance and sufficiency of evidence
5. Recognize obvious fallacies of logic (e.g., stereotyping)
6. Recognize how credible information is presented in text (e.g., interviews with experts, current research)
7. Recognize author's obvious bias

6. In Minnesota, they claimed that test scores were falling, but no test scores were ever reported.

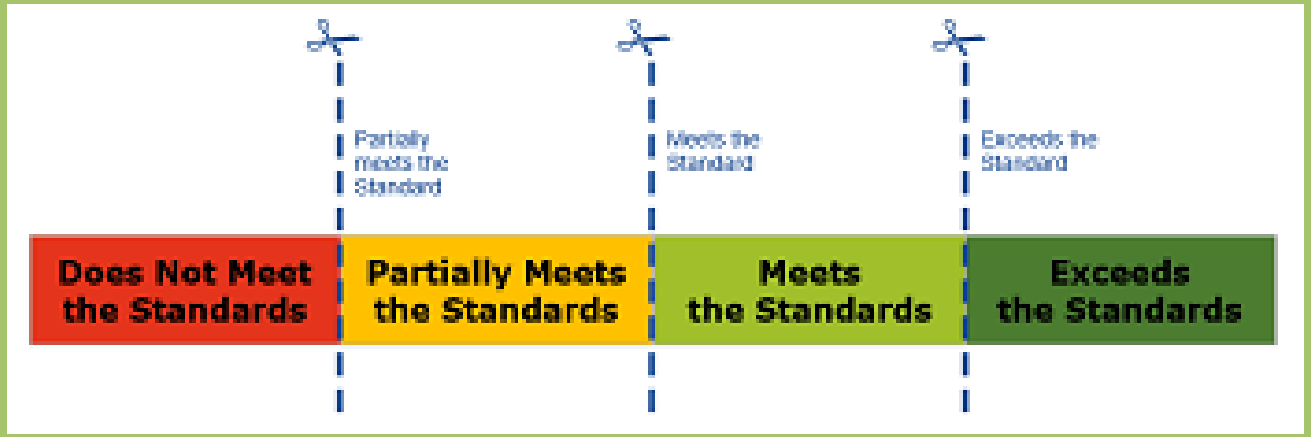
7. The Minnesota Department of Education reported percentages in four arbitrarily defined categories:

(a) exceeds the standard

(b) meets the standards

(c) partially meets the standards

(d) does not meet the standards



Comparing percentages at or above "proficiency" is ***not*** a comparison of scores over time.

	Reading		
	Farmington	Minnesota	Fa
Grade 3	62.2	57.3	
Grade 4	69.3	58.3	
Grade 5	70.3	67.7	
Grade 6	68.1	62.3	
Grade 7	61.0	56.6	
Grade 8	58.6	57.0	
High School	53.7	58.9	
All Grades	63.6	59.7	

Grade

Students take statewide reading assessments in grades 3-8 and grade 10. Of the students who took the reading MCA and MTAS, 49.9% met or exceeded grade-level standards, down 1.2 percentage points from 2022 scores.

Reading is creating meaning with print (not sounding out words)

We read for two purposes:

1. We read to understand information
2. We read to enjoy books.

This is the end state (goal).

What objectives lead to this end state?

The ability to do these to things should define students' reading progress.

B. Defining our terms: What 3-Cueing isn't

Sarah Schwartz, Education Week, December 16, 2020,

"Cueing has, for decades now, been a staple of early reading instruction."

"The strategy—which is also known as three-cueing, or MSV—involves prompting students to draw on context and sentence structure, along with letters, to identify words. But it isn't the most effective way for beginning readers to learn how to decode printed text."

Research has shown that encouraging kids to check the picture when they come to a tricky word, or to hypothesize what word would work in the sentence, can take their focus away from the word itself—lowering the chances that they'll use their understanding of letter sounds to read through the word part-by-part, and be able to recognize it more quickly the next time they see it.

Research has shown this?

My goodness. If you use the word 'research' it must be true.

What research?

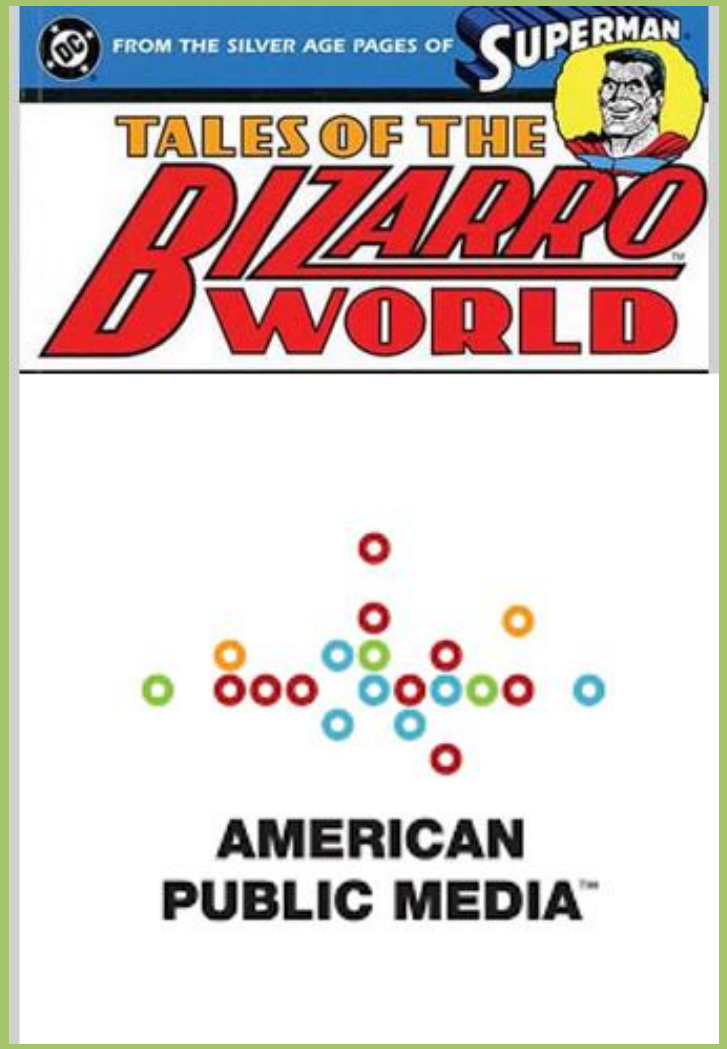
Shown what?

With who?

"However, as the science of reading has developed further, "three cueing," which also became known by the term "whole language," was superseded. What scientific research has shown is that skilled readers can read words without relying on context, or the visual cues that were the basis for the original hypothesis about cues" (RGR).

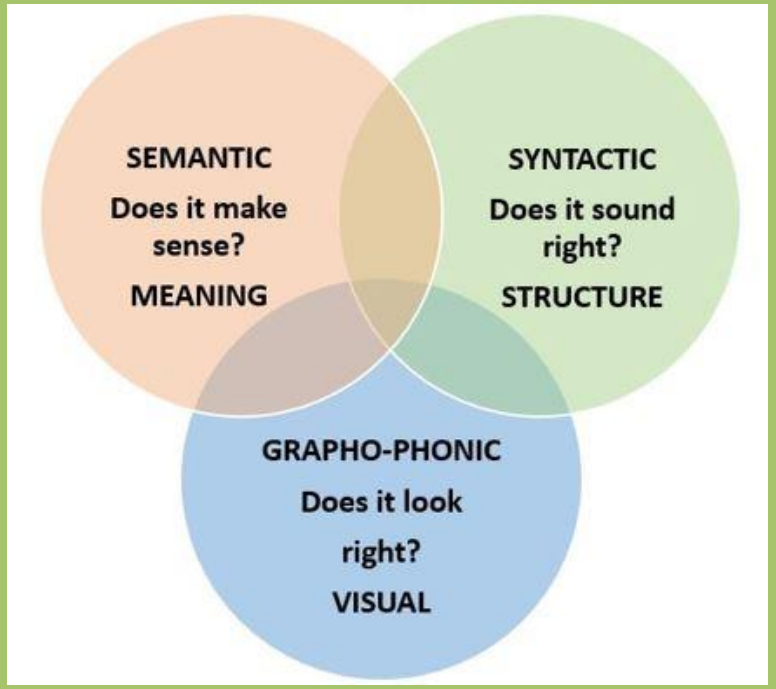
"It turns out that the ability to read words in isolation quickly and accurately is the hallmark of being a skilled reader. This is now one of the most consistent and well-replicated findings in all of the reading research."(APM Reports, 2019)

American Public Media (APM) cited as a source of academic information?



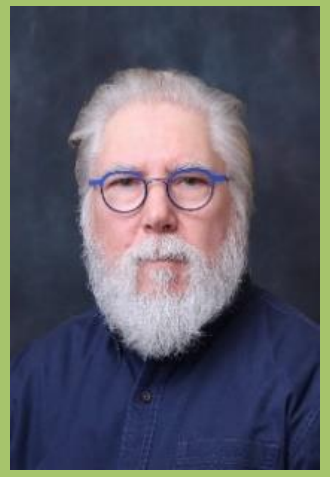
3Qing: What is not --

1. It's not a strategy to teach students.
2. It's not a pedagogical strategy that teachers use.
3. It doesn't exclude phonics instruction.
4. It doesn't encourage children to use picture clues to figure out words.
5. It's not an approach to teaching reading.
6. It's not a method of "decoding" printed text.
7. It's not a "staple of early reading instruction".
8. It does not exclude direct, explicit, and systematic instruction.
9. It's not whole language



D. Defining Our Terms: Scholar and a Journalist

1. A scholar is different from a journalist.



Dr. Allan Flurkey

2. Anecdotal evidence is different from evidence.

Madeline Will

3. Being popular is different from being right.

- Their work is submitted to blind peer-review before publishing.
- They write stuff.

Dr. Elena Aydarova

- Have extensive background knowledge about what they write.
- Write what people tell them.

- Cites specific research studies when making a research-based claim.
- Makes research-based claims without citing research. *"Research has shown …" "Scientists are now telling us that …" "It has been proven that …" "We know that …" "Whole language has been debunked!"*

Emily Hanford

- Understands that basic elements of science in determining causality.
- Randomly assigns causality.

Dr. Paul Thomas

- Correlation does not infer causation.
- If two things occur together, one must have caused the other to occur.

- Generalize to larger populations only if the sample is similar and ample.
- Generalize to larger populations based on a sample size of one or two.

Sarah Schwartz

- Uses anecdotal evidence and experiences to illustrate research.
- Uses anecdotal evidence and experiences as research.

Dr. Steven Strauss, MD & PhD

- Considers journalists to be journalists.
- Considers journalists to be valid sources.

- Writes research, scholarly articles, and books
- Writes stories and columns

Jennifer Winter

- Writes for an audience with some knowledge or expertise in the field.
- Writes for an audience with little knowledge or expertise in the field.

- Strives for objectivity, reliability, and validity; reports limitations or conflicts.
- Strives for accuracy, creates the illusion of objectivity, does not report limitations or conflicts.

Dr. Maren Aukerman

- Consider themselves experts on their subjects because they are.
- Consider themselves experts on a subject because they write about it.

Corrine Hess

- Understands the basics of science and research
- Understands the basics of journalism.

Who might be able to provide the best information about reading instruction?

7. Expertise is important in conducting research and doing scholarly work in any field (including reading instruction)

a. You know what questions to ask.

b. You understand the context of the field.

c. You understand what data to collect (not all data are the same)

d. You understand how to collect data and from whom or where.

e. You understand how to make inferences based on the data.

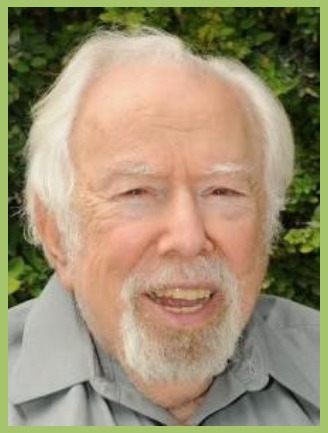
f. You understand the limitations of data.

g. You understand the difference between data and research.

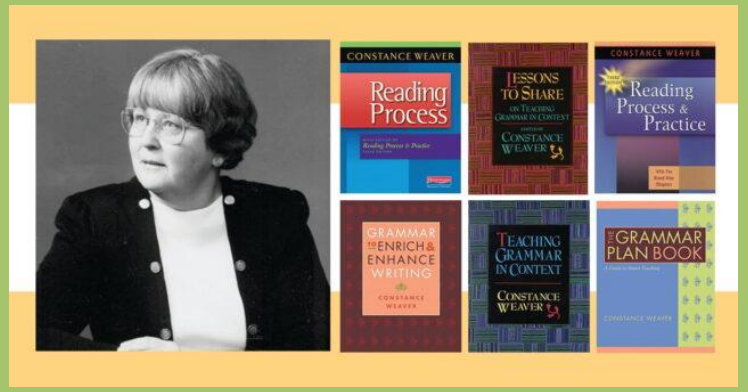
h. You understand the importance of context.

i. You have a theoretical context in which to use to the findings.

Richard Allington



Ken Goodman

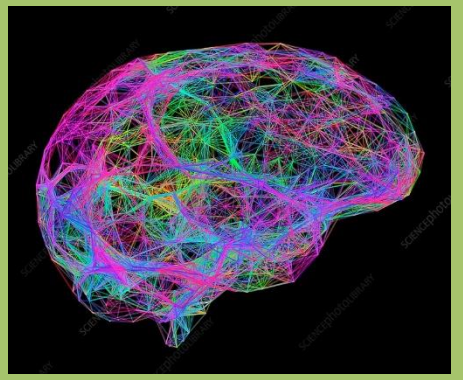


Constance Weaver

Why is scholarship, knowledge, and expertise being shunned in favor of "common sense", "business sense", and "political sense"?

Expertise is important. I am sure Emily Hanford is a very good radio journalist. But why would we assume that she has the ability to put information related to reading instruction into a meaningful context or to accurately understand and translate reading research? Being on the radio does not make one an expert on anything other than being on the radio.

E. Defining our Terms: Word recognition and word identification



1. Recognizing words is different from identifying words

2. Recognizing words – see the word - in lexicon - instantly know what it is

3. Identifying words – in lexicon - a strategy consciously applied

4. There are four different word ID strategies

a. analogy

b. morphological analysis

c. context clues

d. phonics

* *Three cueing is not on this list.*

* *Guessing is not on this list.*

* *Using pictures is not on the list.*

5. The 3 cueing systems is not a strategy, an approach, a method, or a plot to destroy democracy.

F. Defining our Terms: 3-cueing systems -- What it is

1. A recognition that the brain uses multiple sources of information when creating meaning with print.

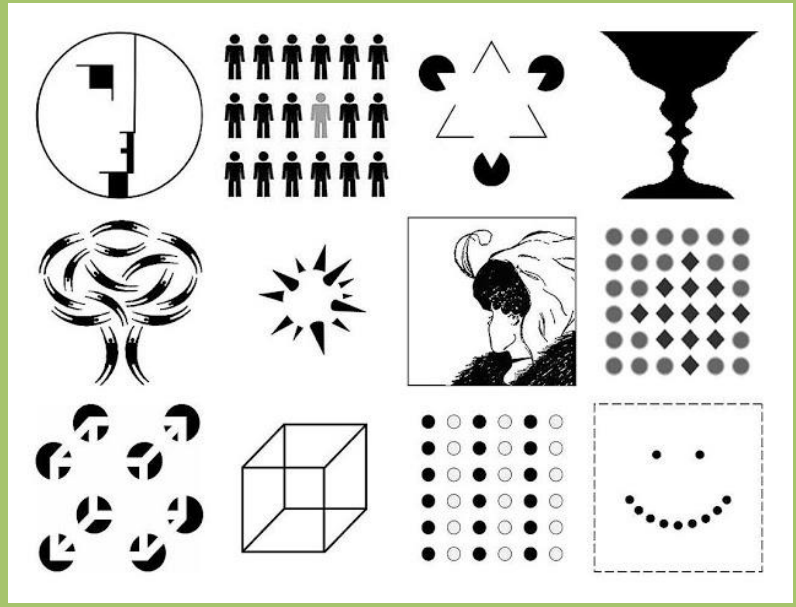
2. Using what the brain does naturally.

3. Our brains do three things naturally:

a. looks for patterns and fill in the blanks (Gestalt).

b. tries to create meaning

c. makes predictions and inferences based on partial data



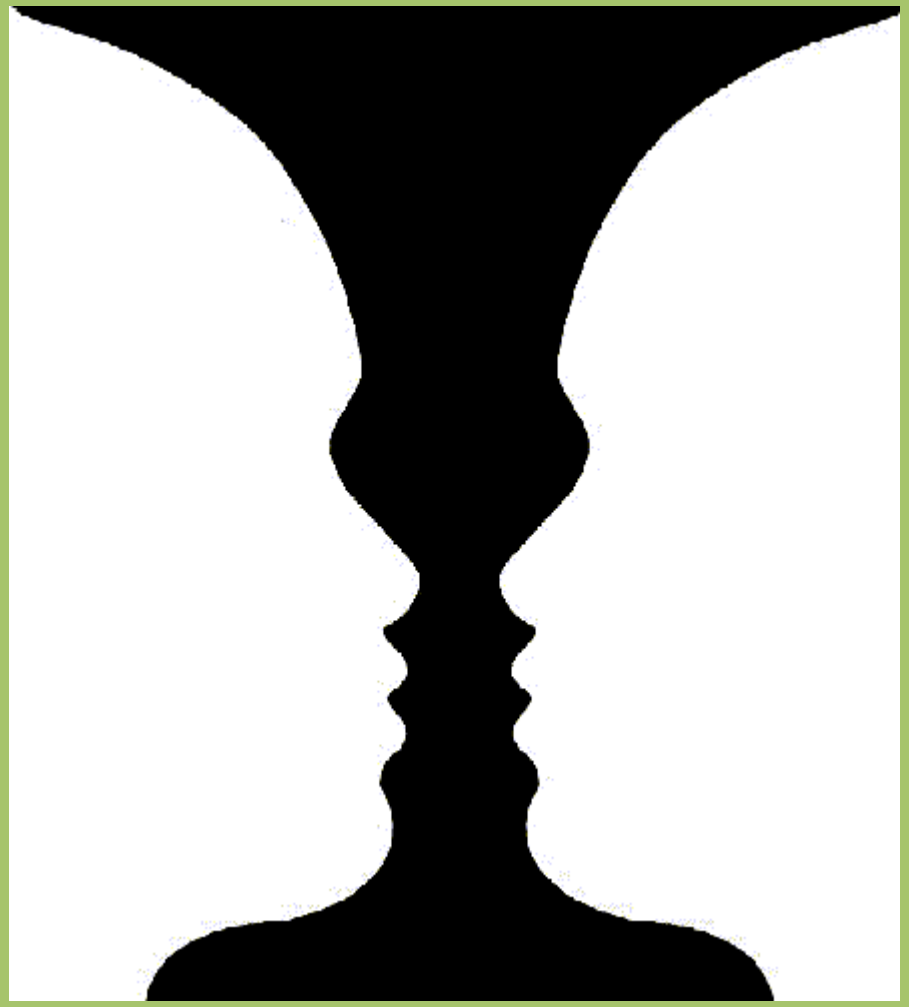
4. Brain naturally looks for patterns and fills in the blanks based on what's in the head

Gestalt - our brain sees the pattern and fills in the blanks.

We try to make sense of things.

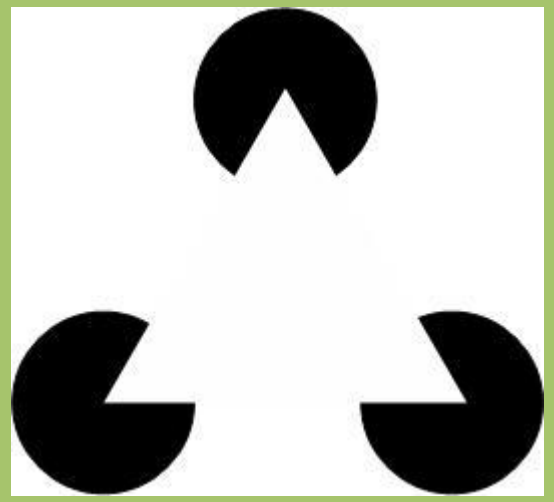
chalice

faces



young woman looking away

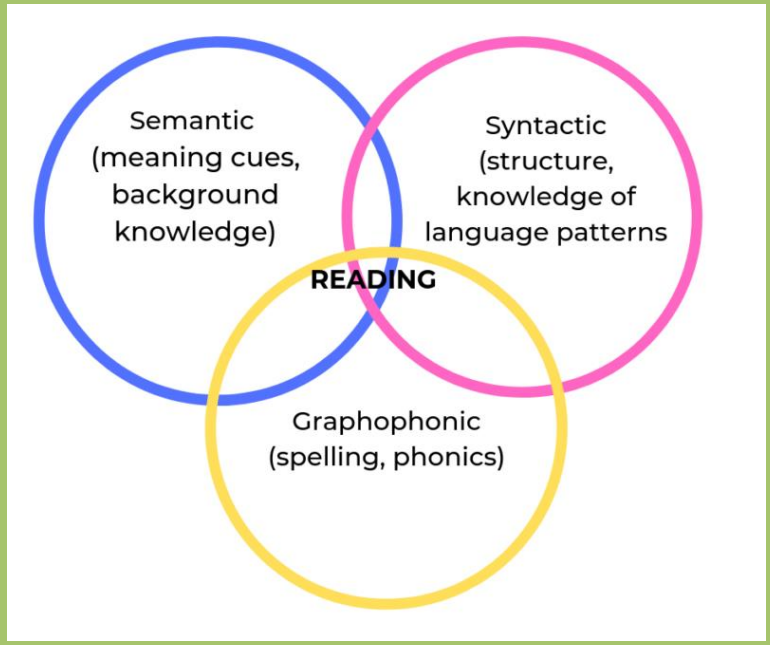
old woman looking down



partial data is used to complete the picture

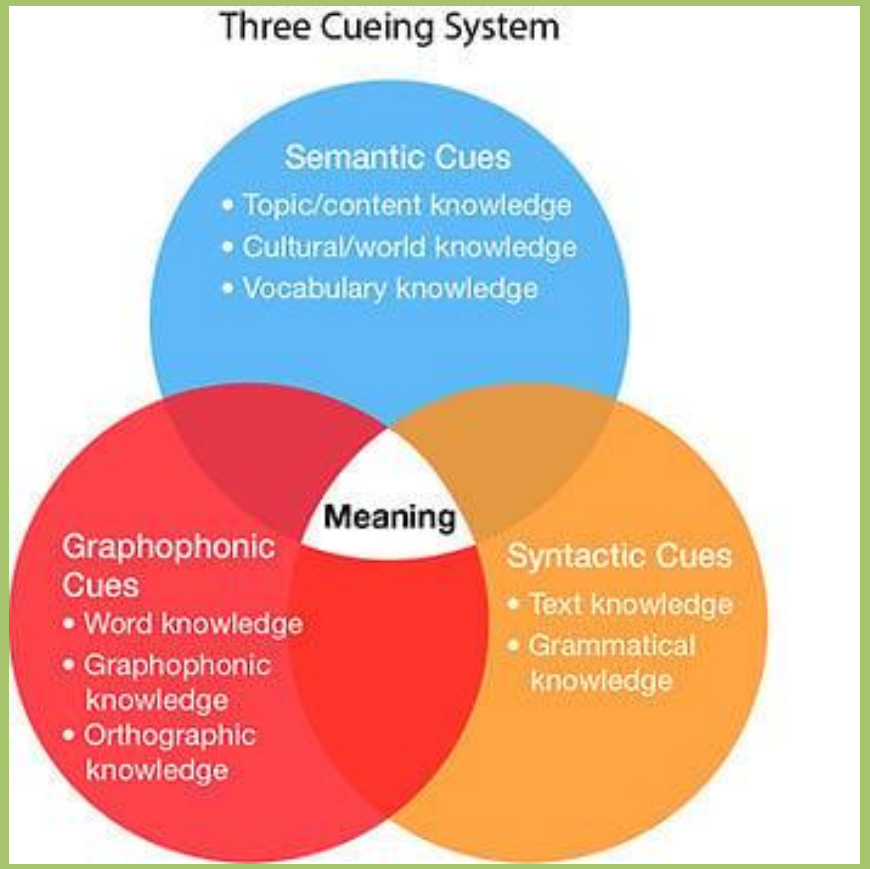
5. Our brain uses three systems to cue the brain as to what the word is during the act of creating meaning (reading)

6. System – a set of interdependent and interacting entities or things working together as a whole



7. These systems do not work in isolation, rather, they interact and are independent upon other systems.

8. We do not encounter individual words floating in space.



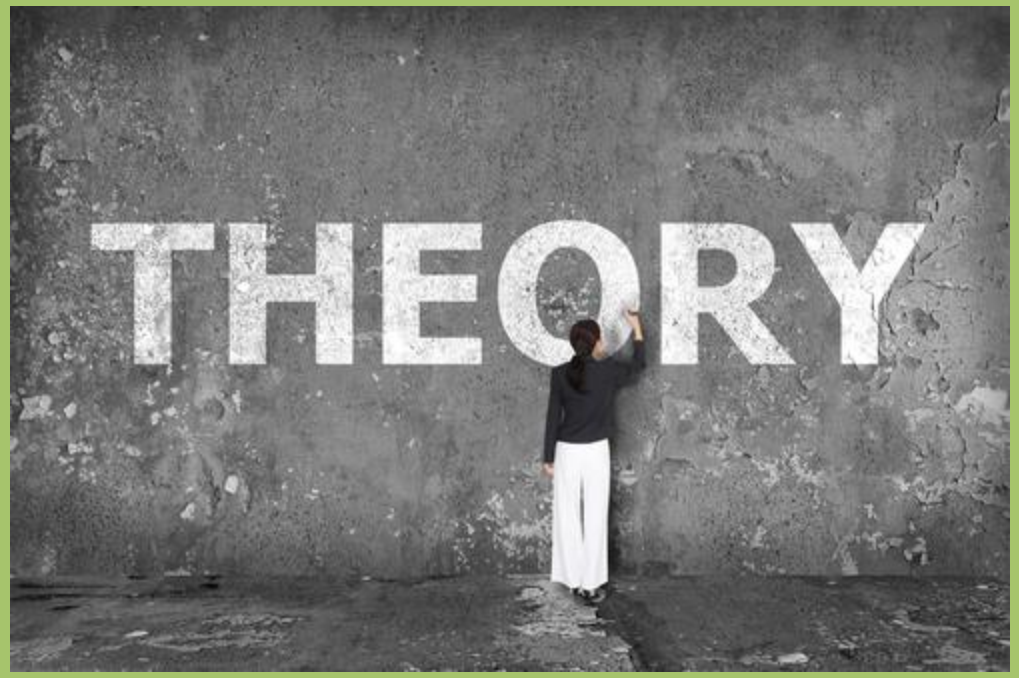
run

- Did you go for a run?
- Do you have a run in your stocking?
- Will you run for office?
- Did the play have a long run?
- Will you run up the score?
- She can run fast.
- It was an end run.
- The horses will run free.
- He runs with a wild group of people.
- The engine runs on gasoline.
- Is the clock running?
- He is giving me a run for my money.

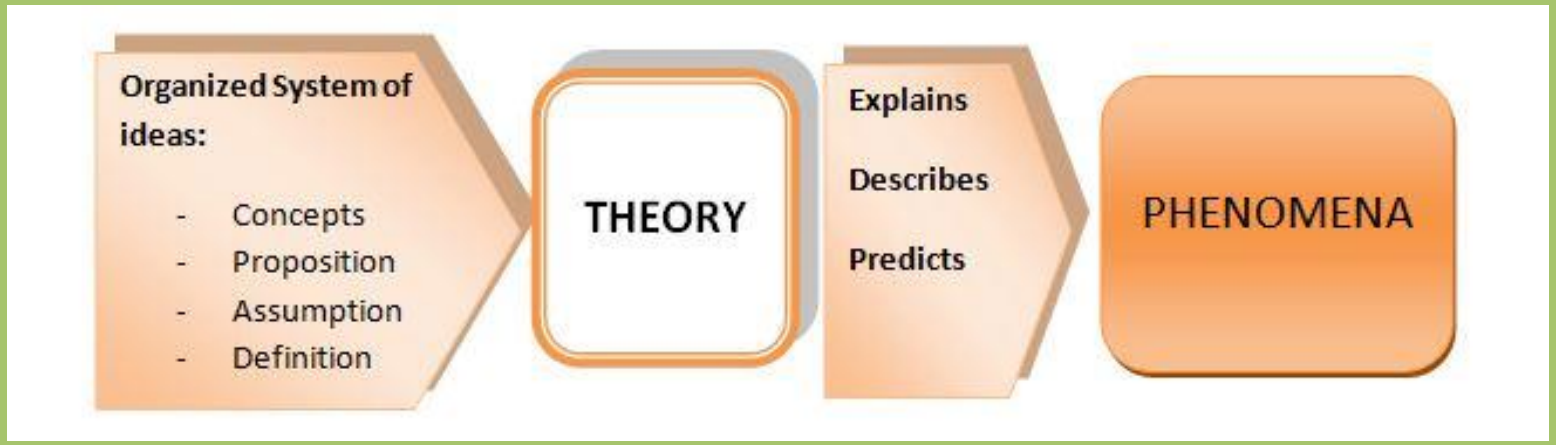
PART II. THEORIES OF READING

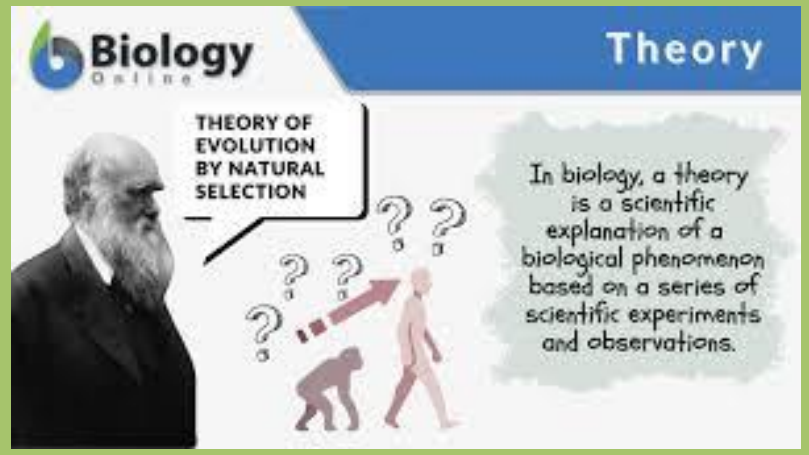
Theories

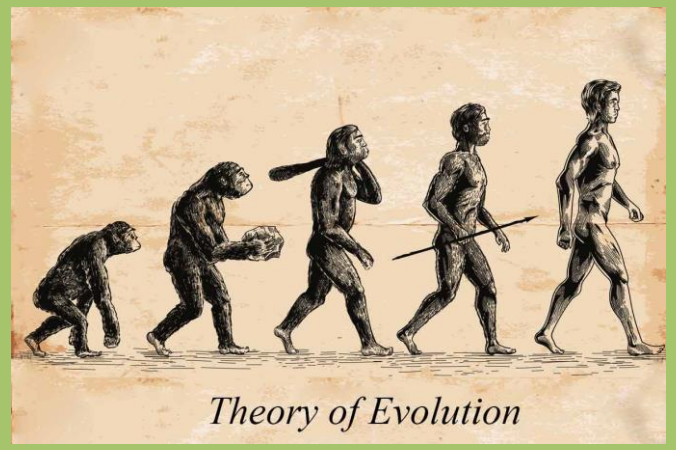
1. In science, a theory is **not** an untested assumption (hypothesis)



2. A theory is a way to explain a set of facts, used to understand phenomena

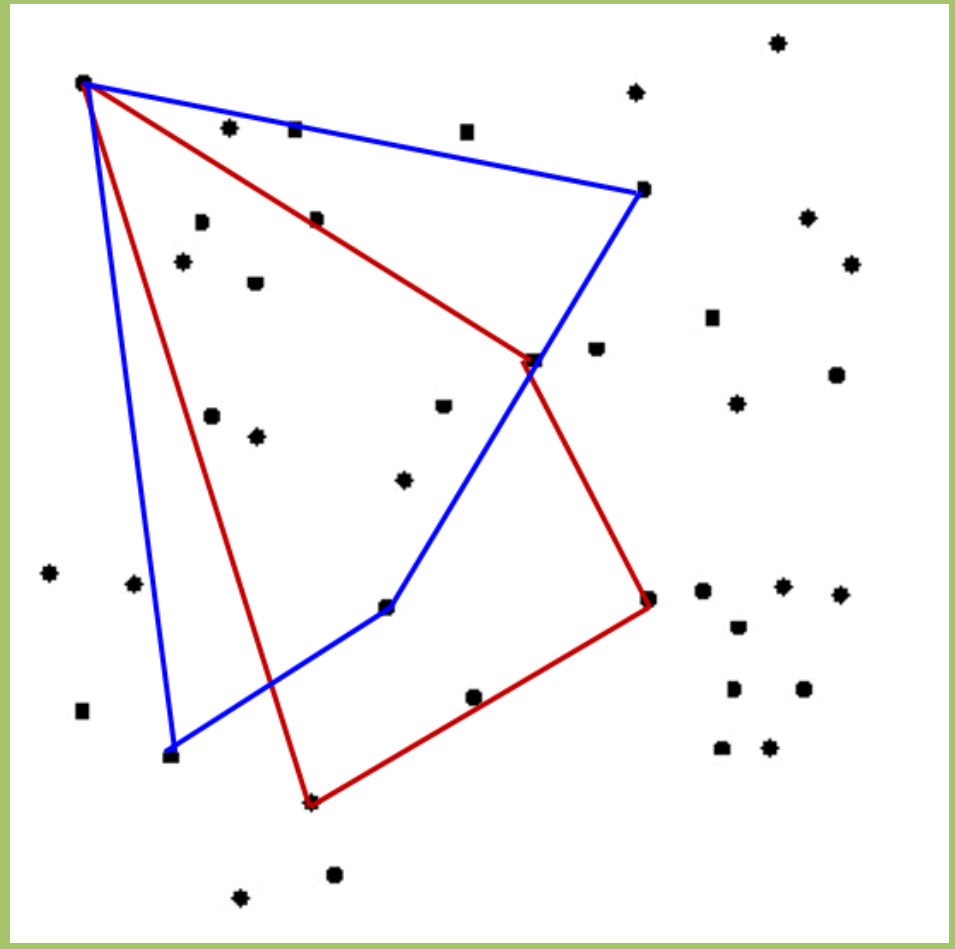






3. Theories are based on research – each research study is a data-dot

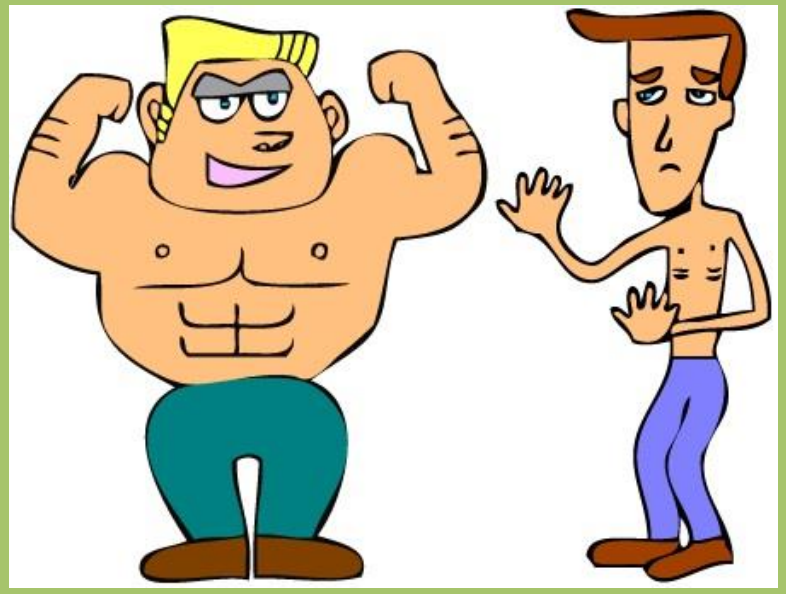
4. Different theories connect different data-dots differently

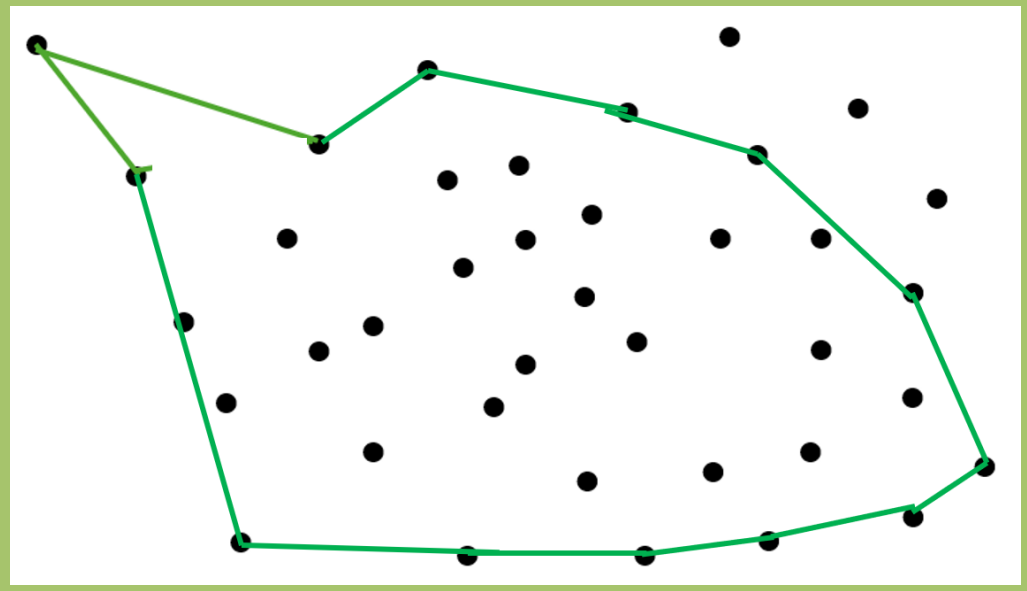


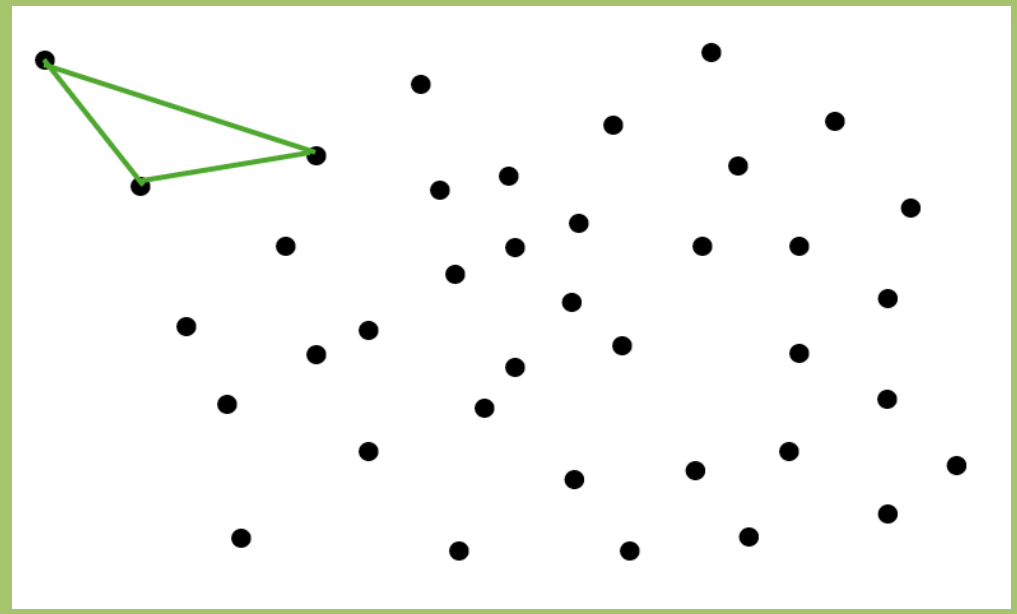
5. Robust vs. weak theory

a. robust theory - connects and includes a lot of data dots

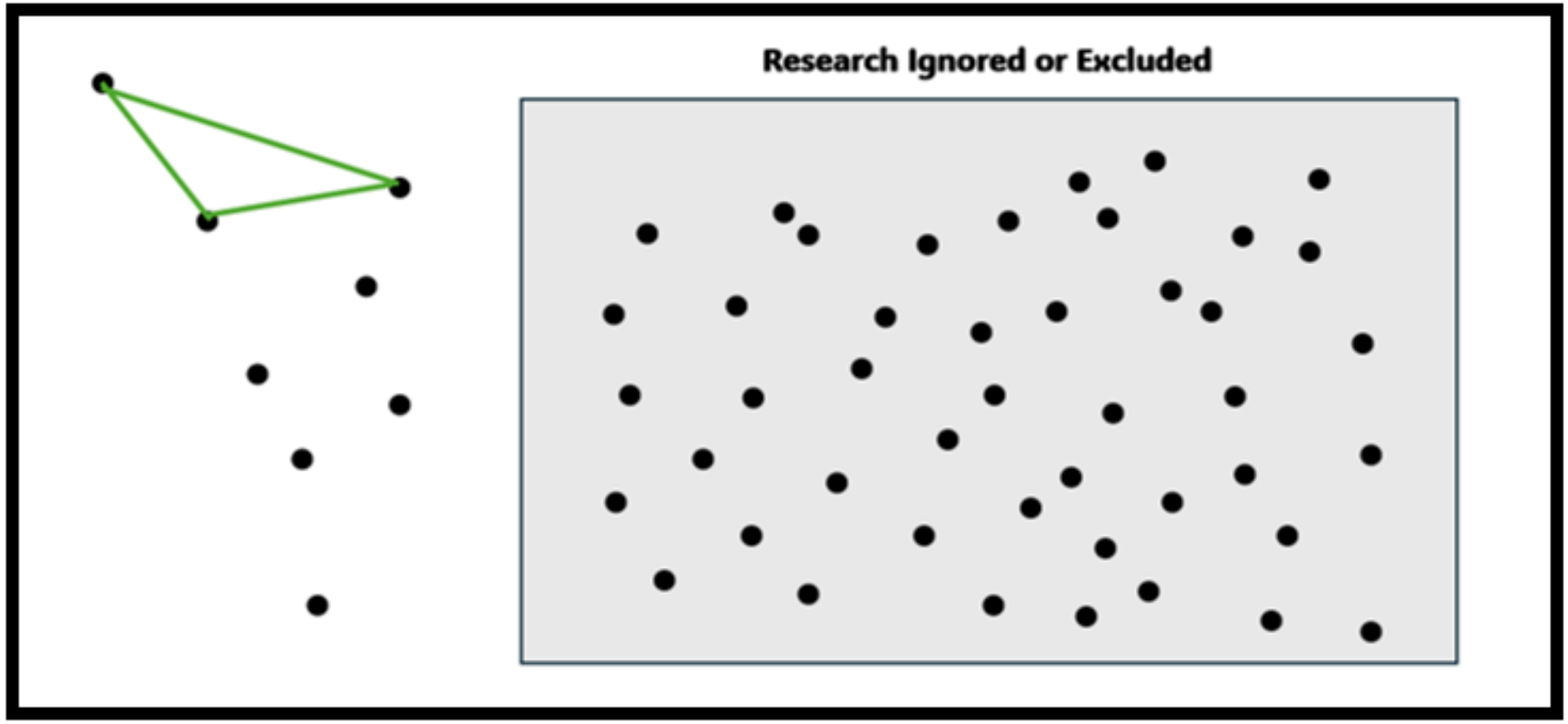
b. weak theory - leaves a lot of data dots unaccounted for



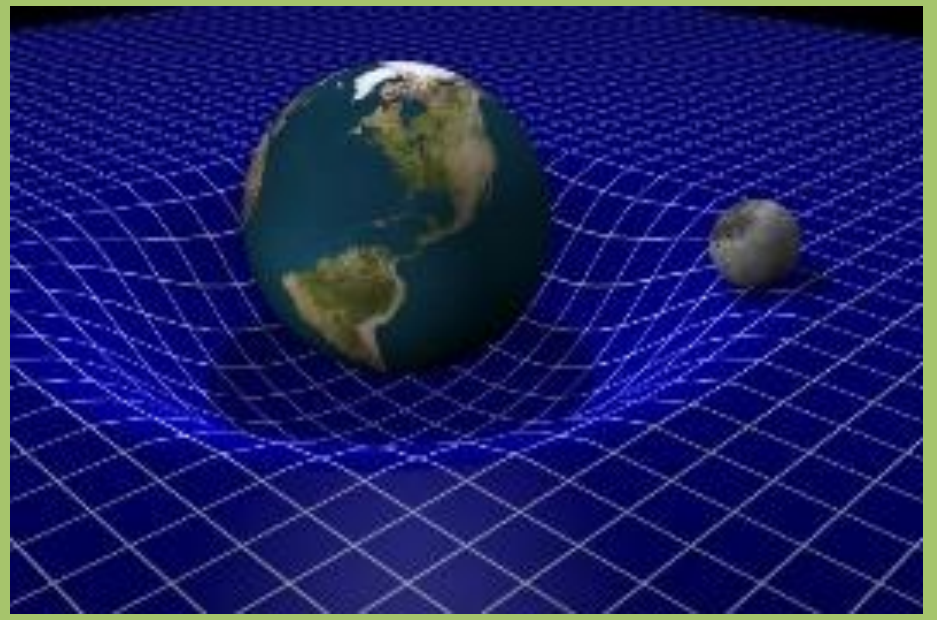




The magical transformation of weak theories into robust theories.



6. Theory of gravity

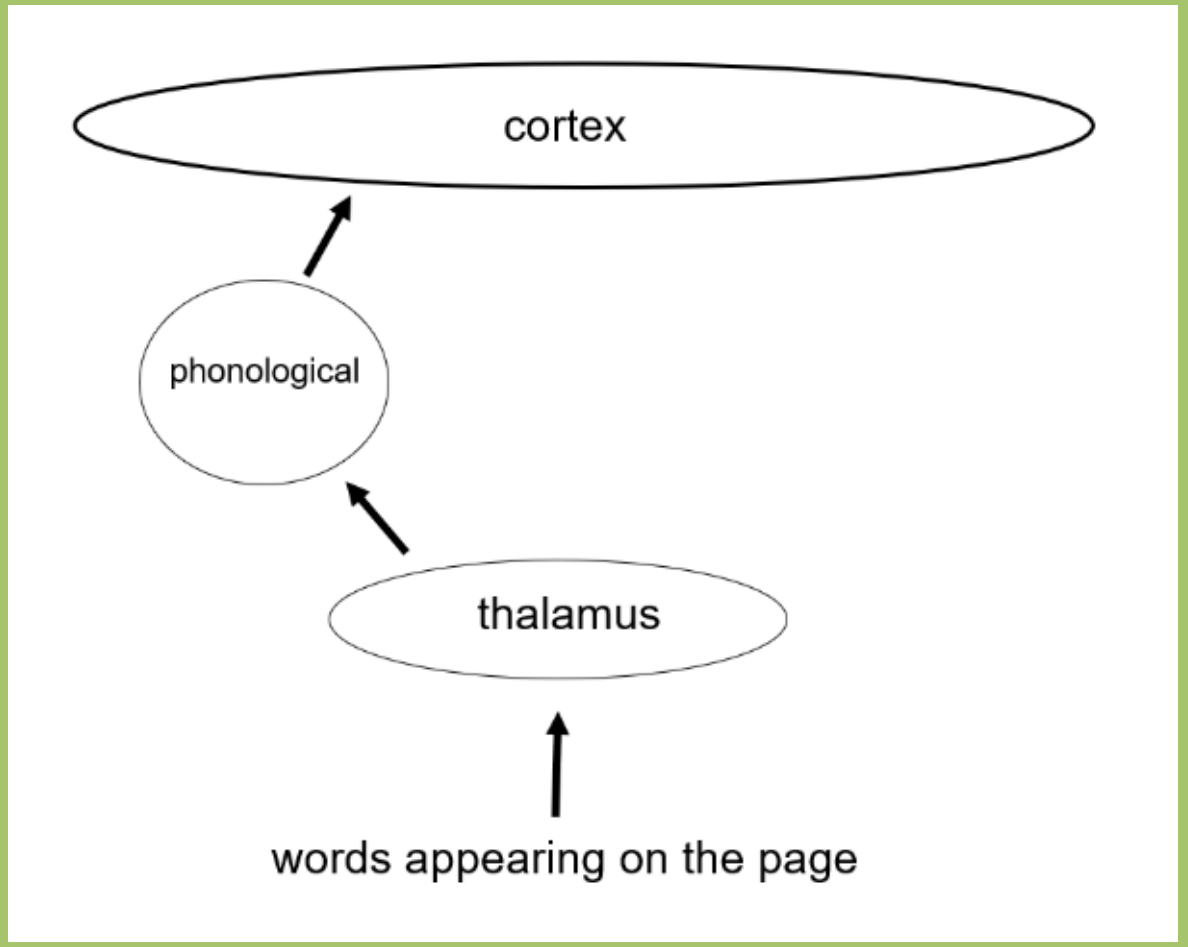


7. Flat earth theory

Bottom-Up Theories

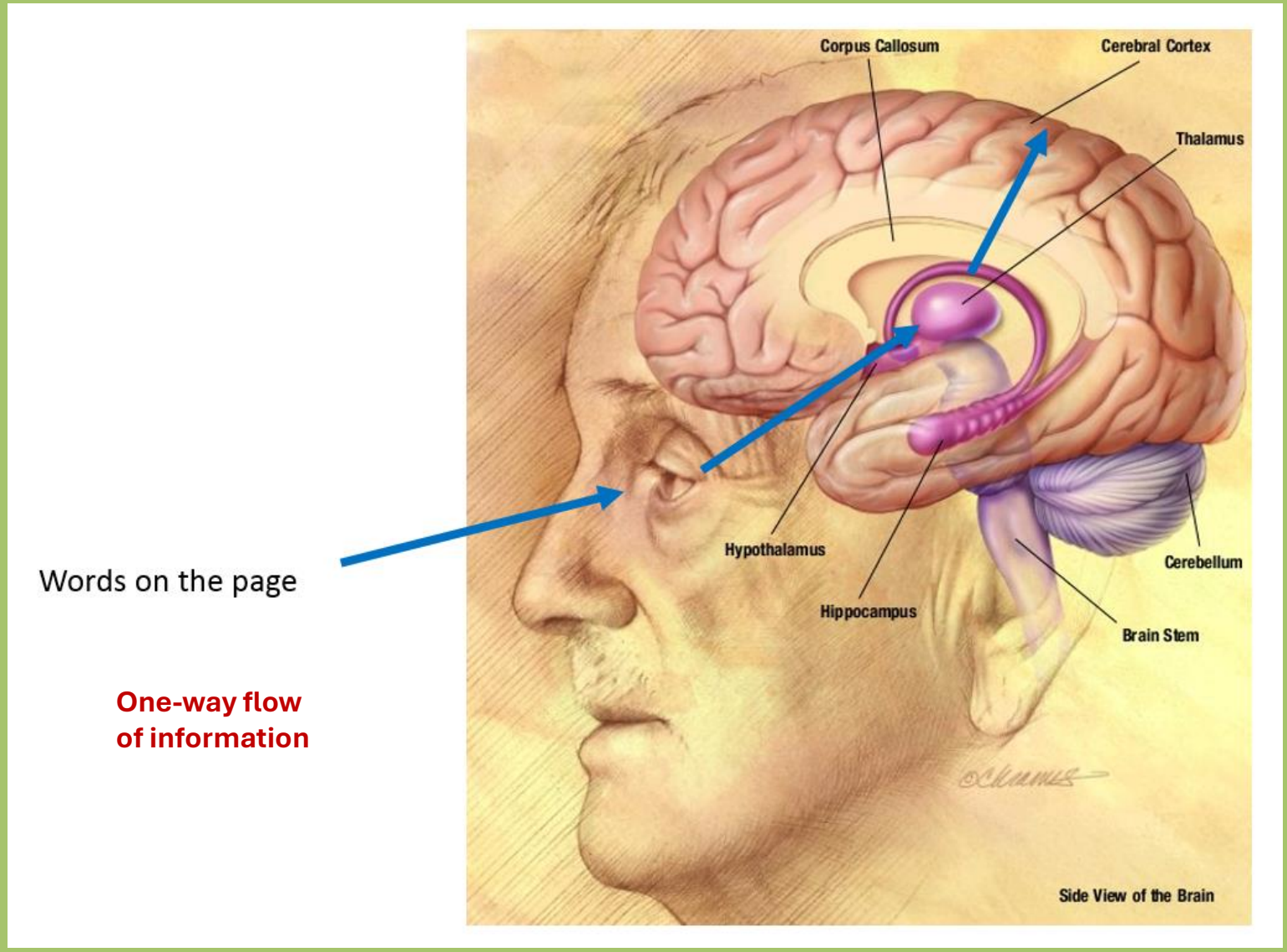
1. Phonological processing model – reading is sounding out words

Flat earth theory of reading

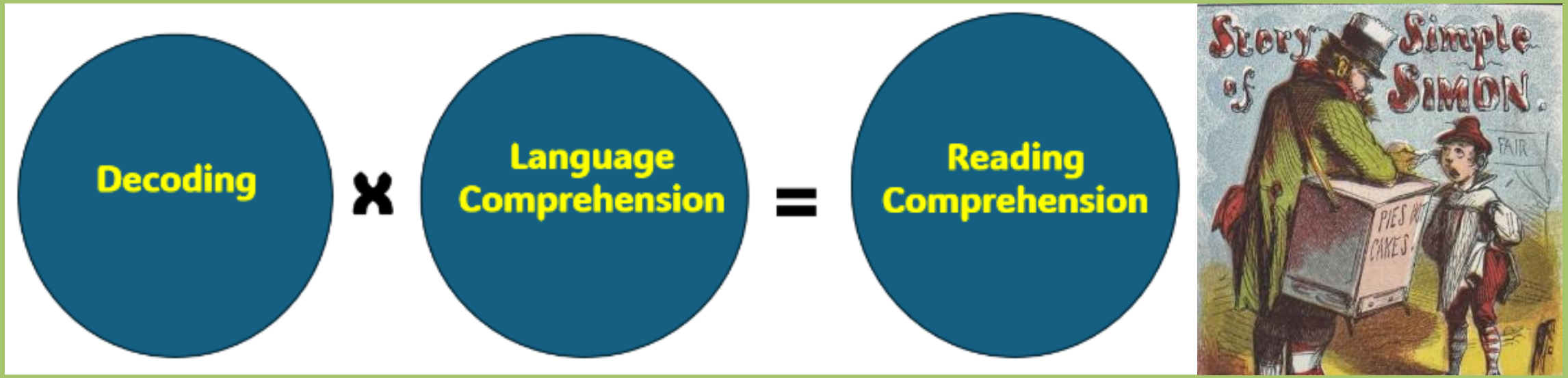


Based on the bottom-up theory of reading

Phonological processing model - bottom-up



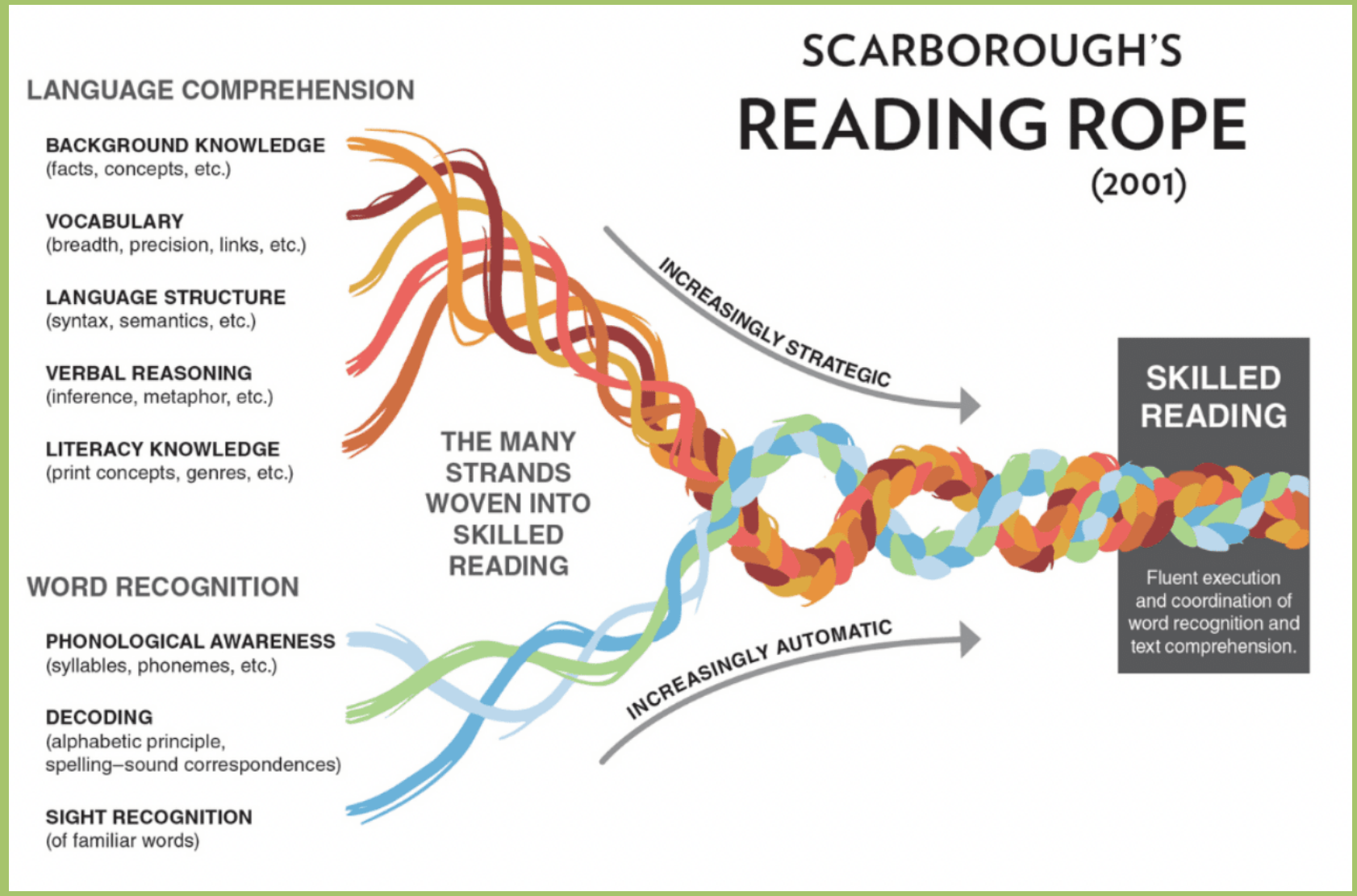
2. The Simple View of Reading – decoding x language comprehension = skilled comprehension



Gough, P., & Tunmer, W. (1986). Decoding, reading, and reading disability. Remedial and Special Education, 7, 6–10.

3. Scarborough's rope

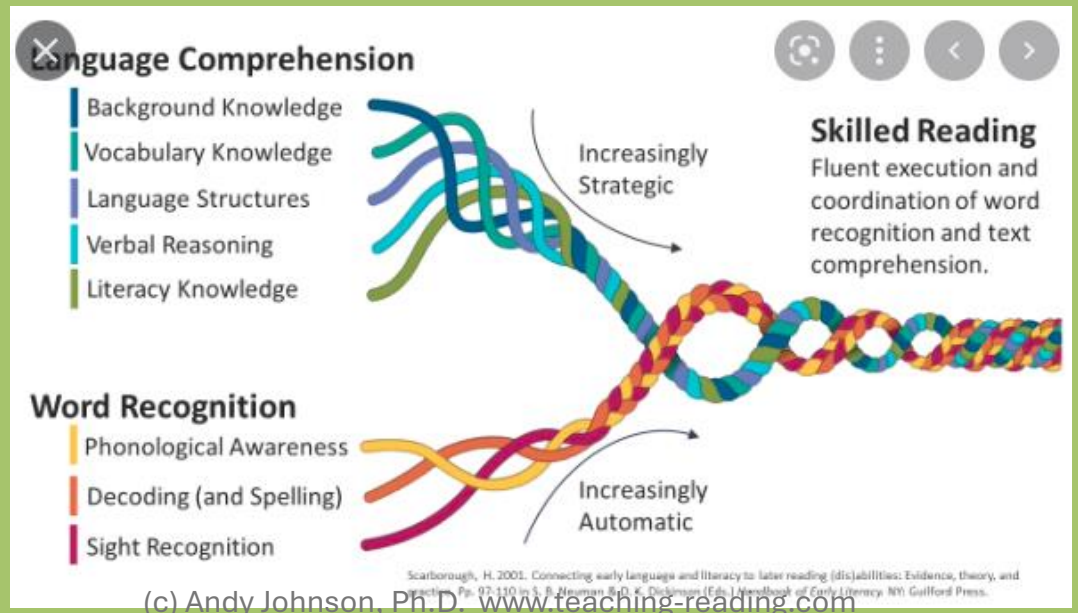
word recognition vs. decoding



Some of the rope's limitations when applied to reading:

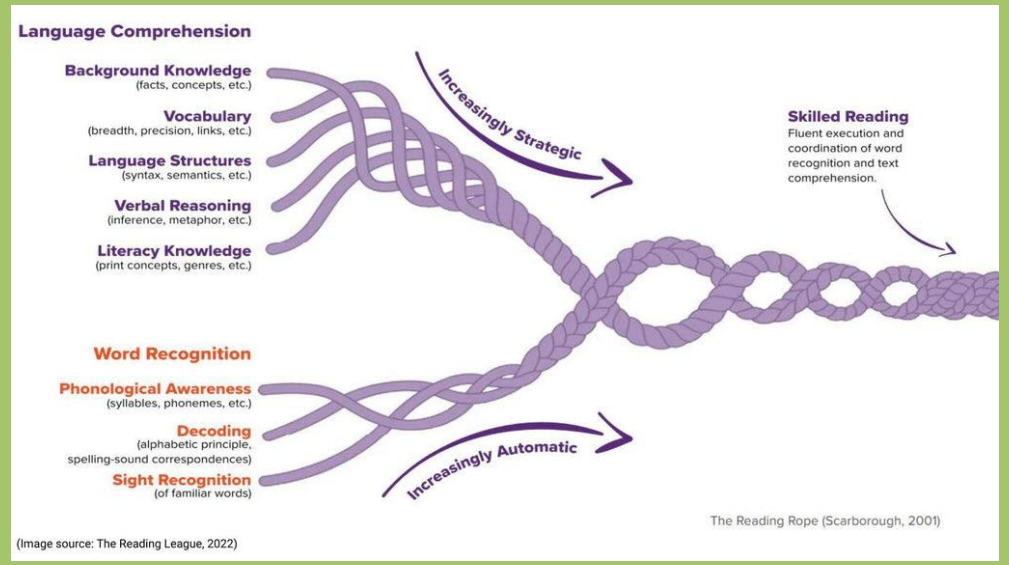
1. It does not differentiate between word recognition, word identification, and decoding.

2. Semantics, syntax, and vocabulary are not strategies consciously applied as illustrated in this model. Instead, they're bits of information used automatically to recognize words while reading. Strategies that are consciously applied to identify words include analogy, morphemic analysis, context, and phonics. These are not included in the rope.



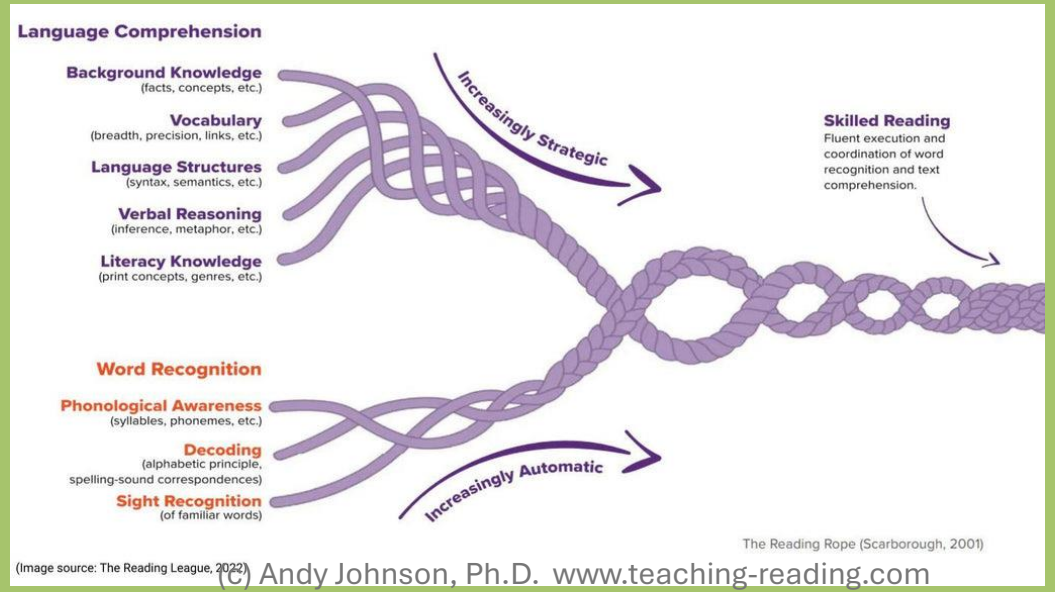
3. Separating word recognition from language comprehension assumes that we encounter words floating in space, outside of meaningful contexts or nonsense words.

4. Teaching each of these eight strands is neither necessary nor sufficient for all students. Words can be recognized, and comprehension can take place without some of these elements present (such as phonemic awareness or syllabic knowledge). Similarly, teaching these eight strands may not be sufficient for many students.



5. Comprehension can occur with minimal levels of (a) word recognition accuracy, (b) knowledge of syllables and phonemes, (c) knowledge of spelling-sound correspondence, and (d) literacy knowledge. After a minimal level is obtained, more of these things don't result in greater reading comprehension.

6. The rope represents linear thinking. Human brains don't operate in a linear fashion; instead, they operate in an associative fashion, expanding outward, making increasingly more and more complex connections and associations.

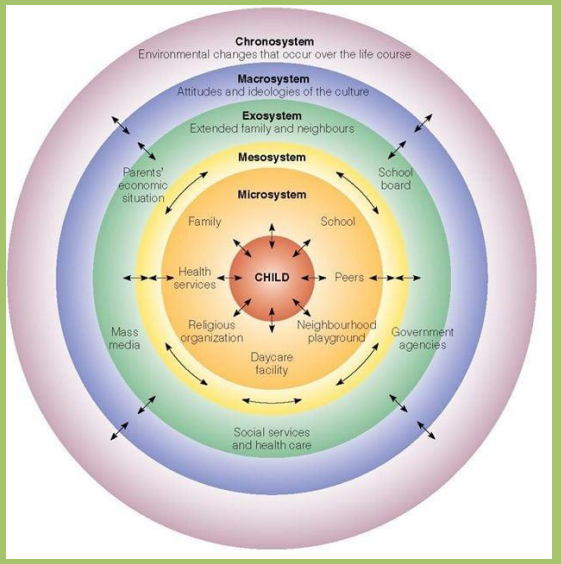


7. It is still largely bottom-up. It does not represent the two-way flow of information that takes place during the act of reading.

8. There are several elements (strands) not included in the rope. There are at least 12 strands that interact and are interdependent in the act of learning to read.

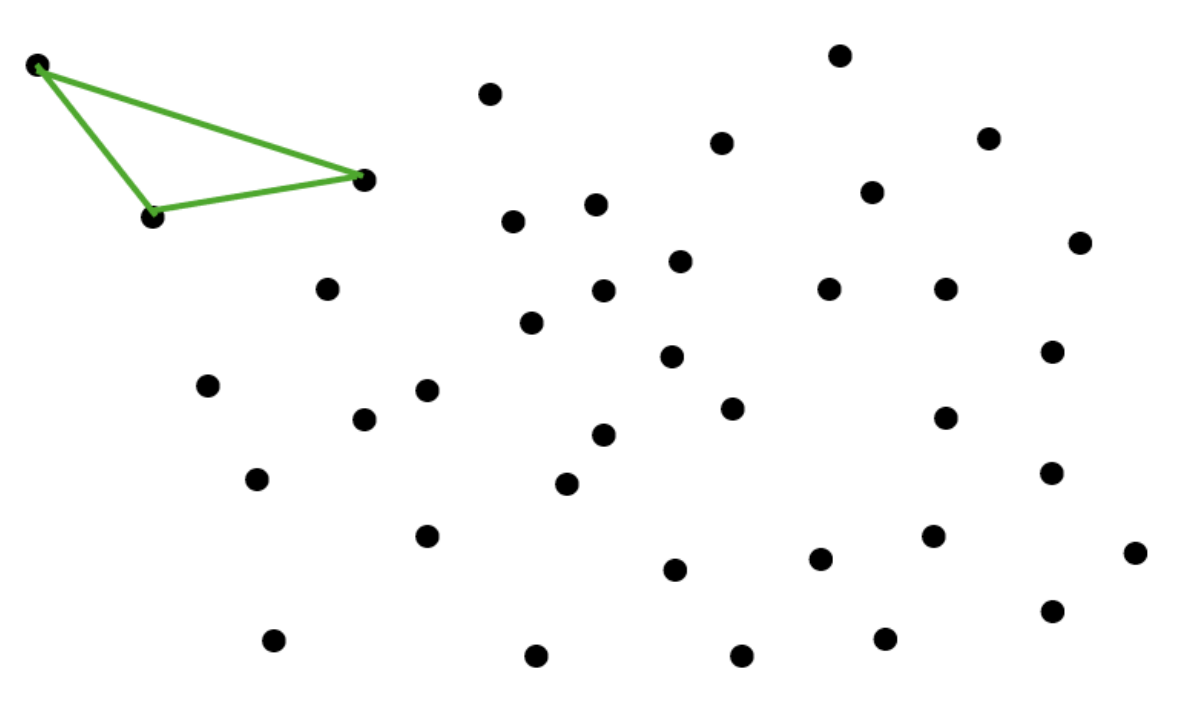
9. It represents Humpty-Dumptian thinking vs. systems thinking.

Humpty-Dumptianism



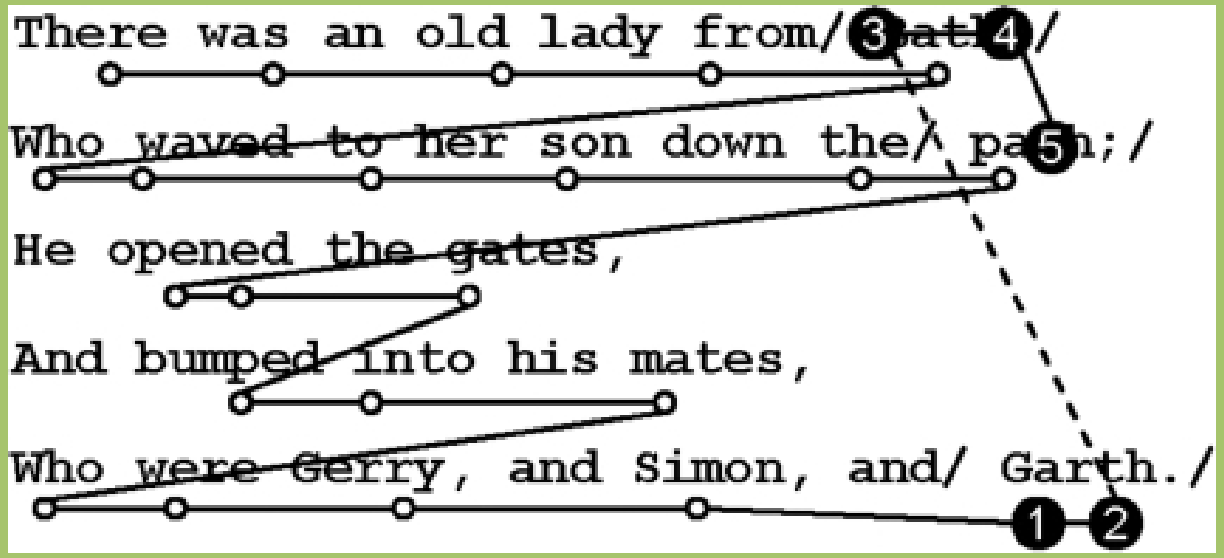
Bronfenbrenner's Ecological Systems Theory

Bottom-up theories of reading are weak theories - too many facts unaccounted for:



Data unaccounted for in the phonological process model:

1. Proficient readers skip 20% to 40% of the words on the page



2. Proficient readers often insert words that are semantically or syntactically correct

run
The boy ~~ran~~ down the road.

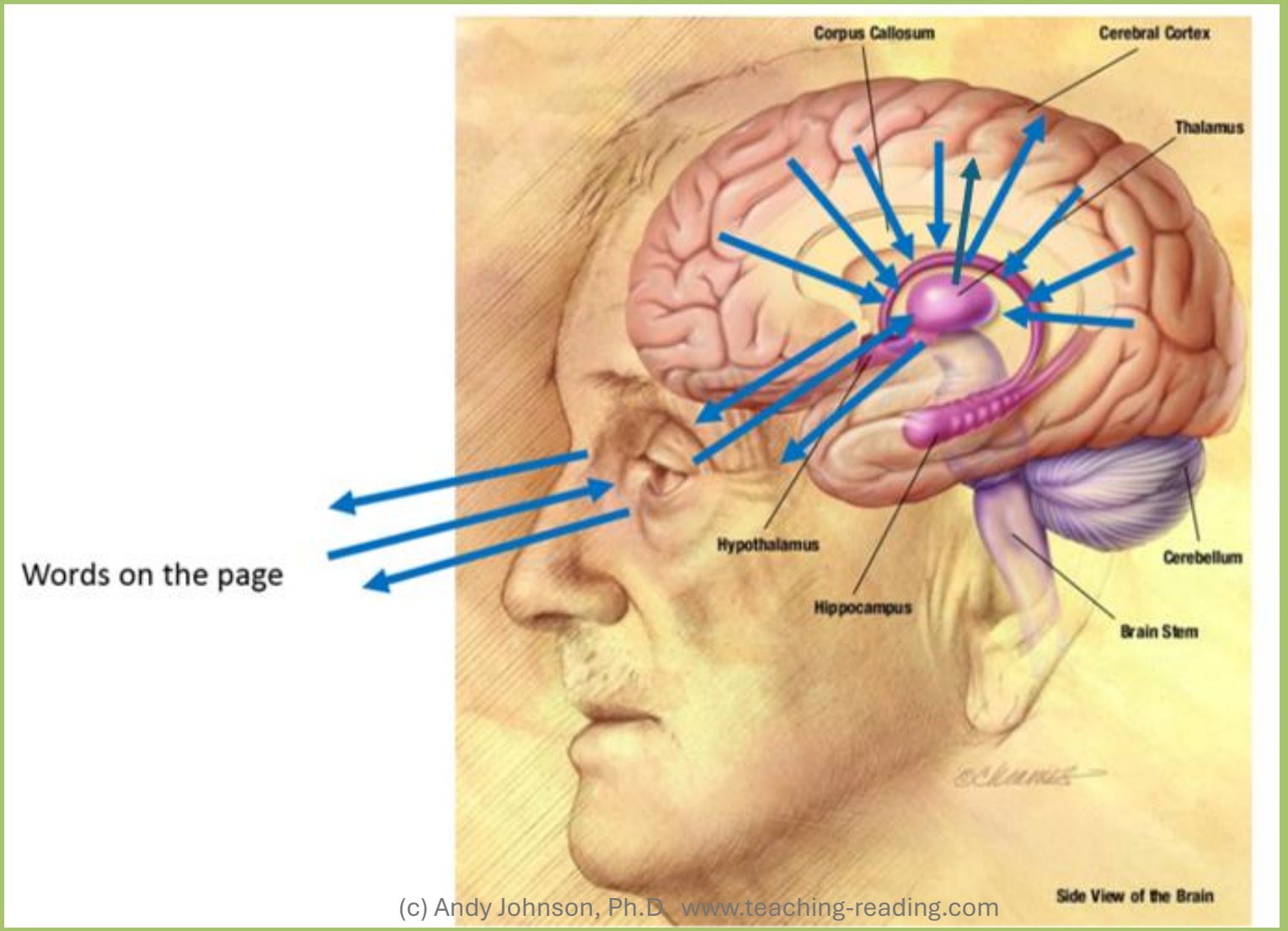
Meaning is retained

bed
The girl jumped on the ~~bench.~~

Noun for a noun

3. More nerve fibers go from cortex to thalamus vs. thalamus to the cortex

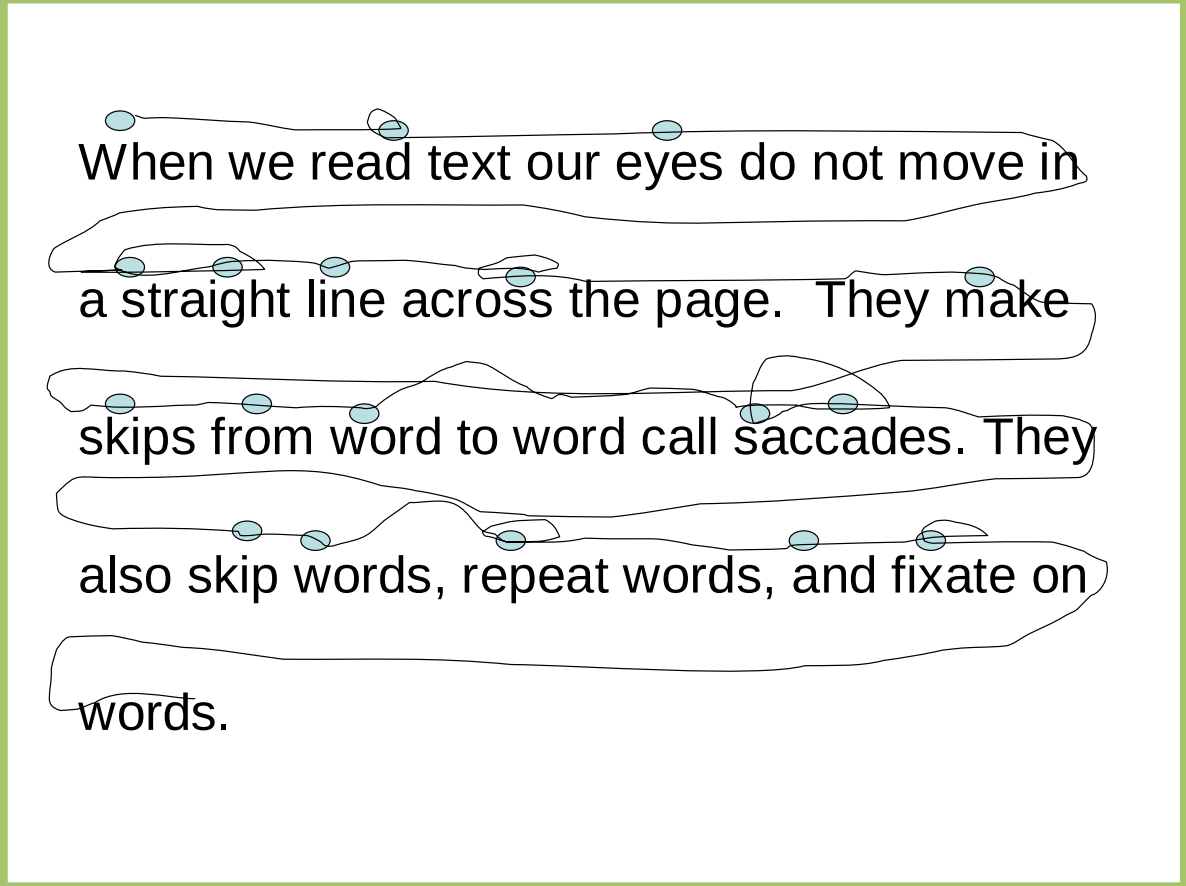
a. almost 10 to 1



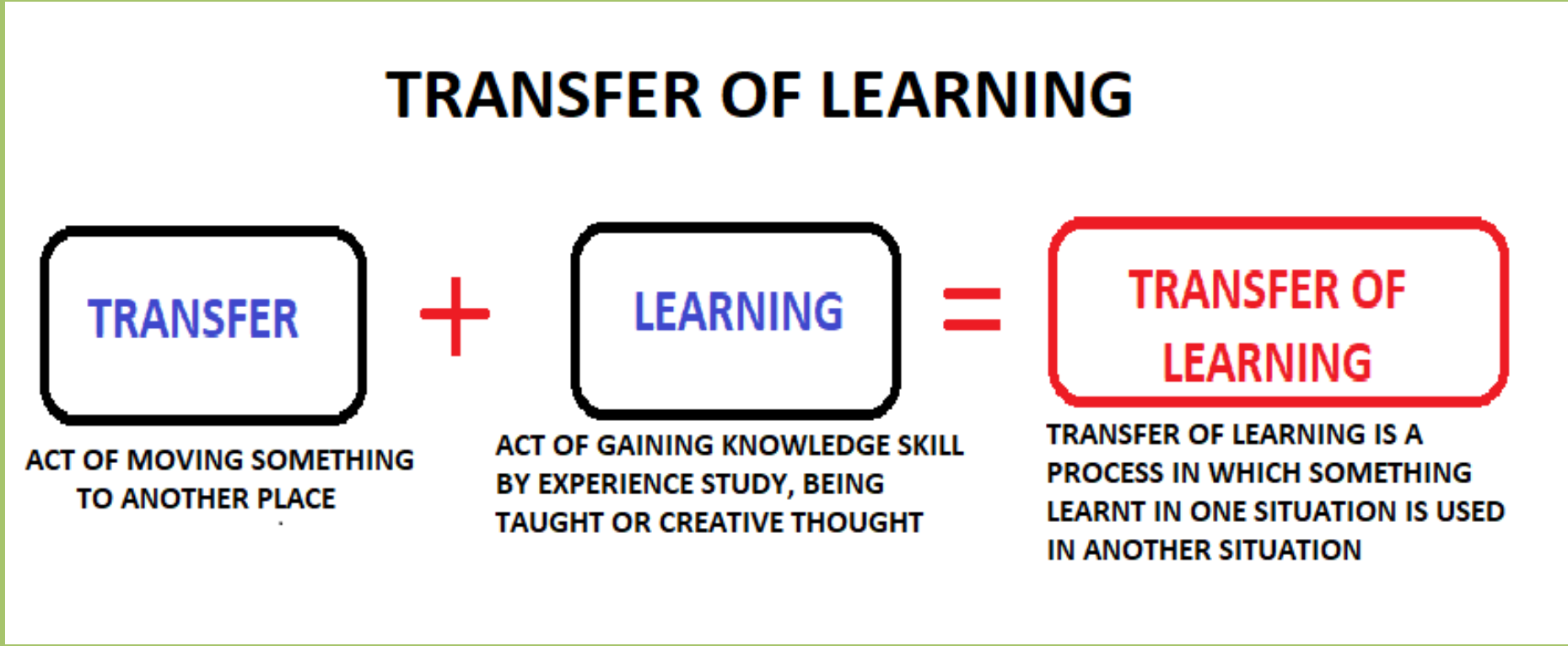
4. Information in the cortex (vs. on the page) is used to direct the eyes during reading

5. Proficient readers do not look at every word or letter

6. Eyes do not move in a straight line across the page



7. Sounding out word skills do not readily transfer to authentic reading



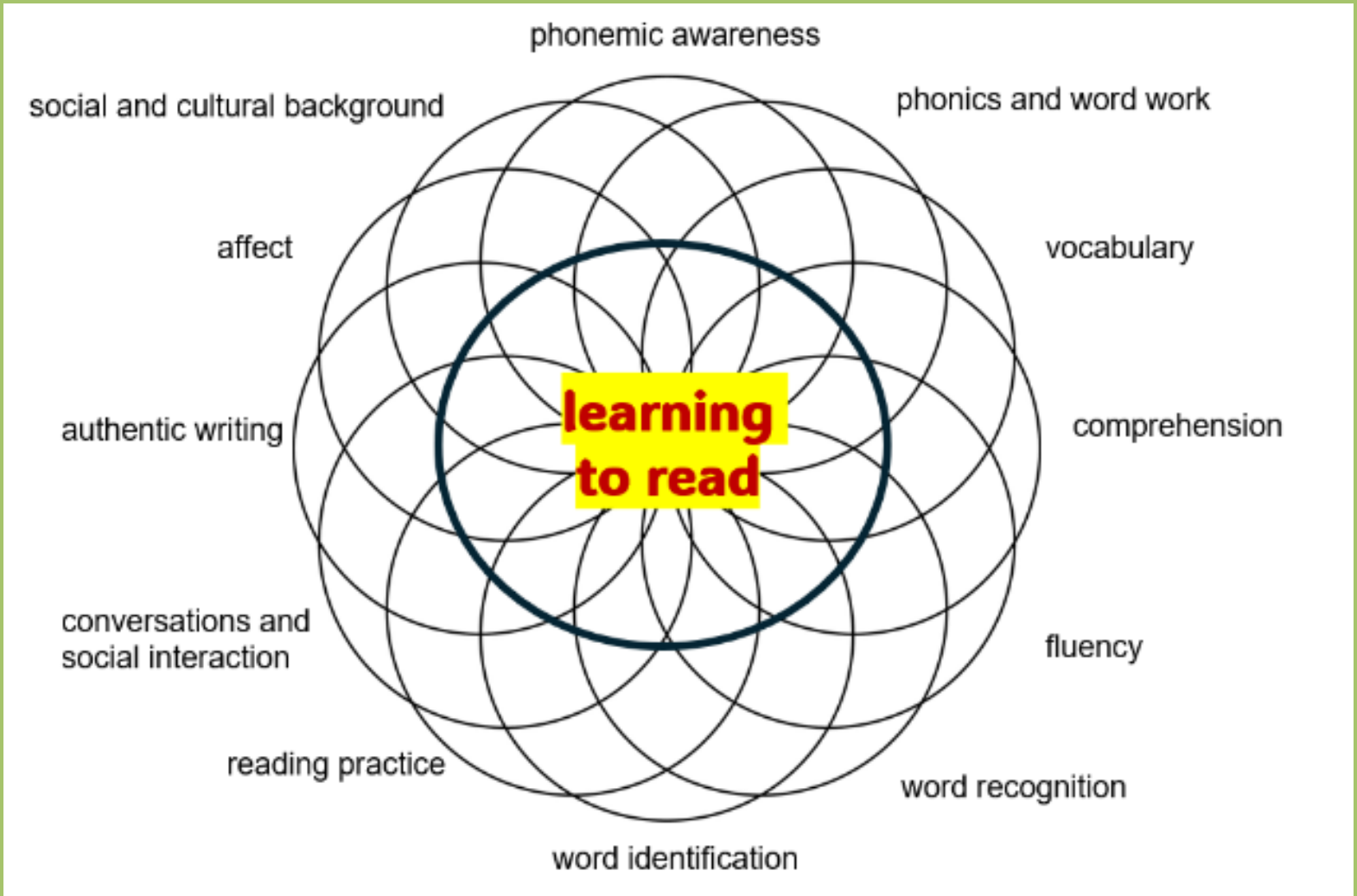
Neurocognitive Learning Theories

1. What's in the head interacts with what's on the page to create meaning

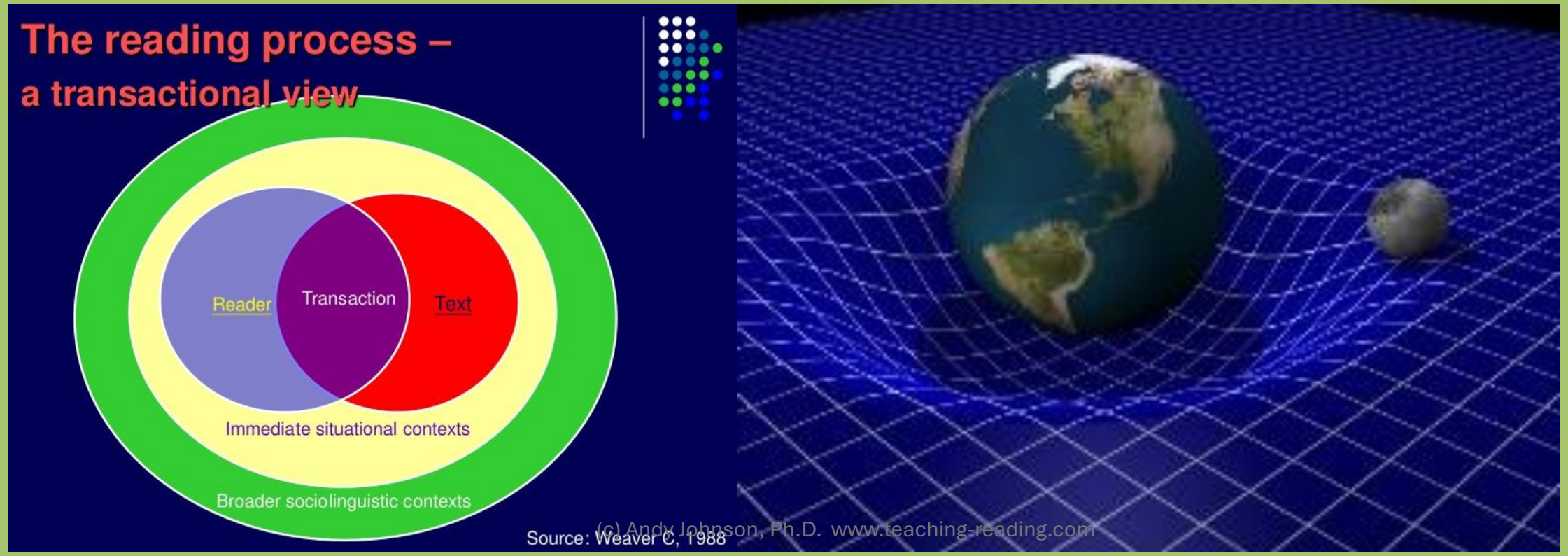
a. neuroscience

b. cognitive science – cognitive psychology

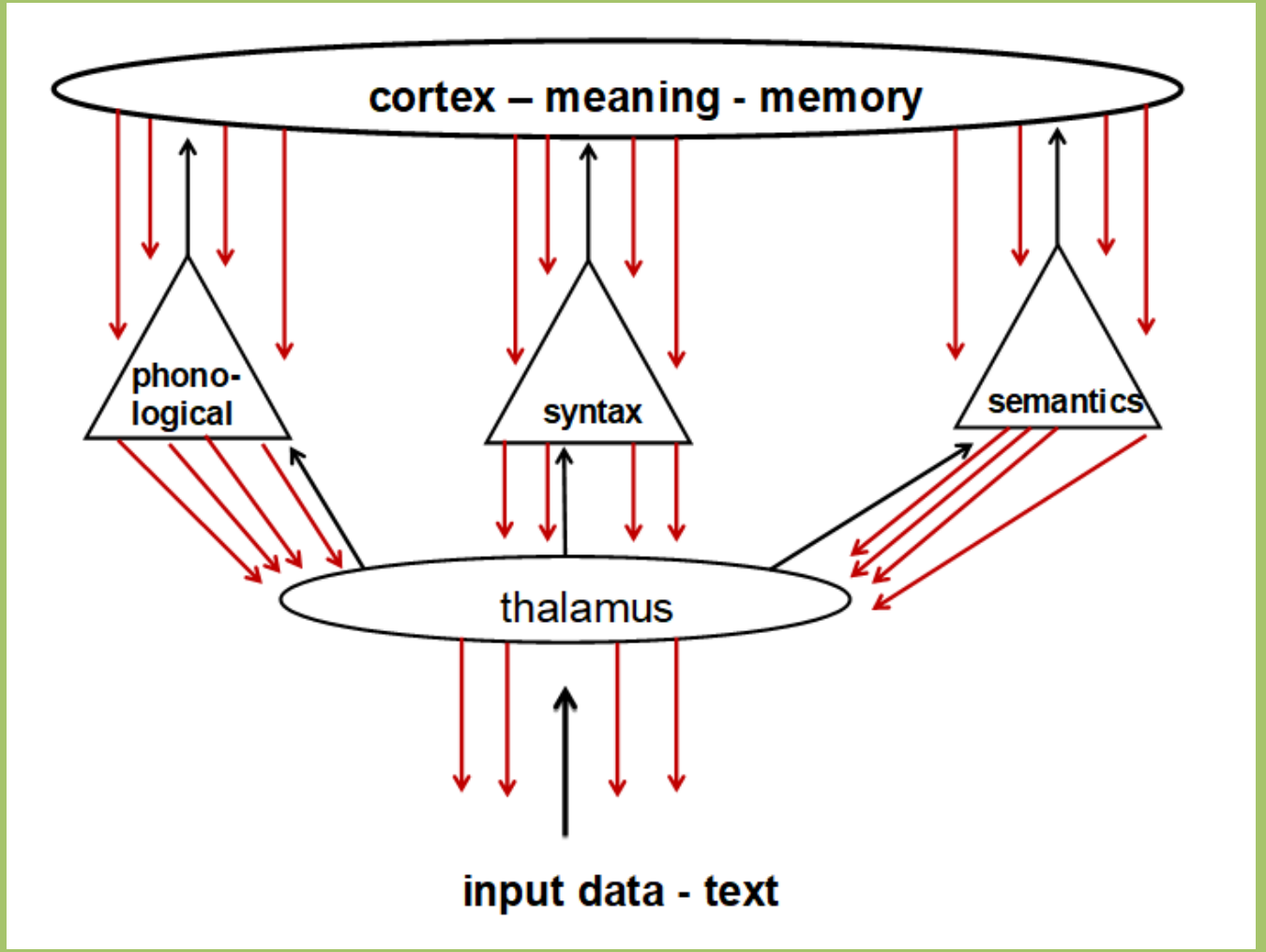
Intersecting circles: interdependent and interacting

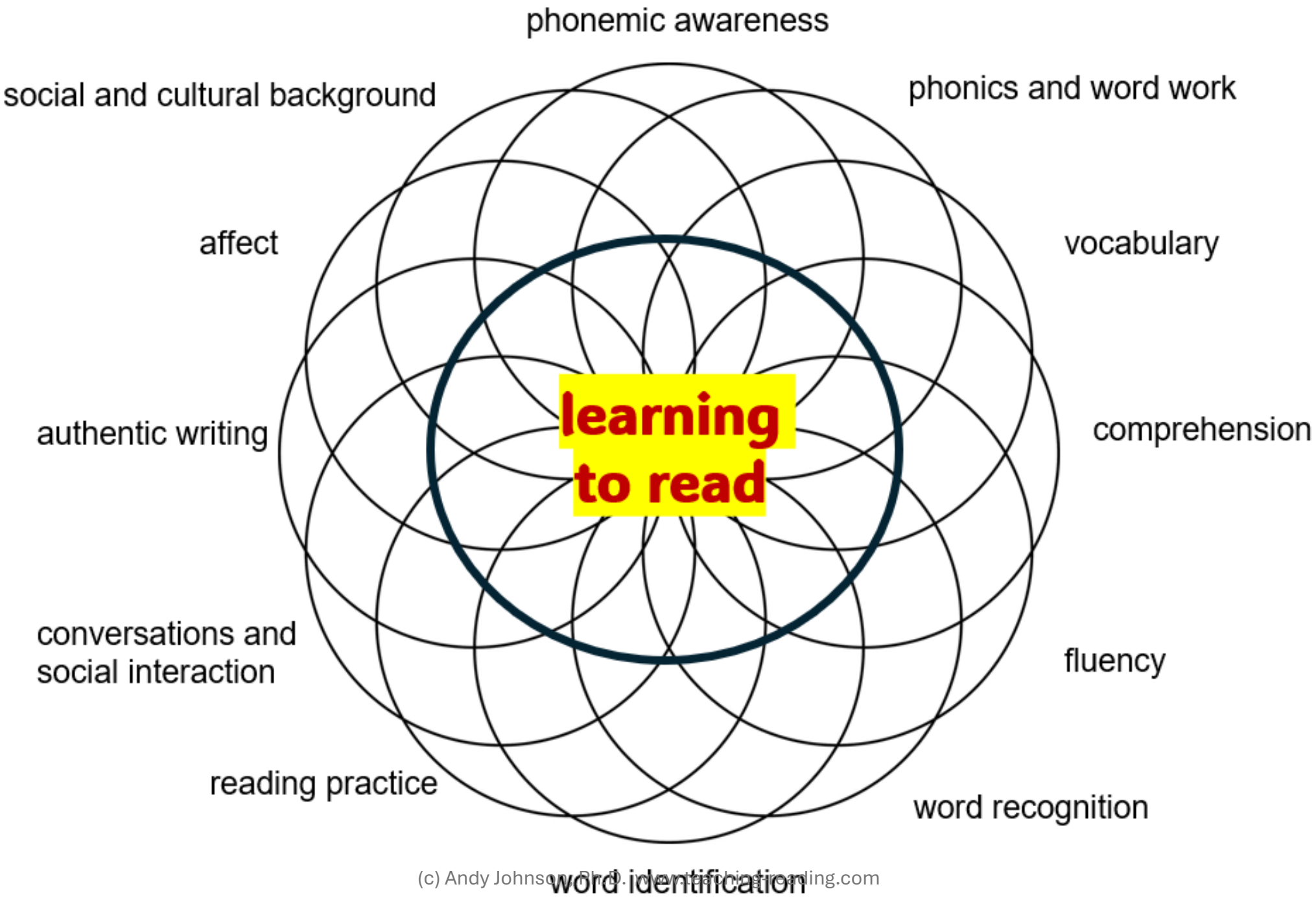


2. Transactional reading theory



3. Neurocognitive model of reading




phonemic awareness
social and cultural background
phonics and word work
affect
vocabulary
learning to read
authentic writing
comprehension
conversations and social interaction
fluency
reading practice
word recognition
word identification

4. Proficient readers use minimal letter clues.

Text with all but the initial vowels removed.

Onc upn a tm thr ws a hndsm prnc. H lvd in a cstle. On dy an evl wzrd cm and trnd h int a frg. Th princ crd ot, ‘hlp m!”

A btfl prncss cm t th cstl. Sh kssd hm on th lps. H trnd bck int a prnc. Thy lvd hppl vr aftr.

***All vowels removed except for initial vowels**

Experiment #1

Can anybody read the following sentence in which all the consonants are removed?

e i a ea a ou e oo.

Th bg blck br rn thrgh th wds

The big black bear ran through the woods.

Experiment #2

Read these 110 words as quickly as you can.

Billy was traveling from Minnesota to California. As he was driving through South Dakota, he stopped at a rest stop to stretch his legs and buy a can of pop. When he got out of his car, he saw a herd of buffalos off in the distance. He was very interested. Billy started walking toward the buffalos so that he could take a picture to send to his friend, Molly. Suddenly, there was a loud bang! Somebody at the rest stop had thrown a large firecracker into the air. The buffalos started to stampede toward Billy. Billy ran as fast as he could, jumped in his car, and drove away.

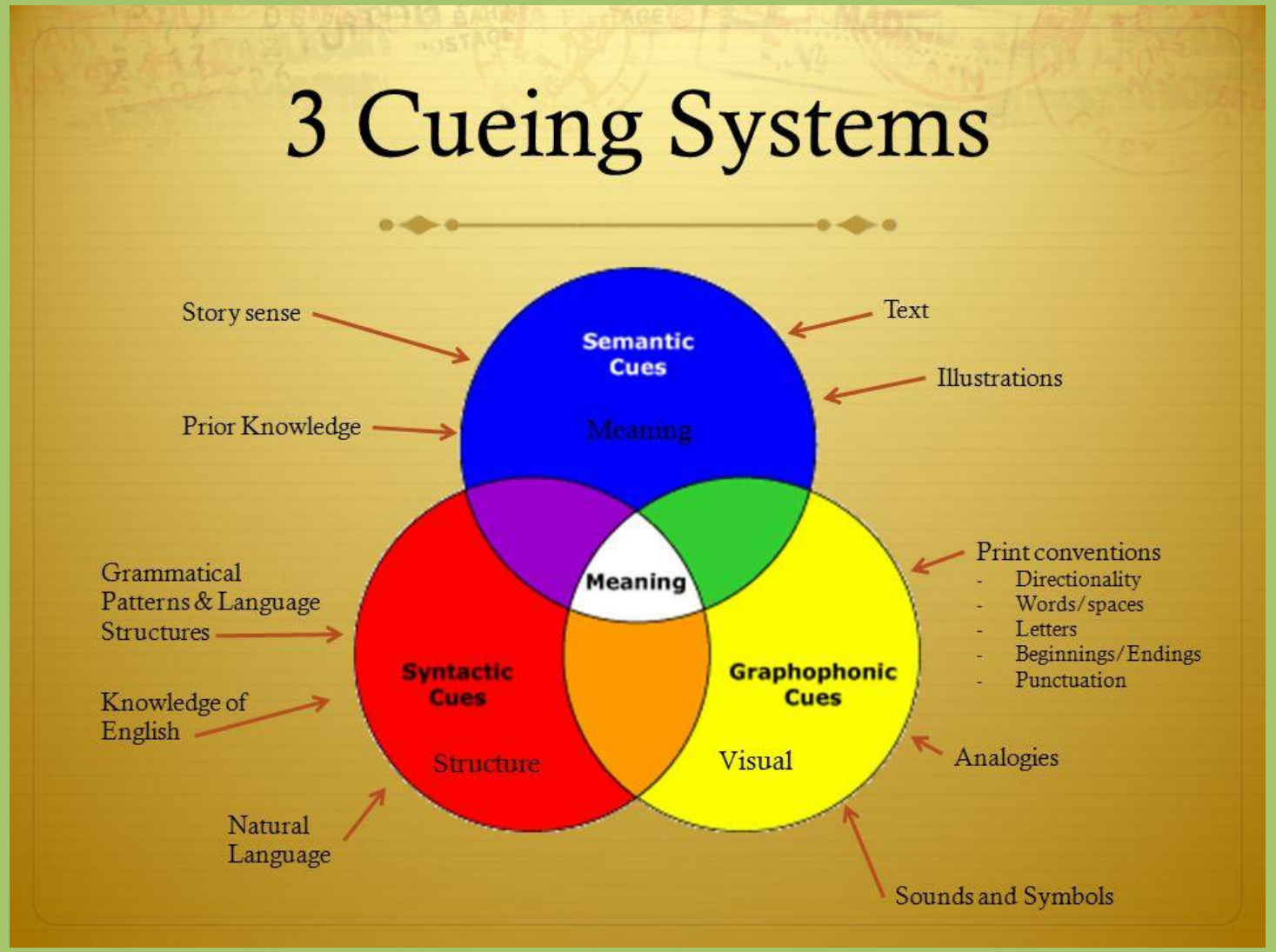
Read these same 110 words. You should be able to read them faster this time.

FASTER

Away drove and car his in jumped could he as fast as ran Billy. Billy toward stampede to started buffalos the. Air the into firecracker large a thrown had stop rest the at somebody. Bang loud a was there suddenly. Molly friend his to send to picture a take could he that so buffalos the toward walking started Billy. Interested very was he. Distance the in off buffalos of herd a saw he car his of out got he when. Pop of can a buy and legs his stretch to stop rest a at stopped he Dakota South through driving was he as. California to Minnesota from traveling was Billy.

What did you notice about:

- **Speed?**
- **Fluency?**
- **Eye movement?**



PART III. UNDERSTANDING THE READING PROCESS

Creating Meaning

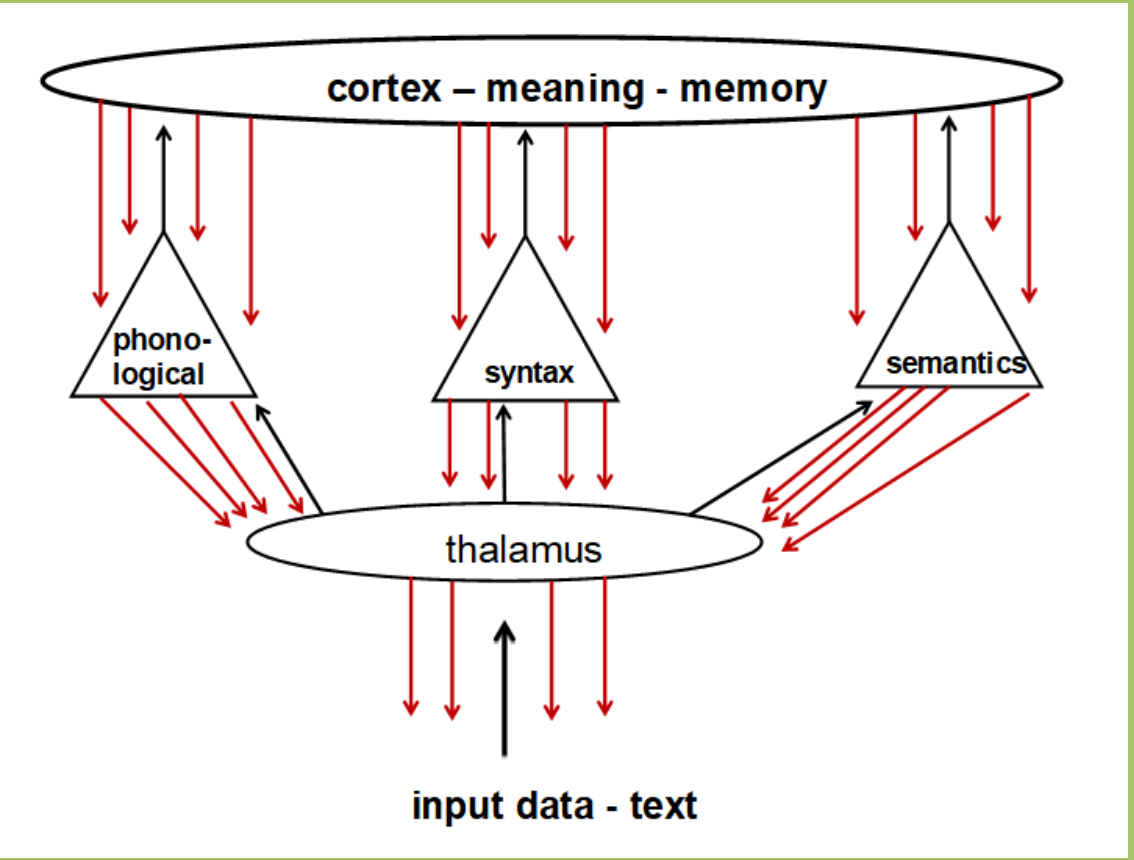
1. Reading is creating meaning with print

a. not sounding out words

b. not identifying words

c. not recognizing words

d. not decoding



Without understanding you are not reading.

Read this:

Lectio significationem cum impressis creat. Non simpliciter verba sonantia. Si sensum non creas, non legeris. Tantum stimulis respondes. Haec est humili gradu peritia.

Reading is creating meaning with print. It is not simply sounding out words. If you are not creating meaning, you are not reading. You are merely responding to stimuli. This is a very low-level skill.

2. We use what's in our head to create meaning

a. with print

b. with the world

What's in our head helps us both perceive and understand reading and reality

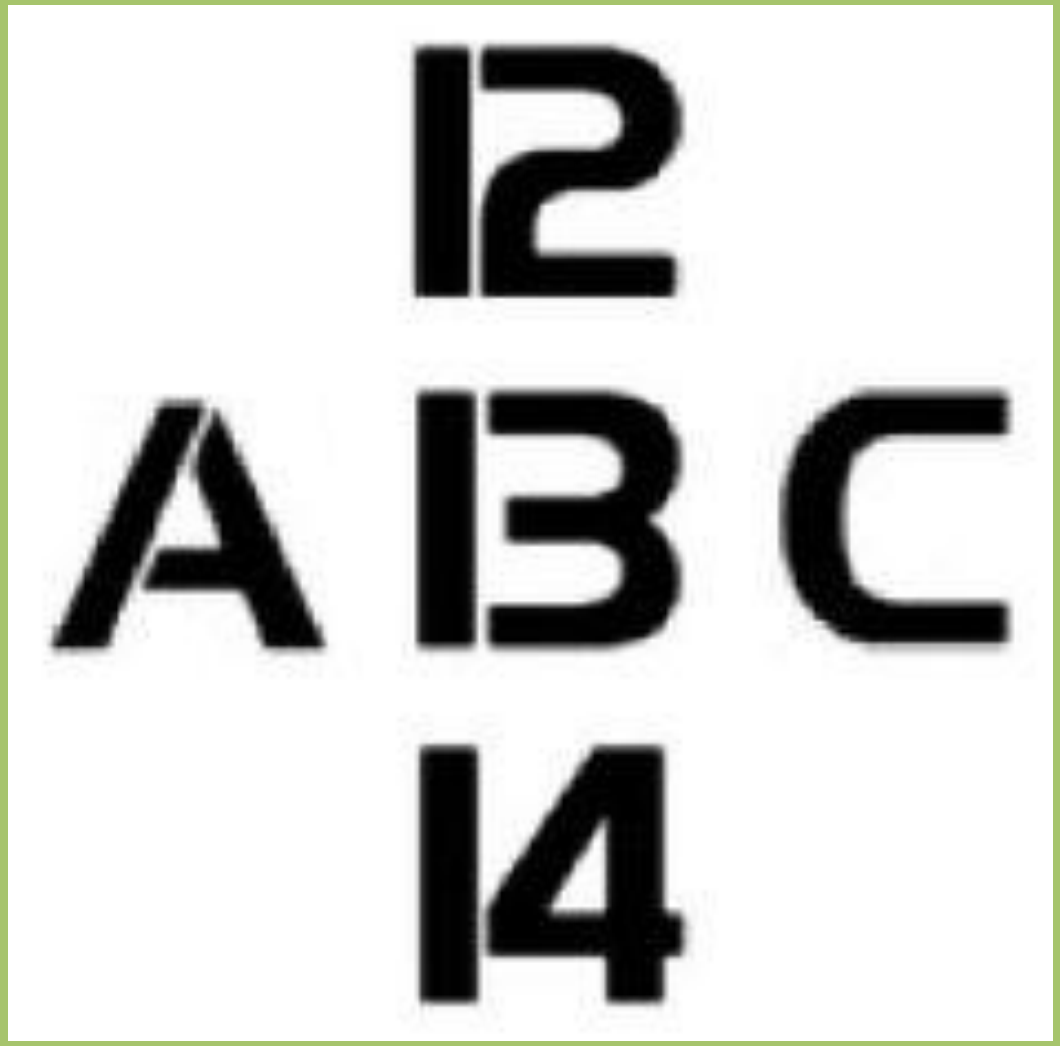
3. We use what's in our head to make sense of incoming stimuli – to fill in the blanks.

a. use the information in our head to fill in the blanks

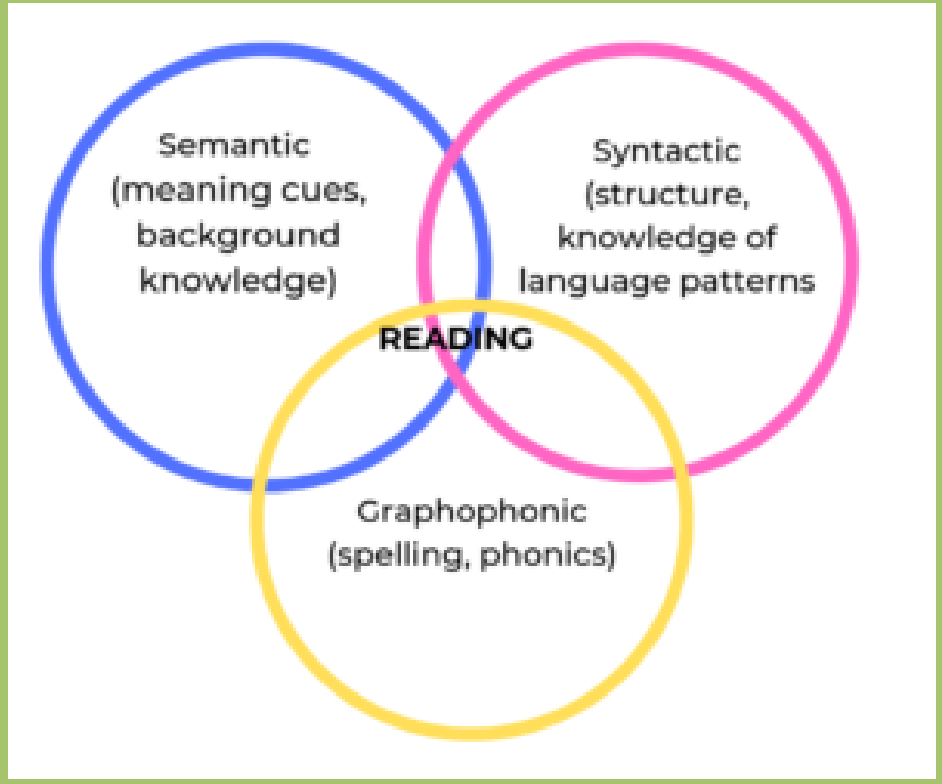
b. it would be inefficient to try to capture and record like a camera.

12
13
14

A B C



4. Recognizing words is one part of reading - the brain uses 3 systems to recognize words during reading



Systems – various part of the brain work together.

Priming Experiments

Knowledge enhances our ability to perceive stimuli, recognize patterns, predict, and fill in the blanks.

Condition 1: mouse group

Condition 2: bald man group

Priming enables our brains to work much more efficiently.

tail

cheese

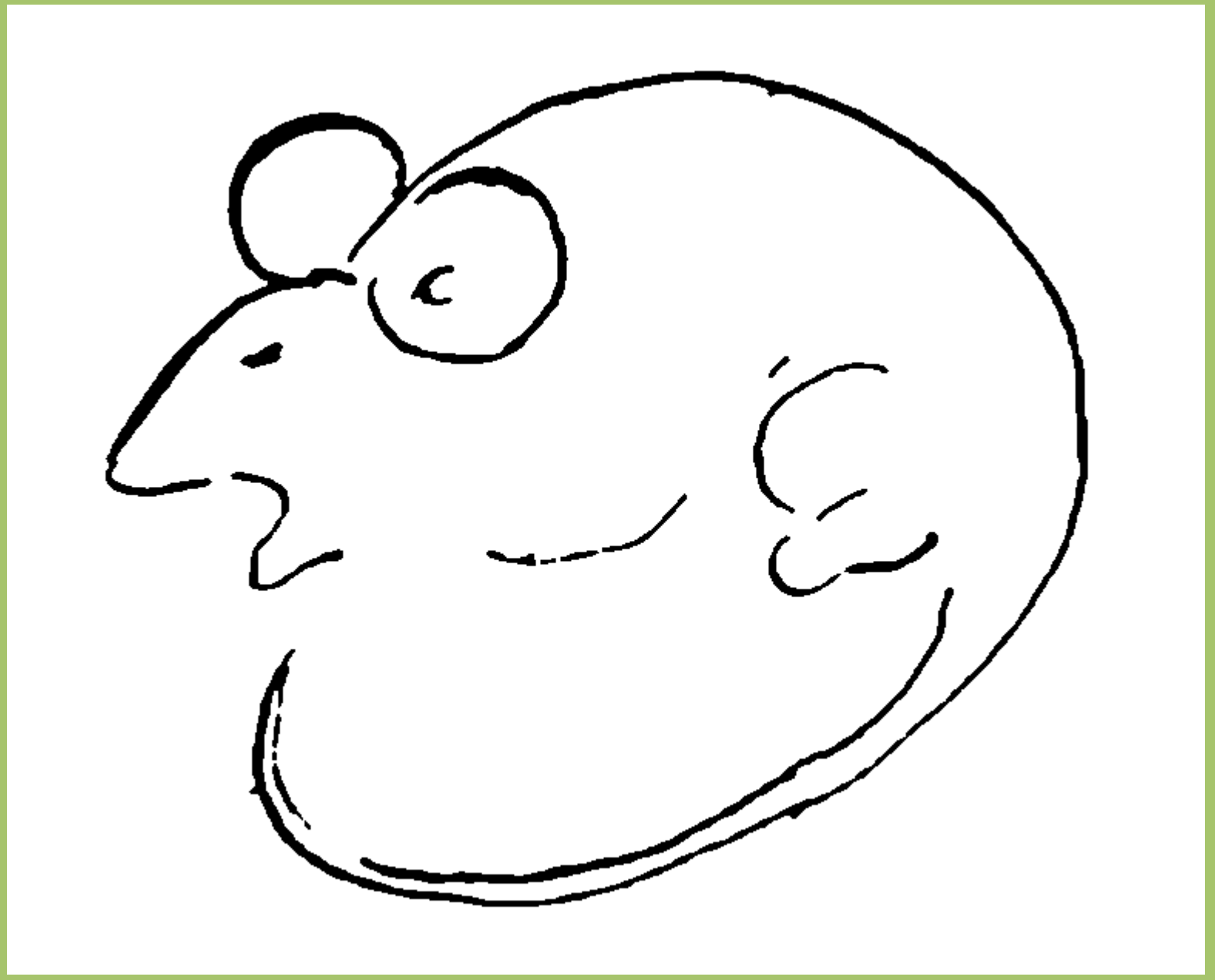
rodent

squeak

four legs

chew

mouse things



glasses

smile

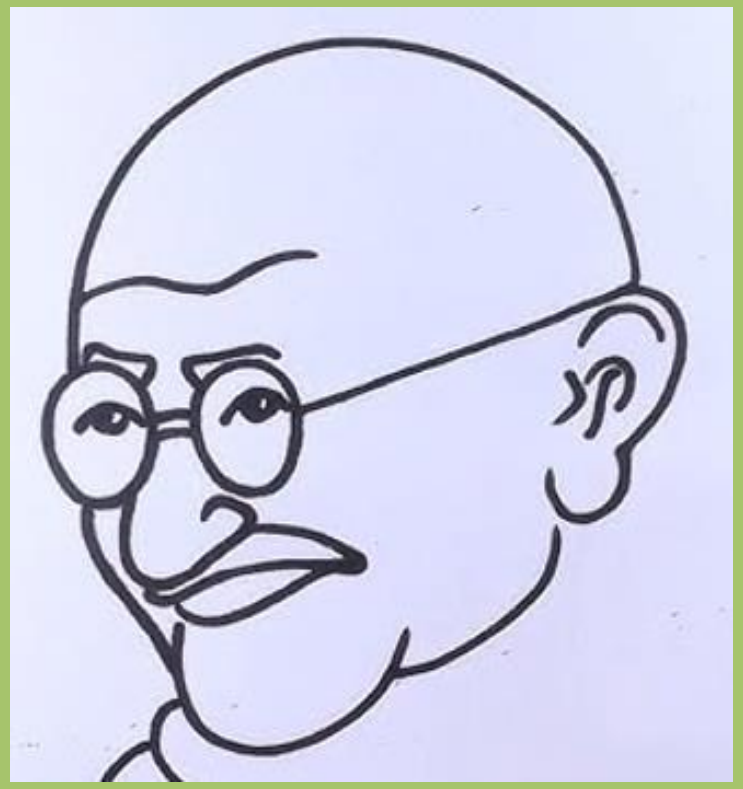
bald

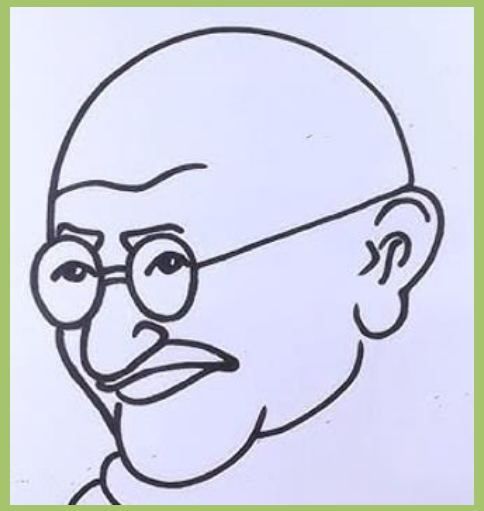
nose

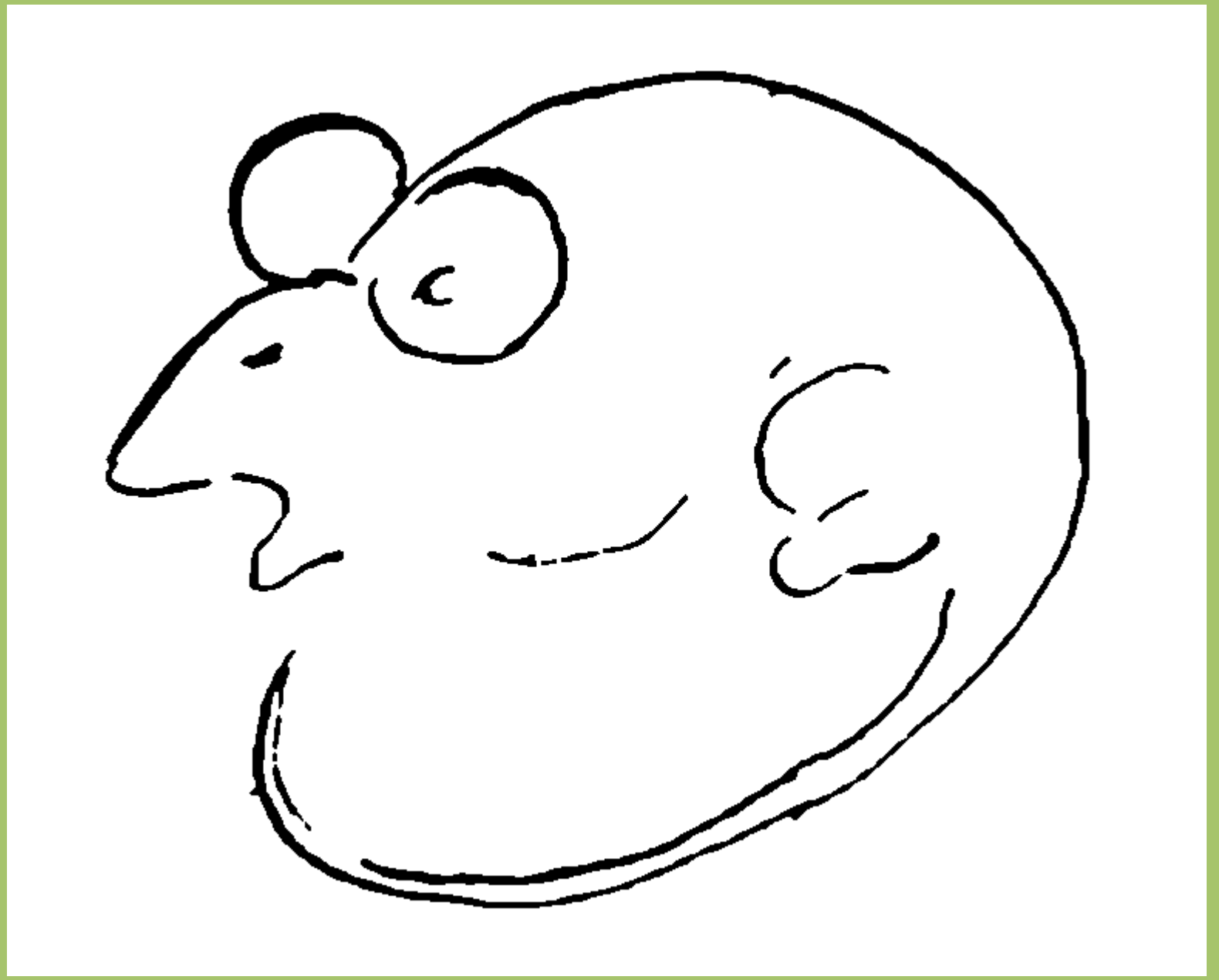
ear

cheek

bald man things







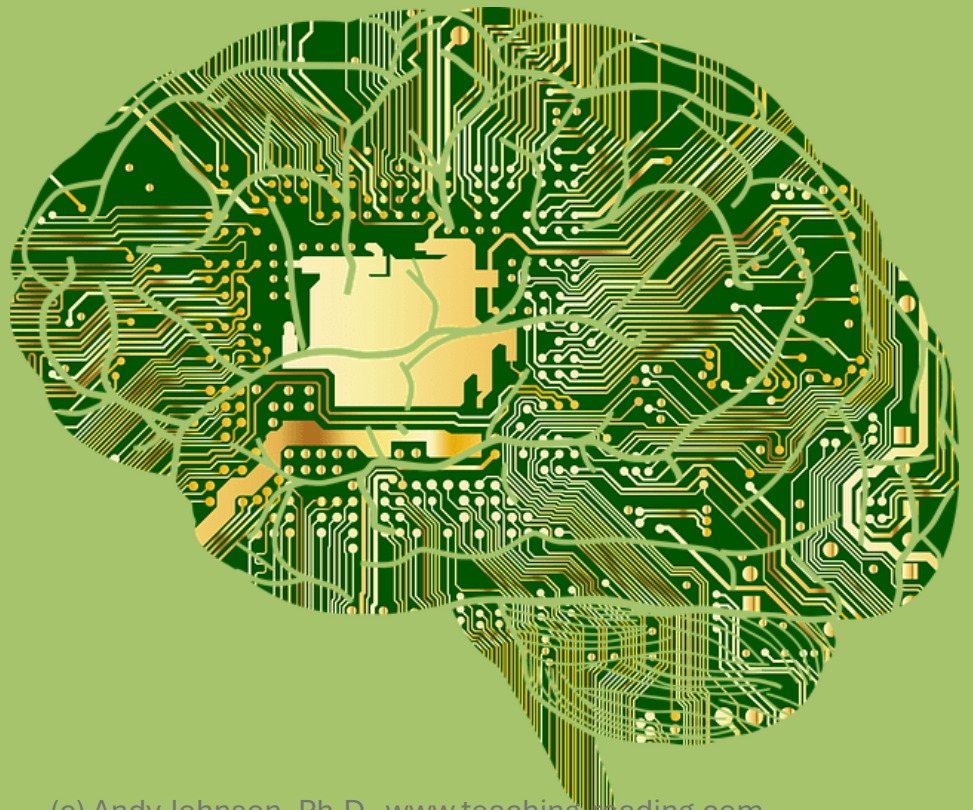
Multiple Sources of Information

1. During reading we use the knowledge stored in our cortex to constantly reach out and micro-predict the words in the sentences we are reading.

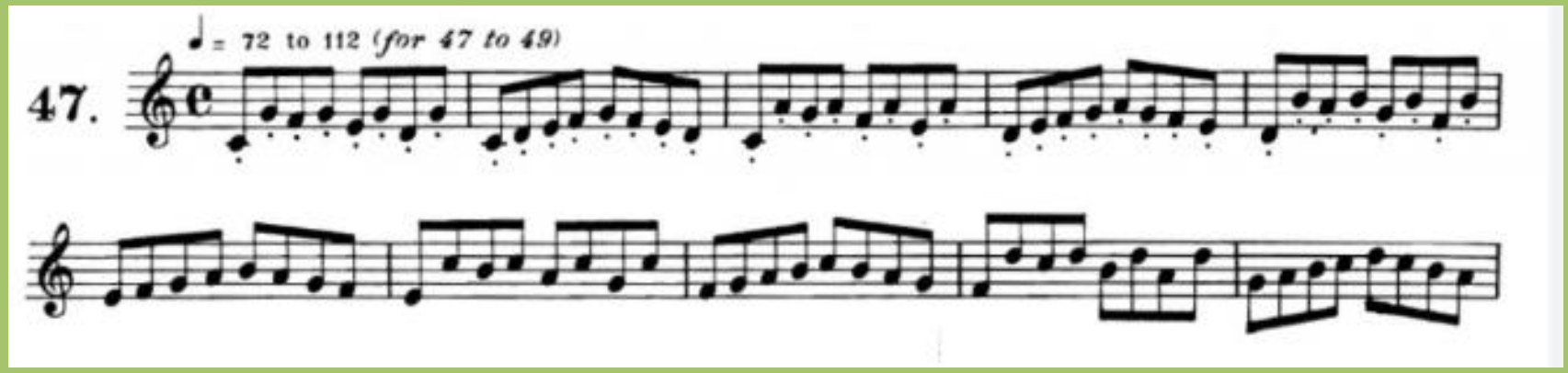
2. This is called recognizing words.

3. These micro-predictions enable our brain to work more efficiently.

4. Our brain uses multiple sources of information during reading to make micro-predications to recognize words during the act of reading



After 47 years, I am re-learning how to play the baritone horn.



As I run scales, I noticed that I was constantly reading ahead, making micro-predictions, seeing passages vs. individual notes.

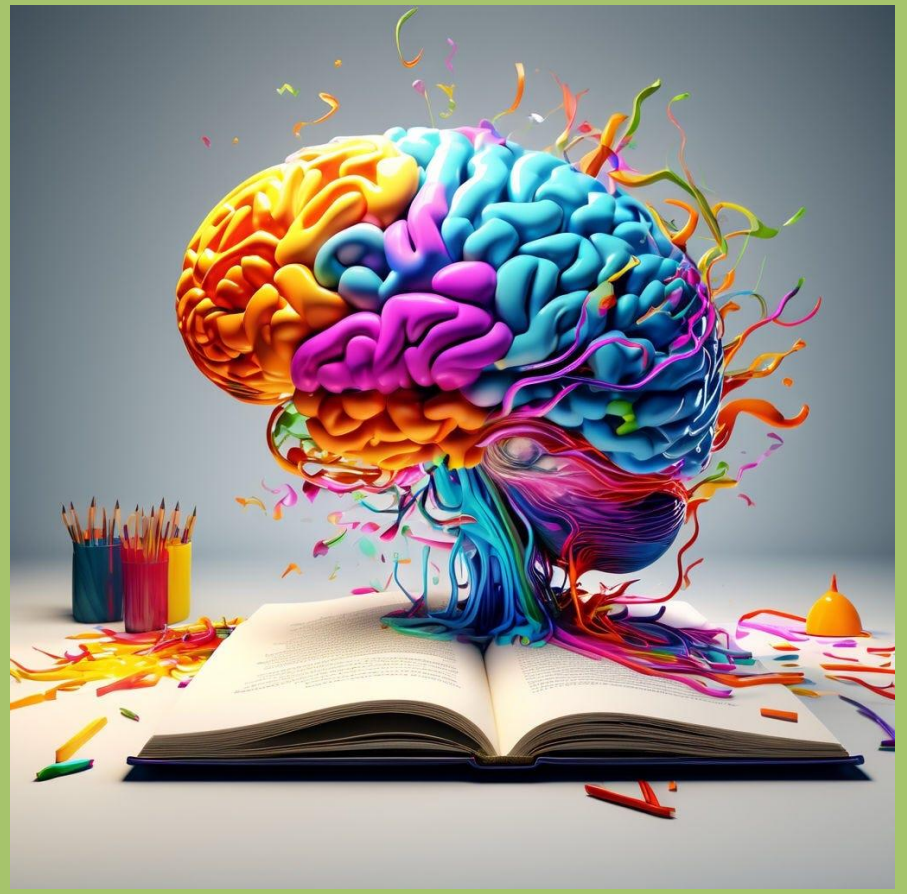
5. Three cueing - developing what the brain does naturally to enable it to recognize words and create meaning more efficiently

a. not teaching a skill to students

b. not a teaching strategy

c. not an approach to teaching reading

d. includes phonics instruction

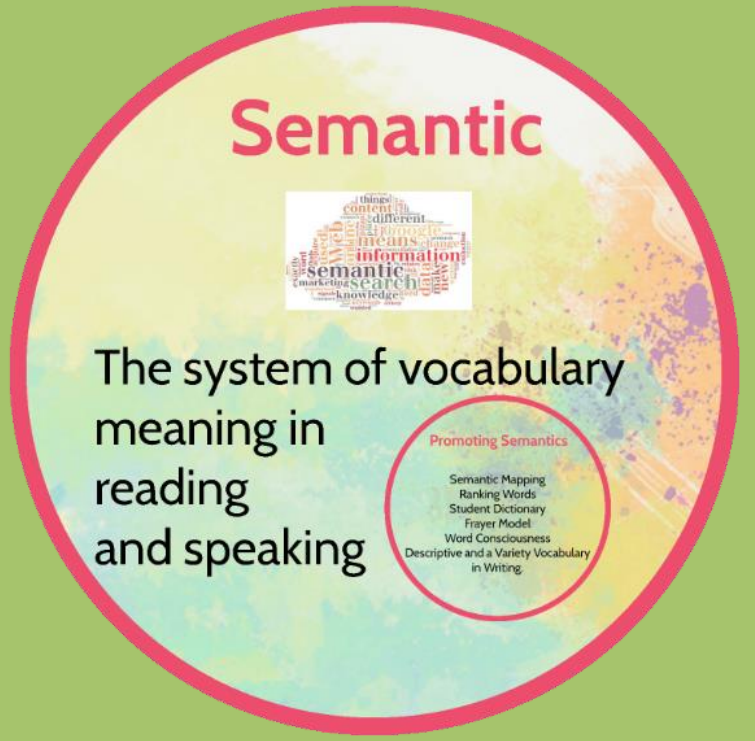


Semantics – meaning

Birds fly in the sky. Fish swim in _ _ _ _ _.

Birds fly in the sky. Fish swim in w _ _ _ _.

She f_ _ _ down the hill.



Systems – various part of the brain work together.

Experiment #3

Tell me the meaning of these 3 words.

- light
- milk
- run

- Light

– To start a fire. Please light the campfire.

- Milk

- To squeeze out of, like milking a cow. She milked me for everything I had.

- Run

- Of sustained duration. That play had a long run.

- Splammer
- Espaciate
- Agrunipass

I can select a volunteer at random and they will be able to tell me the meanings of these three words.

- I would like some more coffee. Would you splammer some coffee in my cup?

(splammer – pour or pour into)

- He drank too much vodka, got sick and espaciated all over the floor. It was really gross.

(espaciate – to throw up, puke, vomit, upchuck, barf, heave, retch, spew)

- Sally wanted to know how heavy the pig was so she put it on the scale and agrunipassed it.

(agrunipass – to weigh).

What are we to take from this?

1. Meaning does not reside in the words alone.

2. We never encounter a single word outside of a context (except on a DIBELS test)

3. Reading lists of words out of context is not a valid measure of anything (other than an un-understanding of reading).

4. Examining words in isolation should be a small part of reading instruction

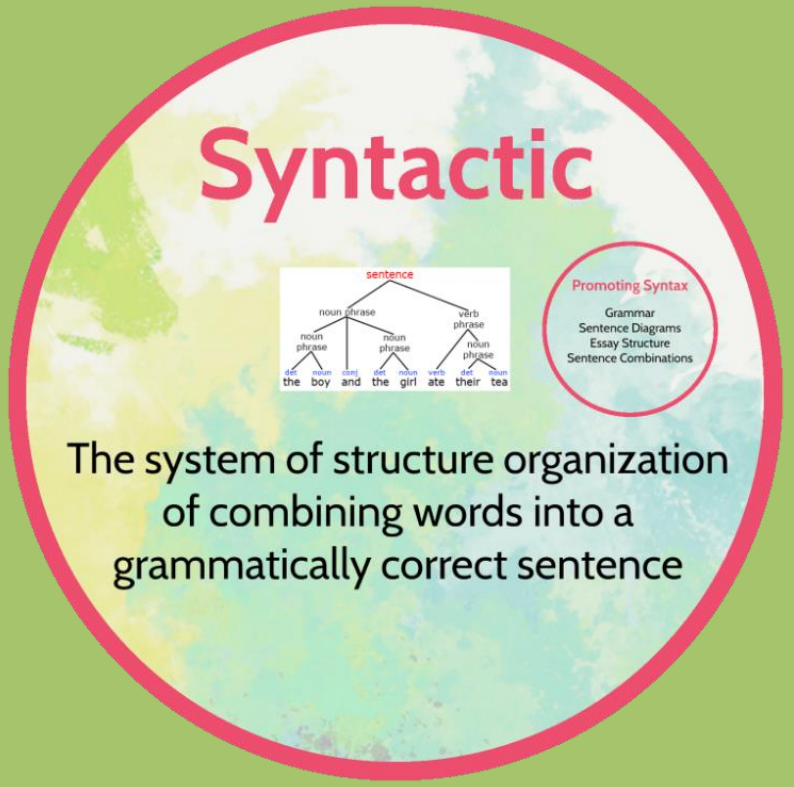
Syntax – grammar, word order, sentence structure, tense, plurality

a. She _____ down the hill. (verb)

b. Fish _____ in water. (verb)

c. The _____ sat in the sun. (- noun)

d. The dog is very ___. (adjective)



Experiment #4

What information can we take from this?

‘Twas brillig, and the slithy toves

Did gyre and gimble in the wabe;

All mimsy were the borogovbes

And the mome raths outgrabe.

What information can we take from this?

‘Twas brillig, and the slithy toves

Did gyre and gimble in the wabe;

All mimsy were the borogovbes

And the mome raths outgrabe.

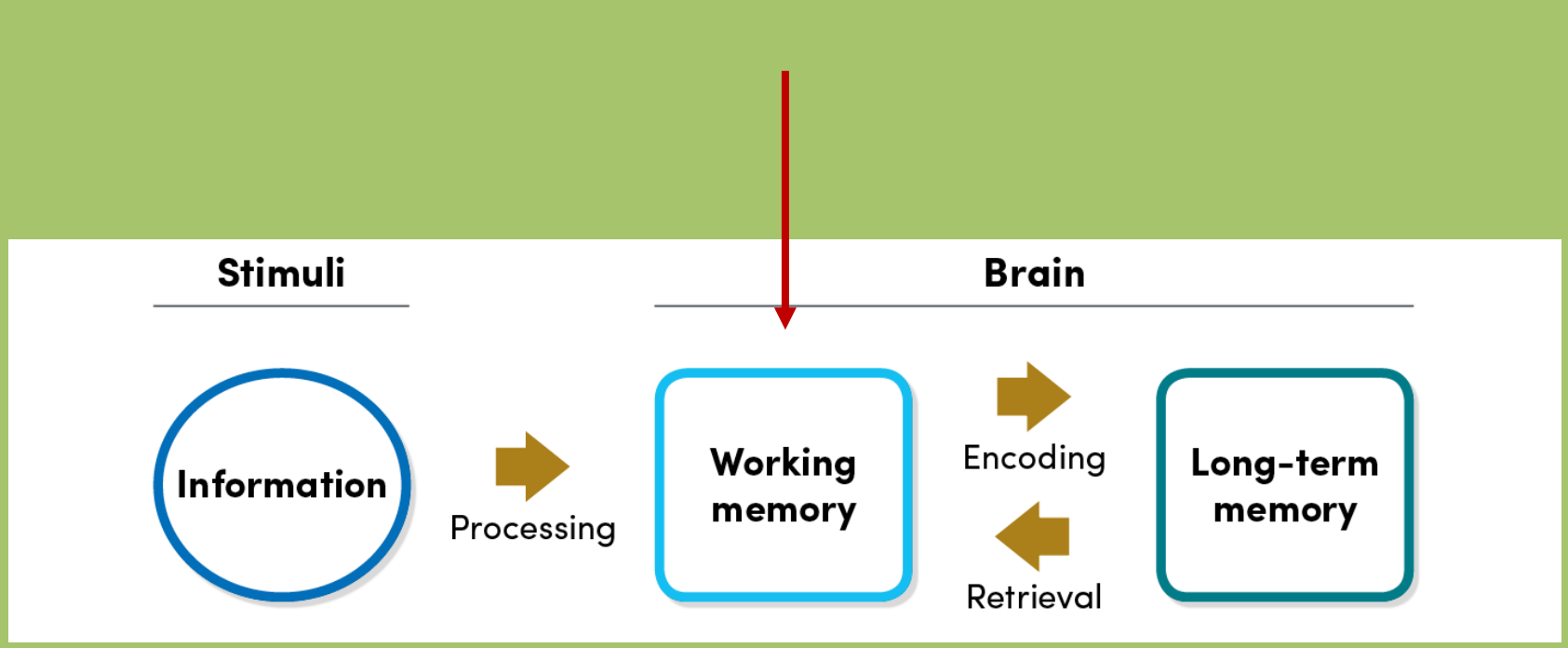
Using syntax, we know 9 things:

1. It’s about a creature or creatures (slithy toves)
2. They did something (gyre and gimble)
3. They did this in a place (wabe)
4. There was a second thing (borogovbes)
5. There were more than one of the second thing
6. That second thing was something (mimsy)
7. There was a third thing (mome)
8. There was only one of the third thing.
9. The third thing did something (raths)

Phonics or graphophonetic system – letters and sounds

a. least efficient in terms of cognitive processing time and space

b. working memory has limited capacity



Do we really look at every letter when we read?

Sound out this word:

s

st

sta

stam

stamp

stampe

stamped

stampede

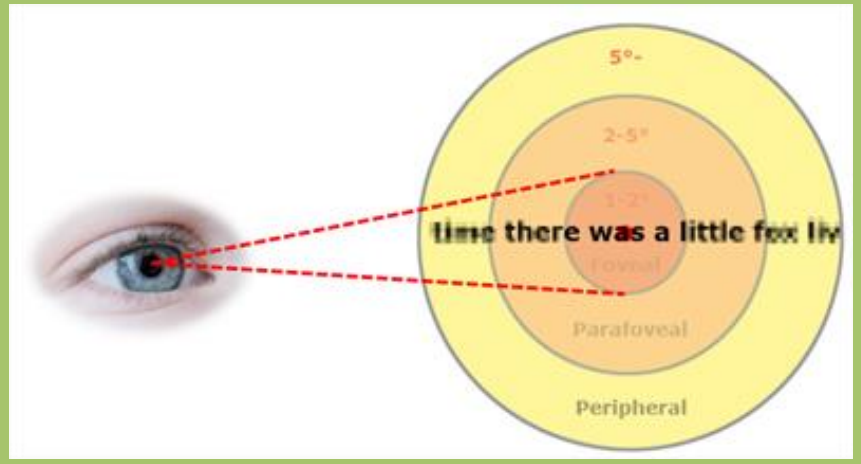
We see the word holistically within a context

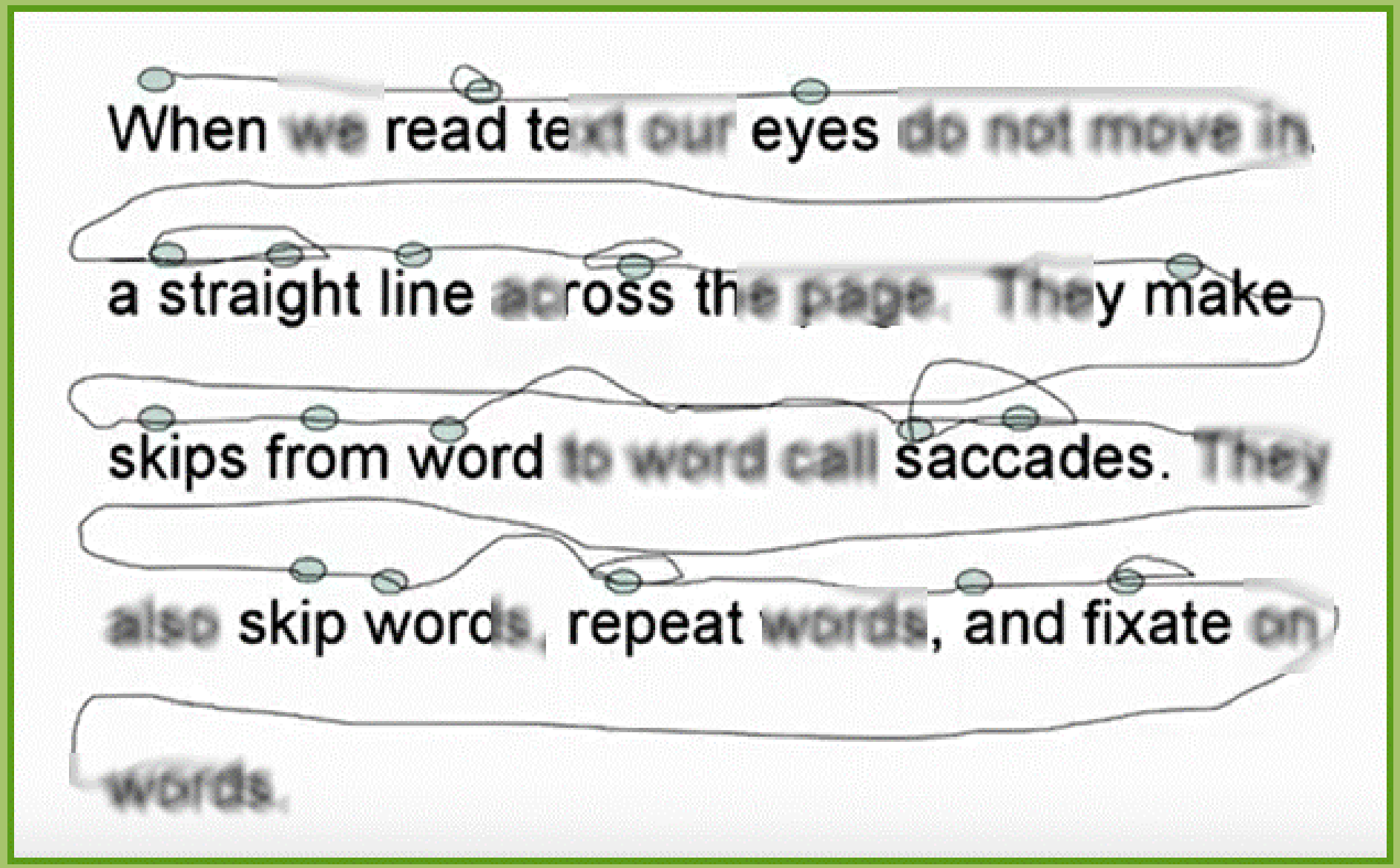
The buffalos started to stampede.

Acts as a primer

stampede

PART IV. EYE MOVEMENT



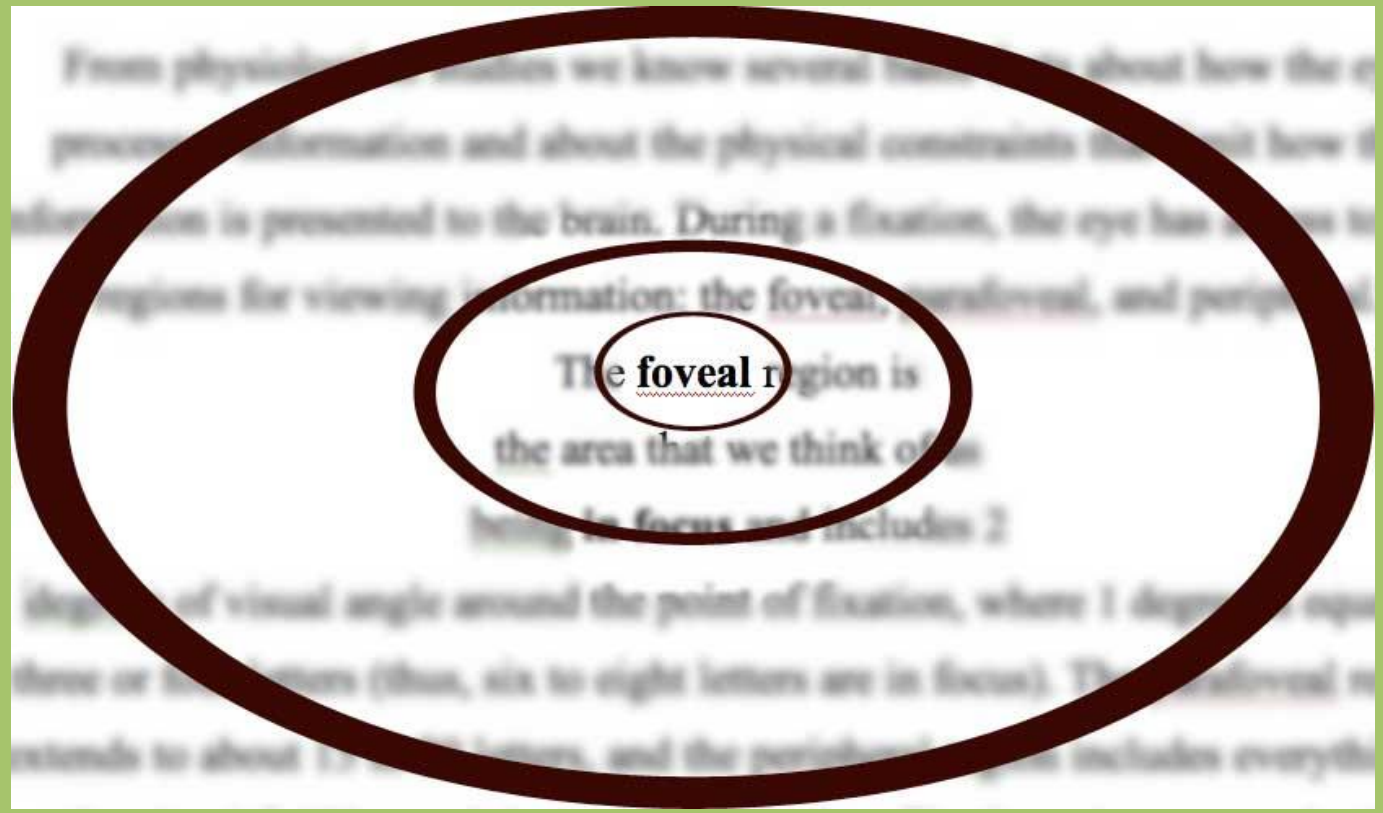

When we read text our eyes do not move in
a straight line across the page. They make
skips from word to word call saccades. They
also skip words, repeat words, and fixate on
words.

***Perception* -** three visual regions

foveal

parafoveal

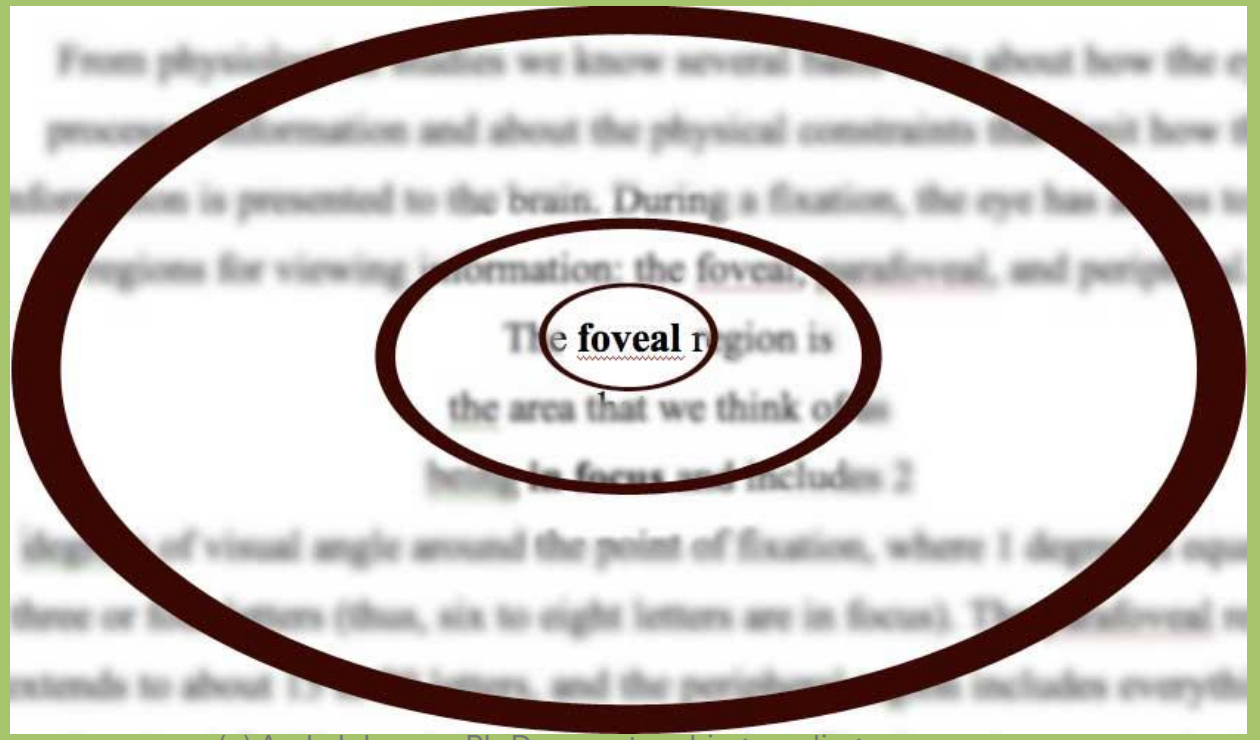
peripheral



The foveal - takes up only 1% to 2% of your total vision - 3 to 6 letters

The *parafoveal* – 24 to 30 letters – not very clearly.

The *peripheral* region is everything else.

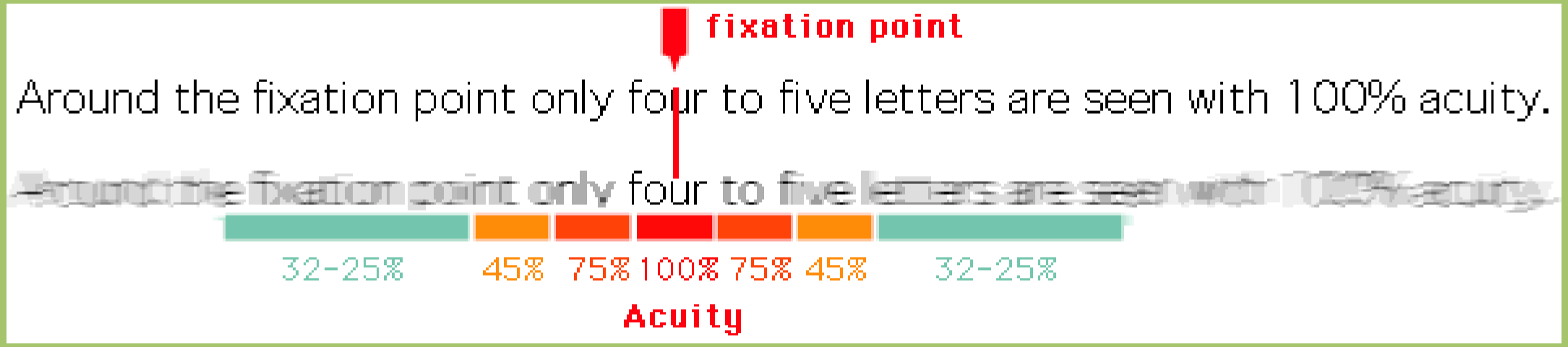


foveal

parafoveal

peripheral

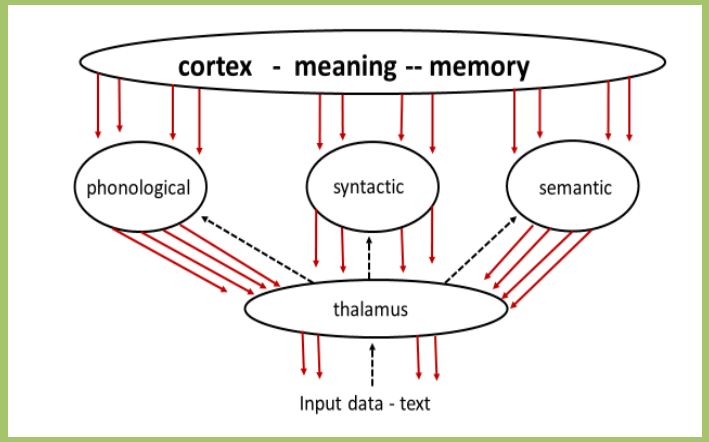
Question: With the very small in-focus viewing area how is anybody able to read more than 10 words per minute?

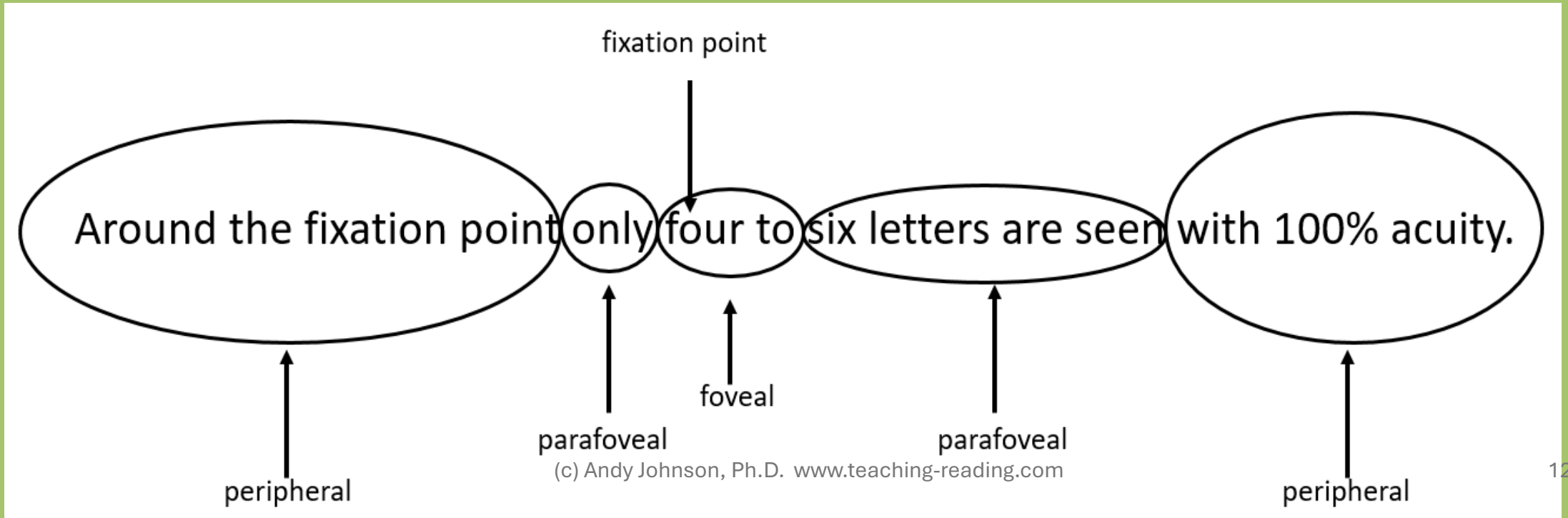


Answer: Efficient readers are able to read quickly because of the top-down flow of information as depicted in the transactive model.

Answer

- perceive 3-6 letters
- brain fills in blanks.
- uses phonics, semantics, and syntax to predict
- brain is a meaning-making, predicting machine
- not a sounding-out words machine





Scanner

1. Eyeballs need to move – grocery store scanner – to create images

EXPERIMENT #5

H

G

F

A

O

E

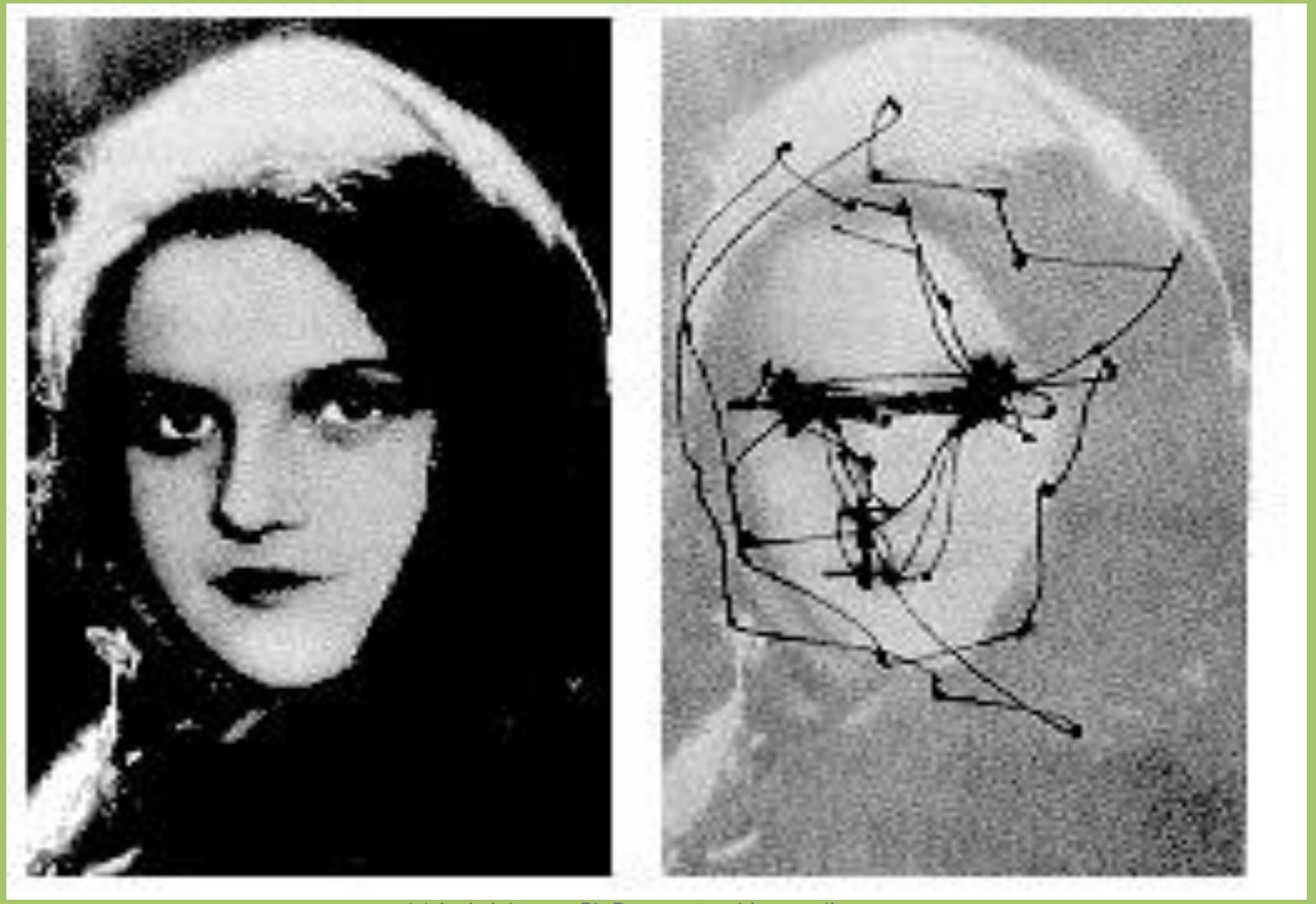
B

C

D

Look at this picture.

What path do your eyeballs take?



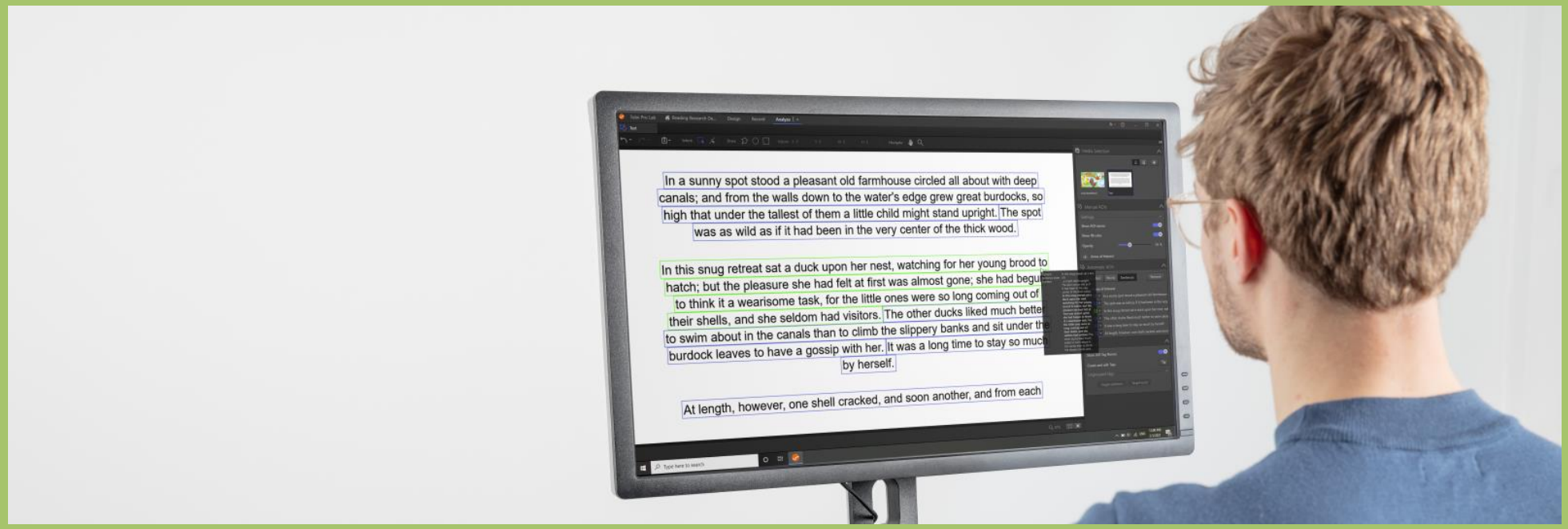
Eyeballs never stay still

Fixations – little snapshots

Create a picture of reality based on little snapshots

You are not looking straight ahead even when you think you are.

EMMA: Eye Movement and Miscue Analysis

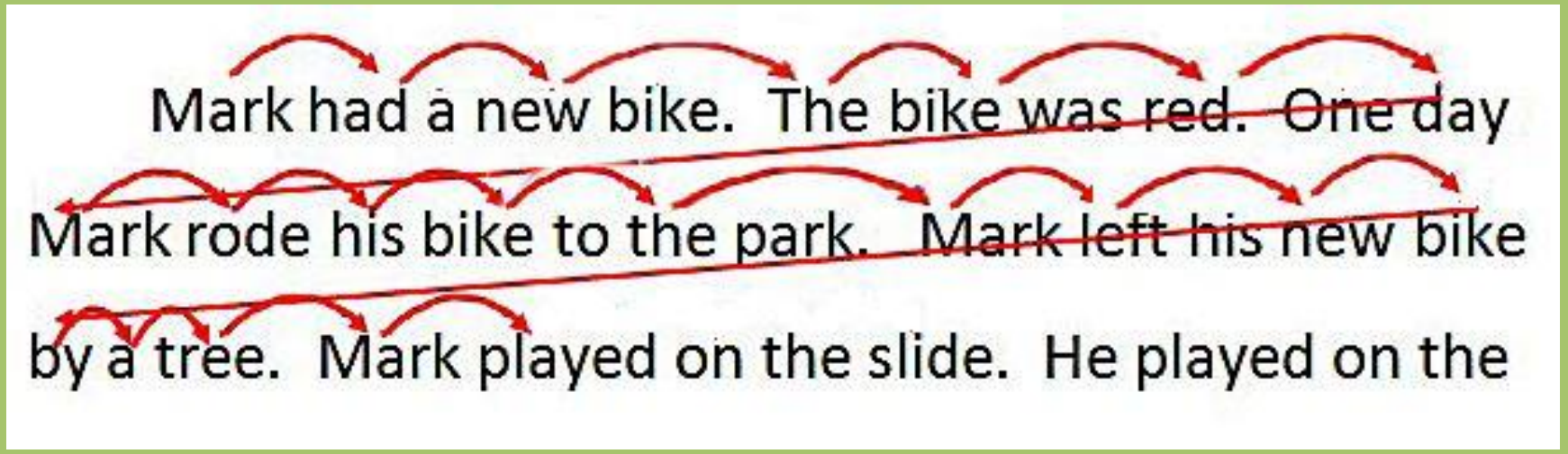


1. Get used to watching the eyeballs of your readers as they read.

2. Saccades – the skips the eyeballs make

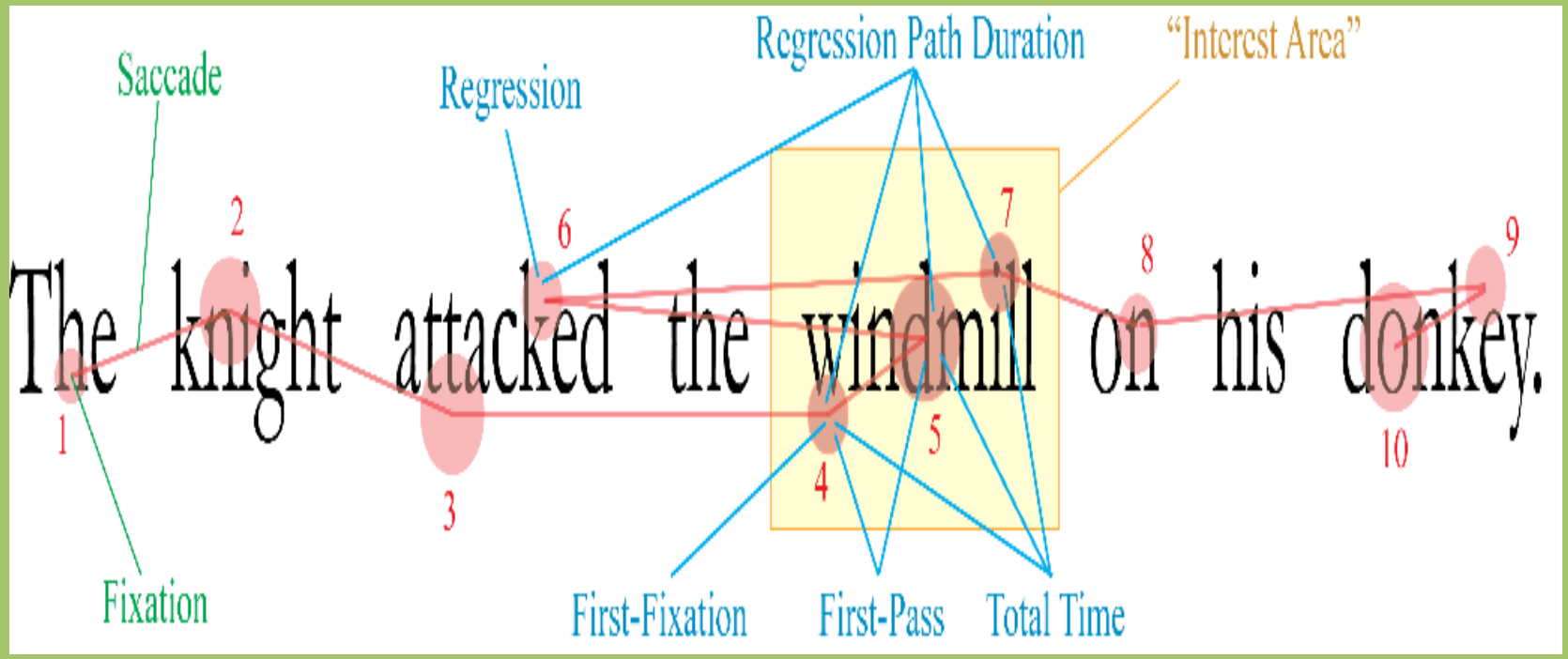
3. Fixations – eyes stopping on a word

4. Regressions – eyes going back



5. We don’t fixate on every word

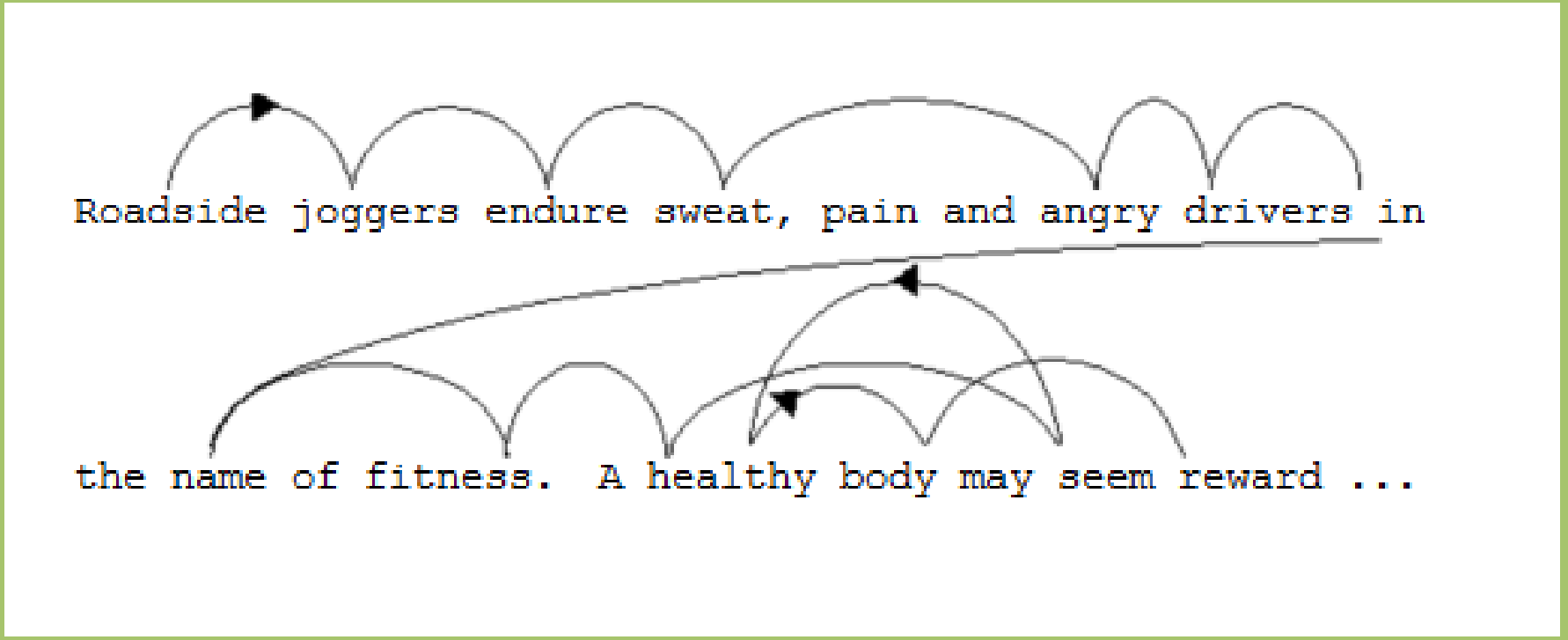
6. Eye mm studies show that 30-40% of words skipped



7. The length of word didn’t matter (for skips)

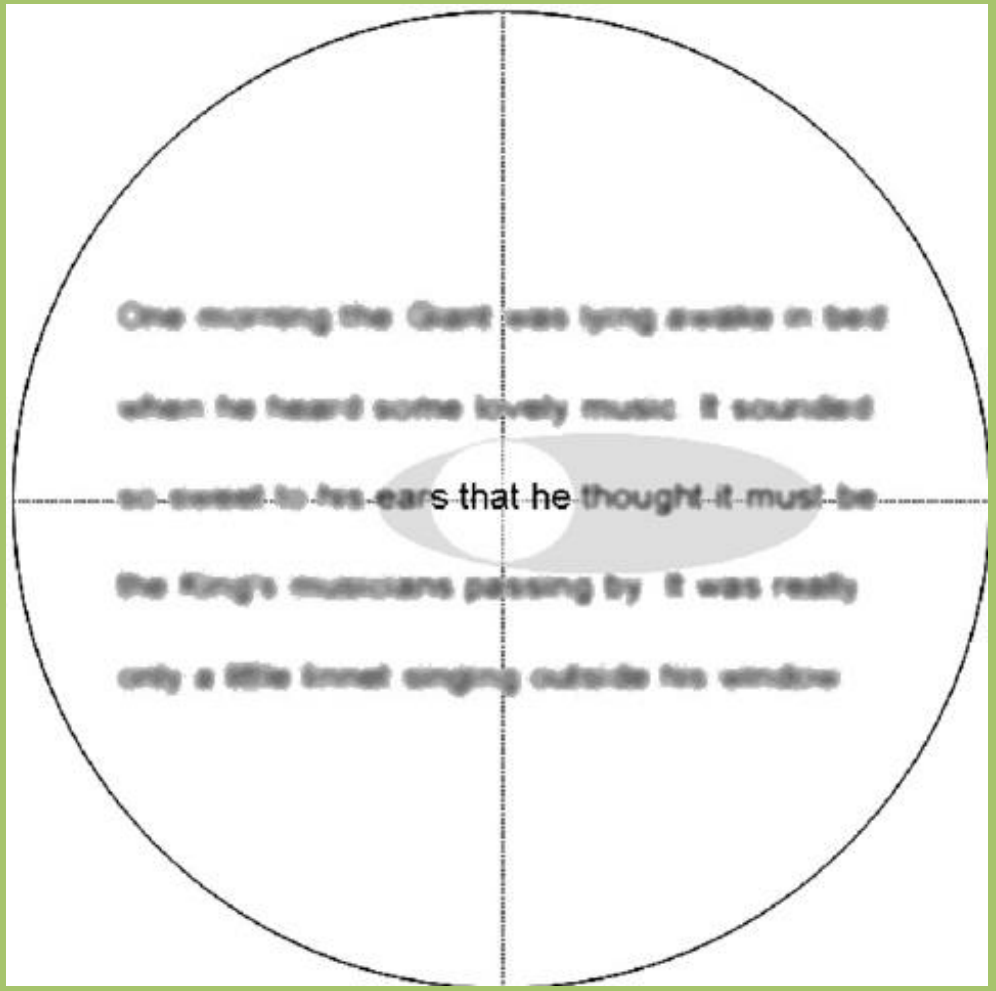
8. Skip more function words – words serve a grammatical function (and, of, the, is)

9. Skip fewer content words – words carries semantic meaning



10. Readers gain info from parafovela – to recognize words

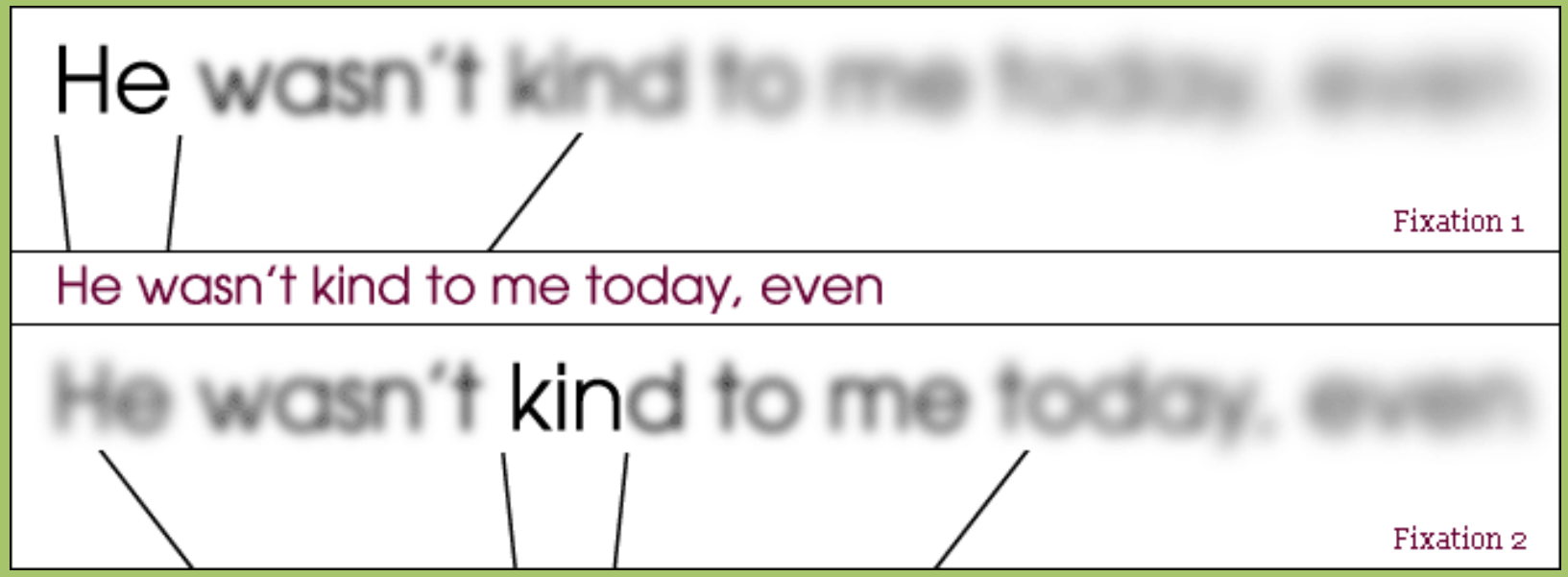
11. Cortex (top down) is used to direct eyes



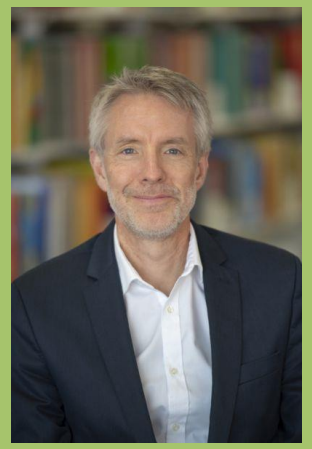
12. Rayner, 1996 study – Predictability of word affects fixation time and skip

a. skip more predictable words

b. fixate on less predictable words



Paulson, E. J. (2002). Are oral reading word omissions and substitutions caused by careless eye movements? *Reading Psychology*, *23*(1), 45–66.



Erik Paulson

Focus: Eye movements – words omitted or substituted during oral reading

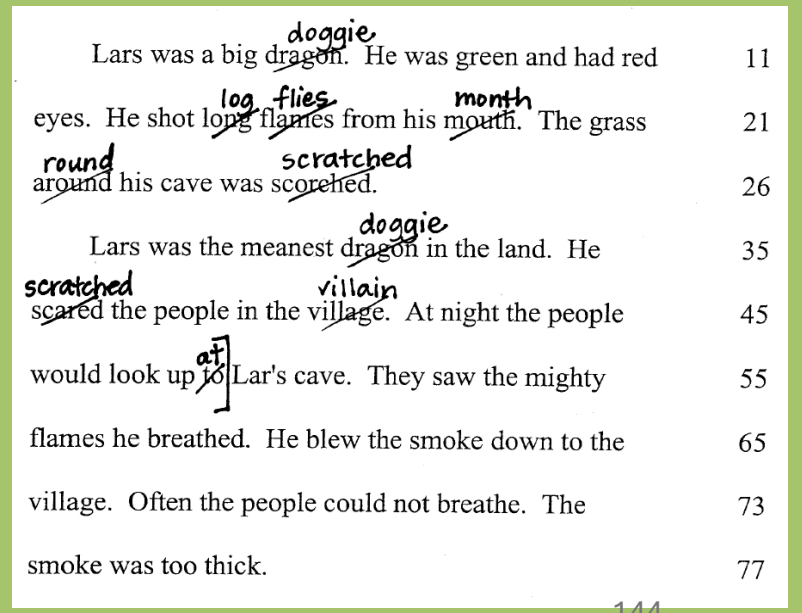
Methodology

1. Miscue – what is said during oral reading does not match what is on the page.

- **'Run to the top of the hill.'**

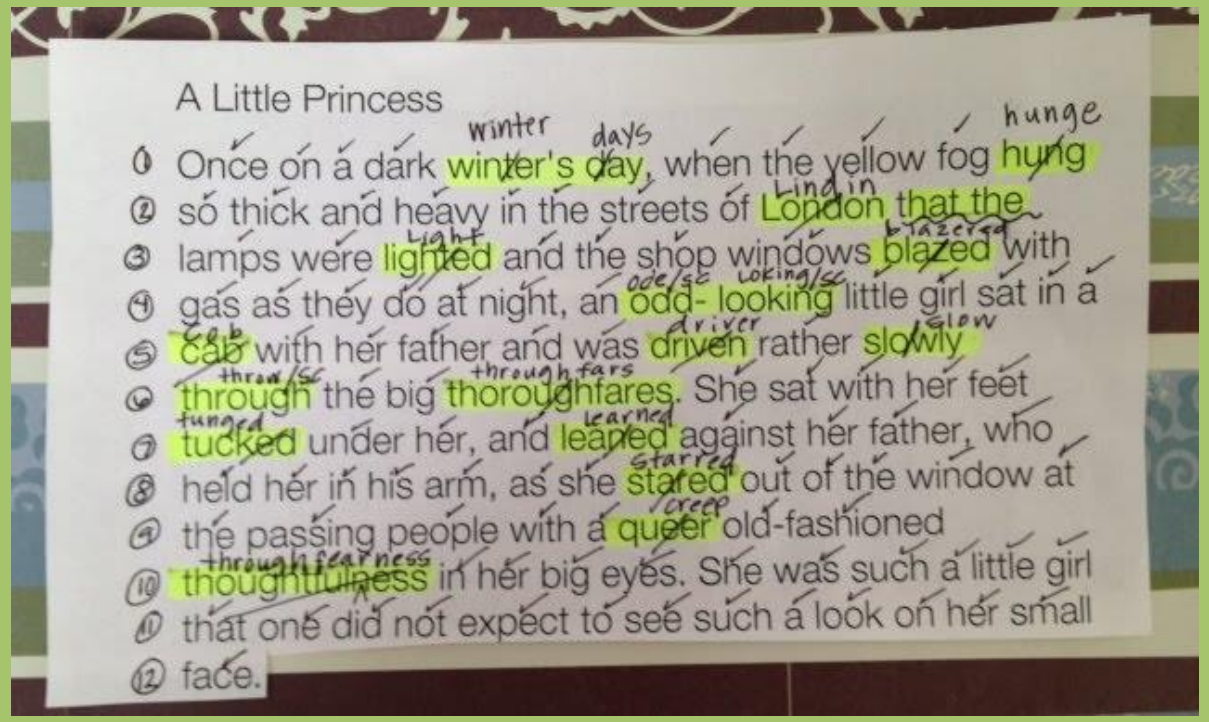
2. Meaning-disrupting miscues – disrupts the meaning of the sentence
- **'Rat to the top of the hill.'**

3. Meaning-maintaining miscues – fits within the sentence
- **'Runs to the top of the hill.'**
- **'Rush to the top of the hill.'**



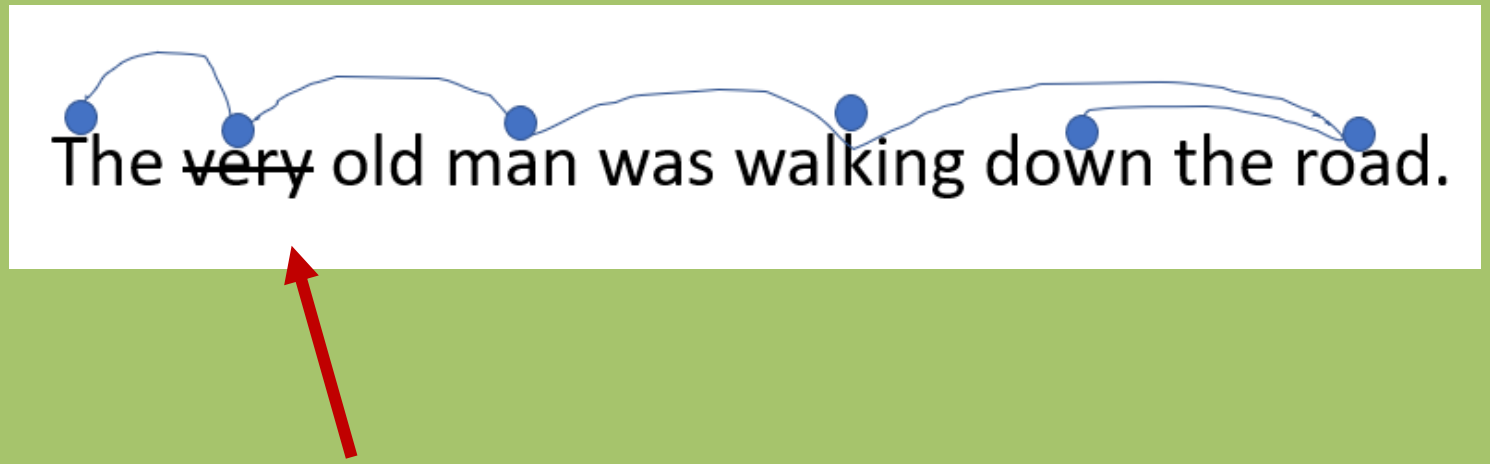
4. Meaning-disrupting but grammatically correct

5. Self-corrections - miscues that are corrected

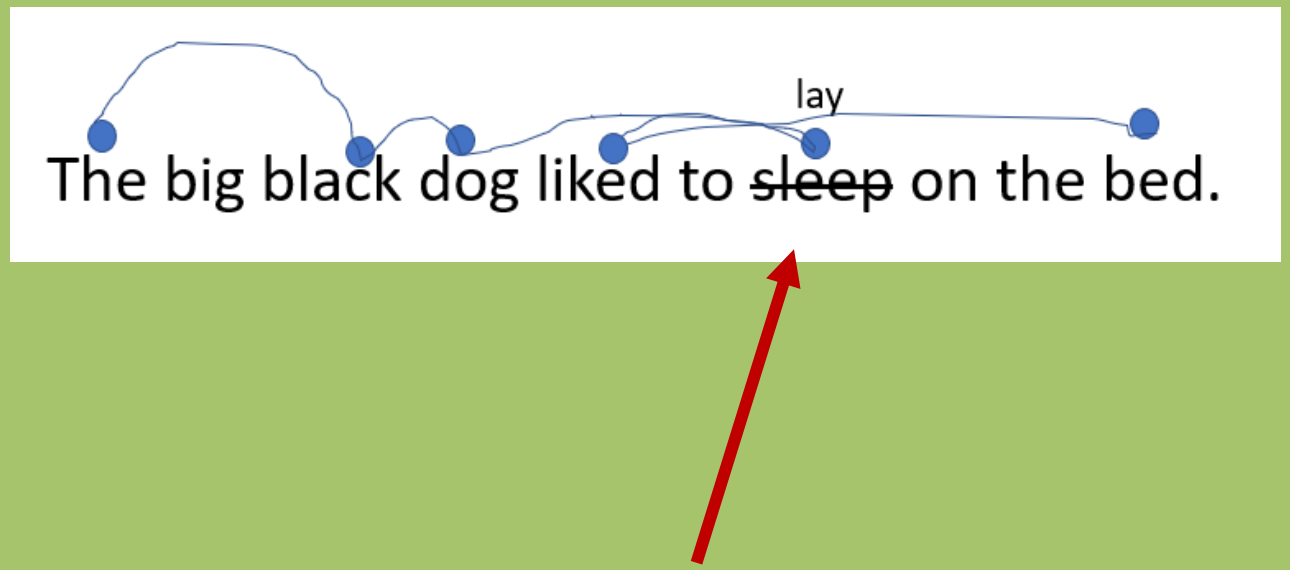


Findings

1. Readers were likely to visually examine (fixate) miscued or skipped words.



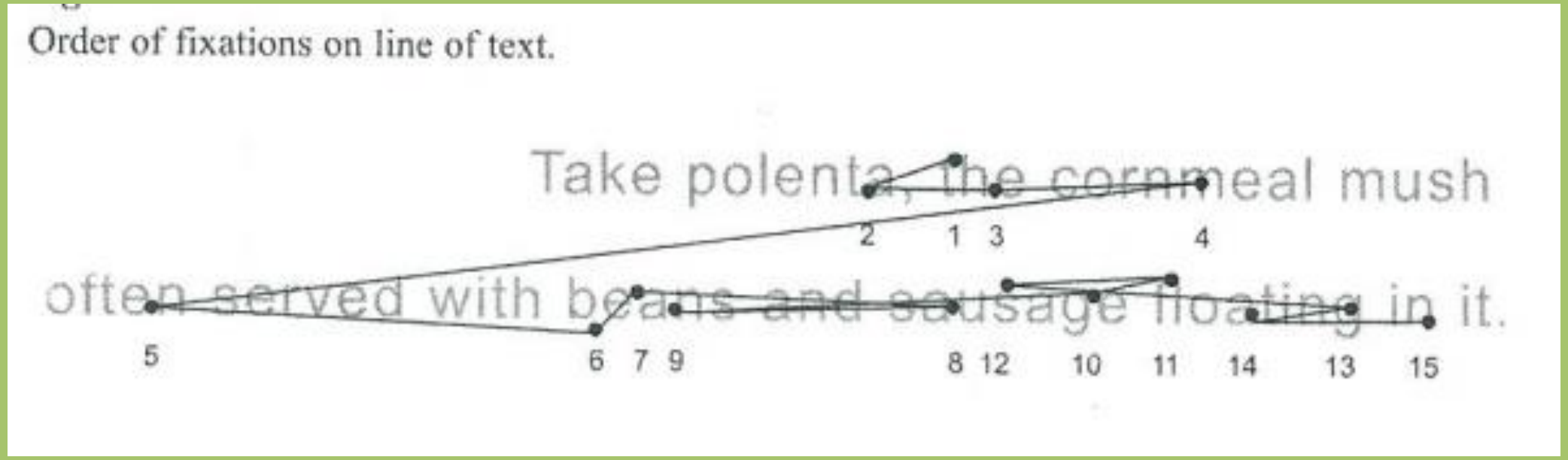
Omitted - skipped this word even though the reader fixated on it



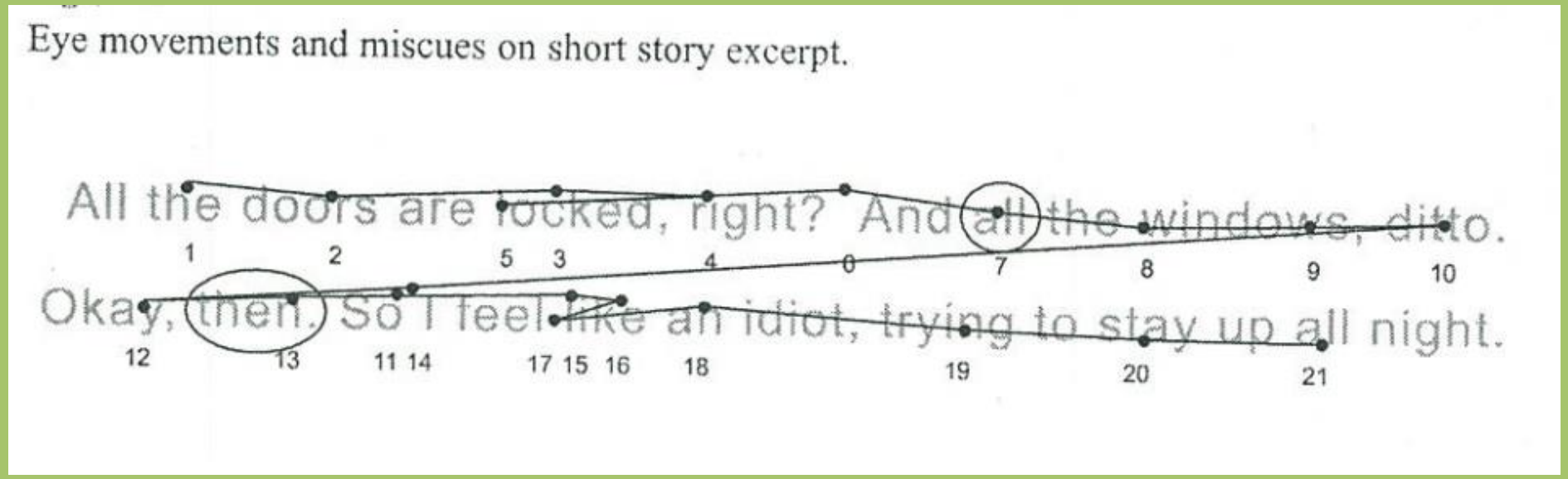
Substitution - inserted a new word even though the reader fixated on it

2. Most words that were skipped were read without miscues.

3. Fixations did not occur in the order in which they appear in the text.



4. Readers regressed (go back) 10-15% of the time



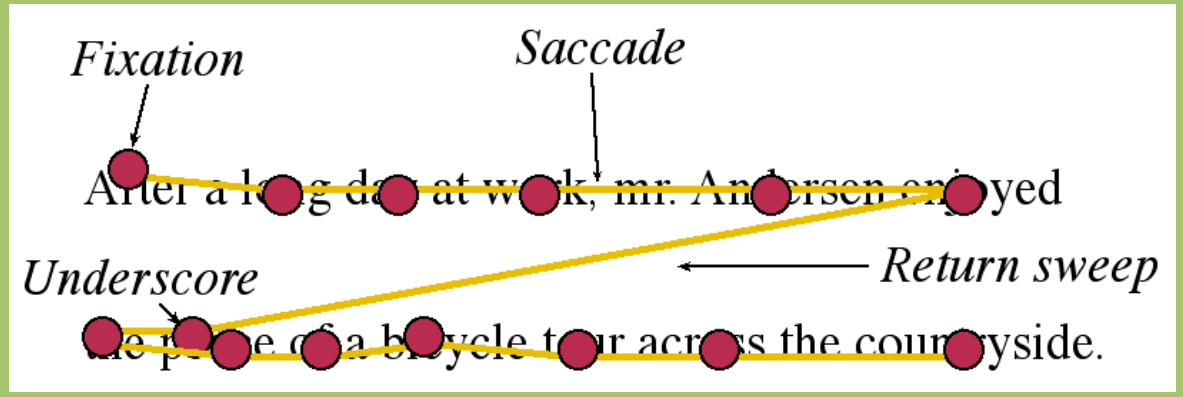
Circle = skipped word

Conclusions

1. Eye movement reflects a meaning-making process, not a sounding-out-words process.

2. Readers do not look at every letter or every word.

3. Efficient readers do what is necessary and most efficient to make sense of text (engage all three cueing systems: semantic, syntactic, and phonological)

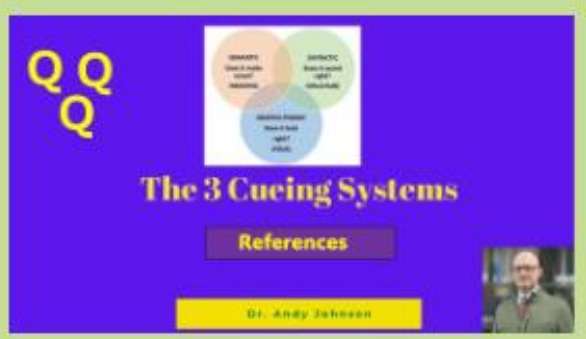


- Effective reading instruction reinforces the way the brain naturally creates meaning with print

PART V: RESEARCH SUPPORTING THE 3 CUEING SYSTEM

You can find references to support each of the follow points at:

www.ILEC-Reading.com



References used for presentation on the three cueing systms

Orthographic Mapping

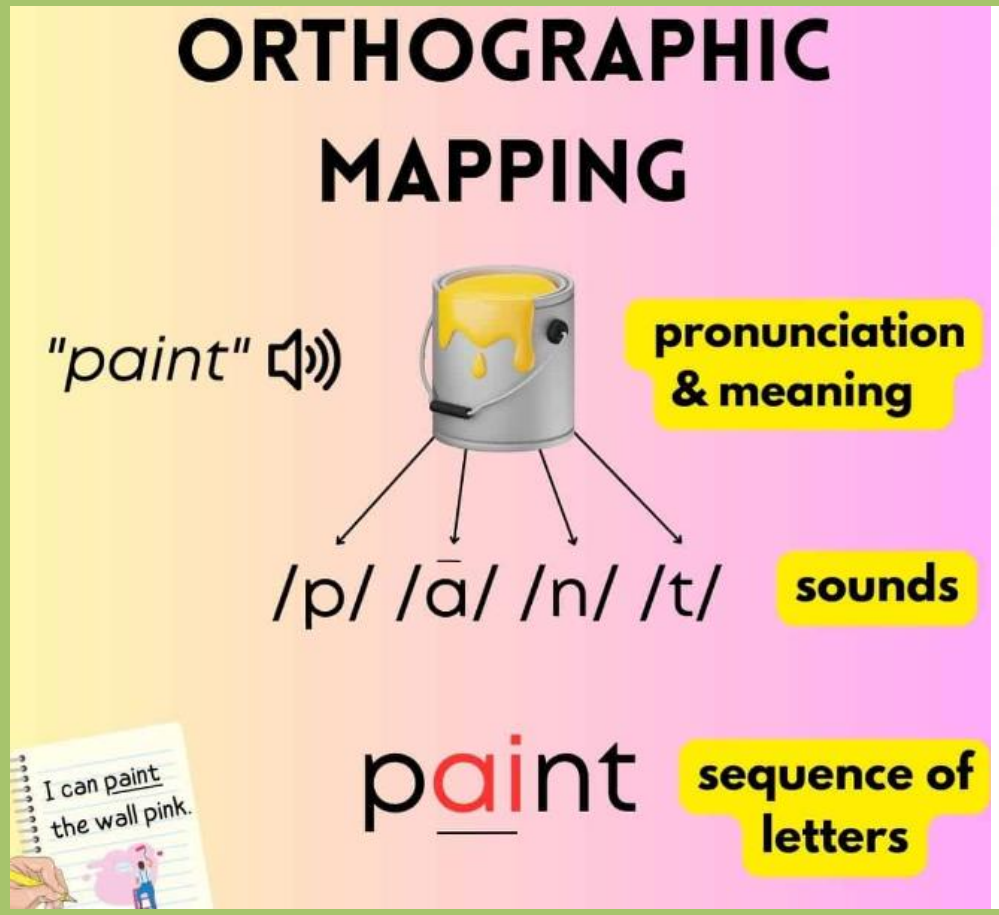
1. Mapping – neural pathways and neural networks

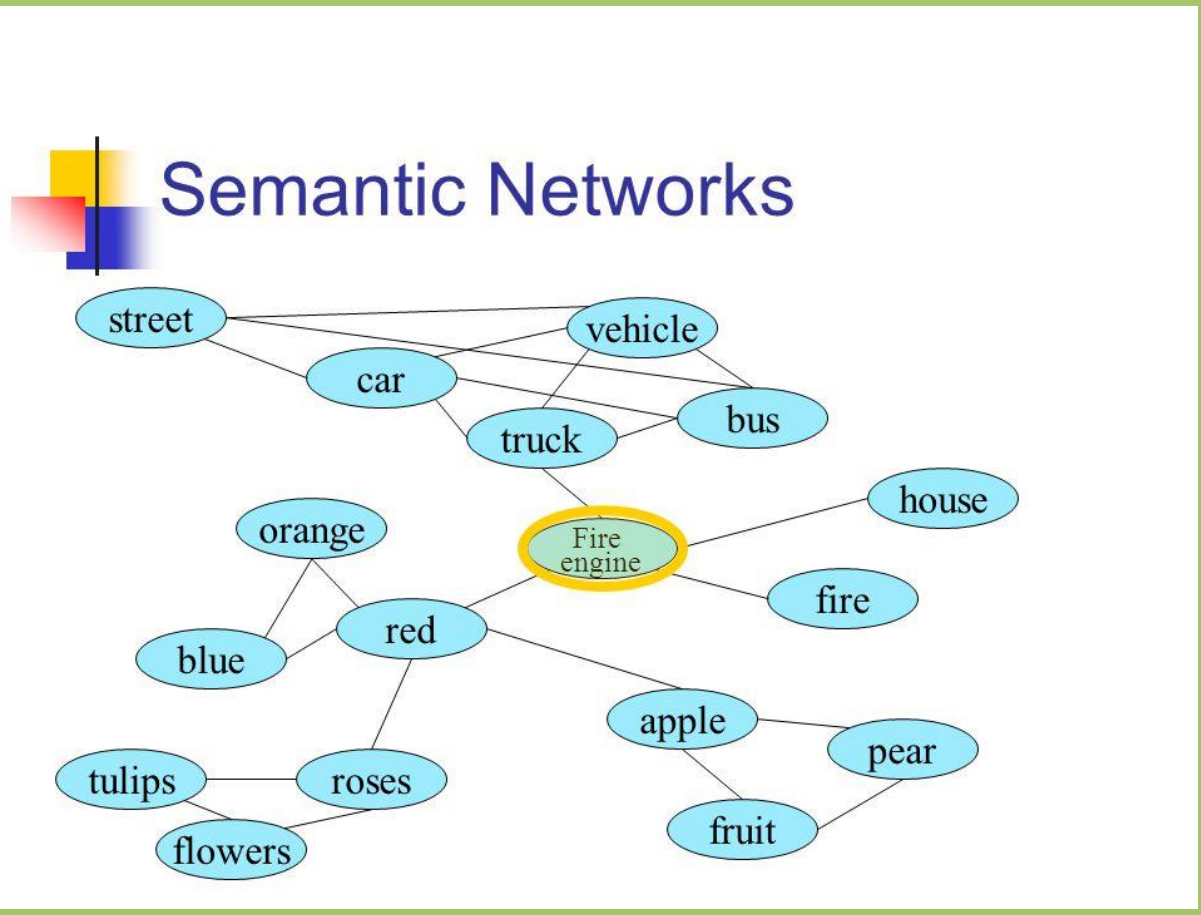
2. Orthographic system - letters, letter patterns, and arrangement of letters to represent sounds.

3. Logographic systems – logo is a symbol used to represent a thing.

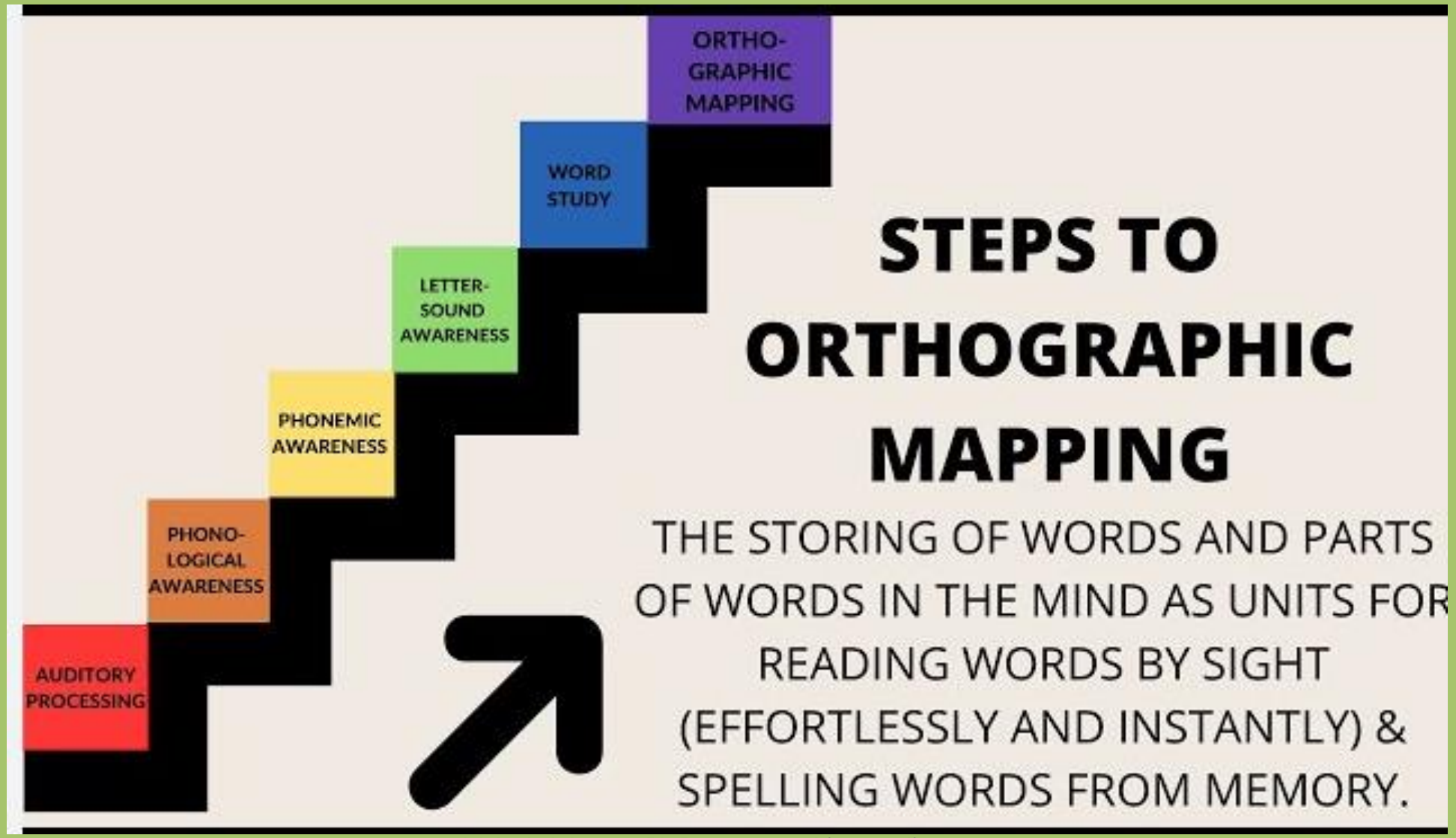
4. Orthographic mapping – words are memorized and stored in LTM based on letter patterns.

5. Semantic mapping (memory) – concepts are encoded and organized in LTM


ORTHOGRAPHIC MAPPING
"paint"
pronunciation & meaning
/p/ /ā/ /n/ /t/
sounds
I can paint the wall pink.
paint
sequence of letters


Semantic Networks
street
vehicle
car
bus
truck
house
orange
Fire engine
fire
red
blue
apple
pear
tulips
roses
fruit
flowers

Orthographic mapping – how words are stored in LTM



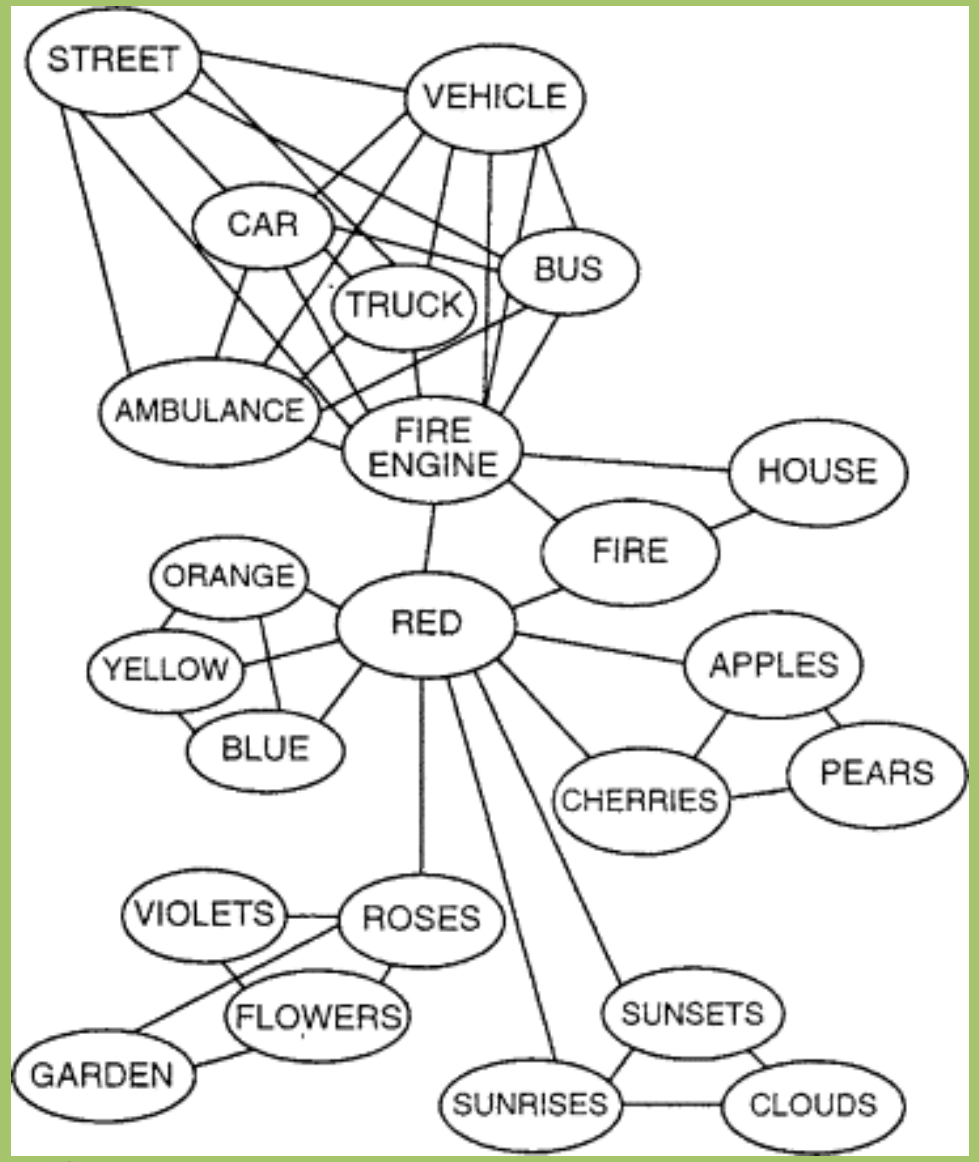
Semantic mapping (memory) – how concepts are stored in LTM - based on meaning or associations.

Orthographic mapping may be a thing ---

Semantic mapping a much more powerful thing.

If we just encountered words floating in space without context, then orthographic mapping would make sense.

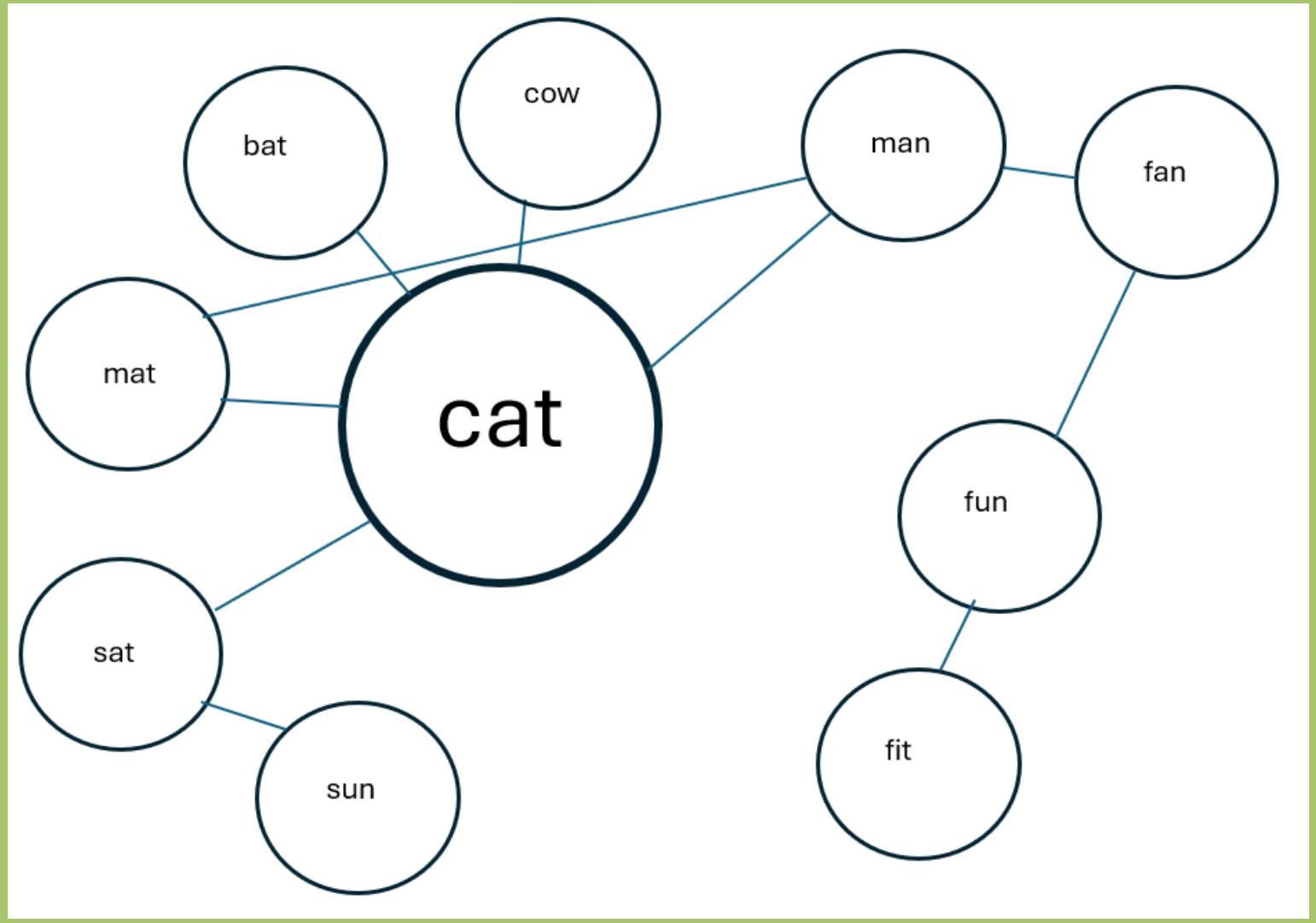
But we don't and it doesn't.



cat

Orthographic mapping – based on letter patterns.

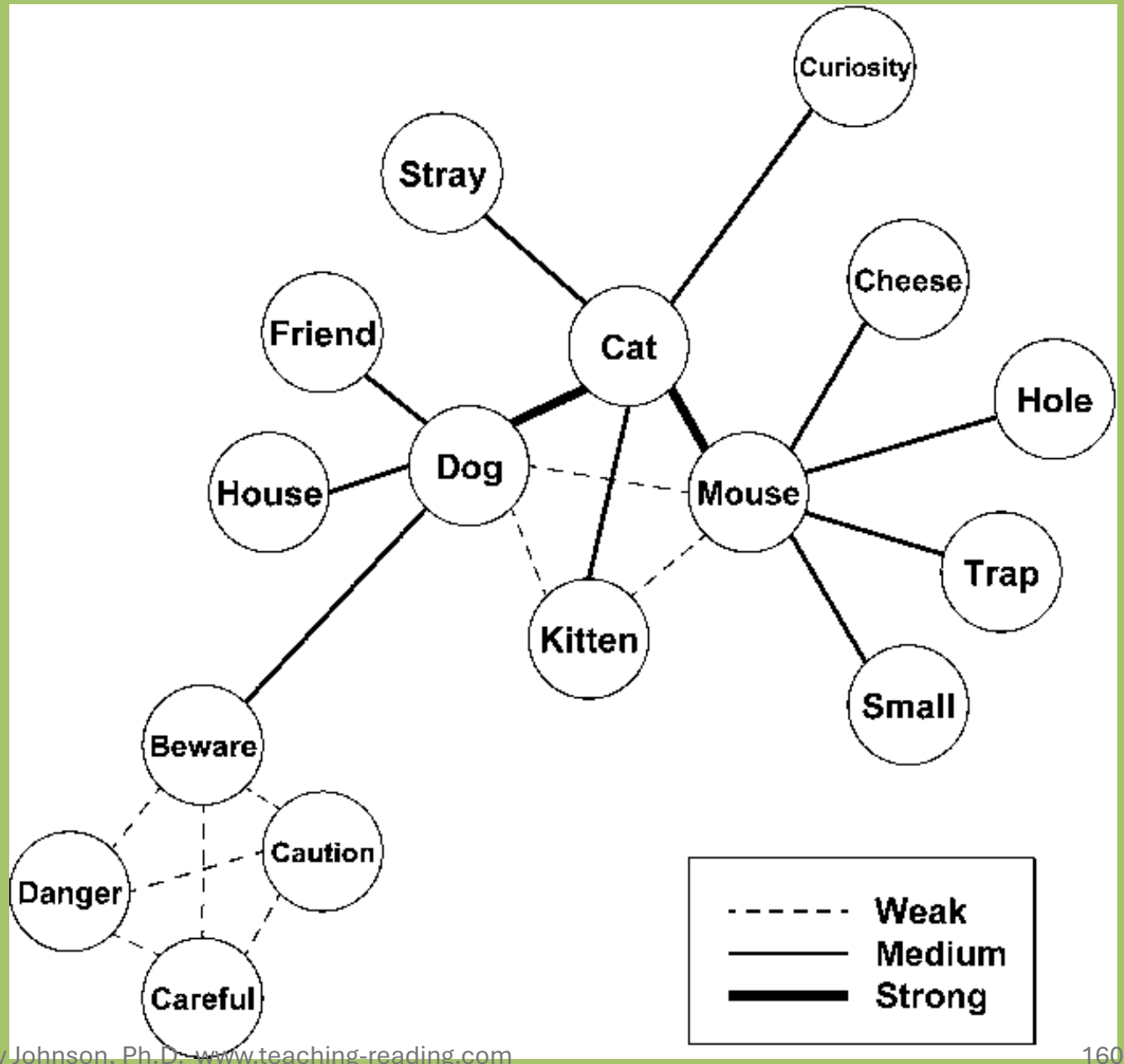
When you hear or see the word ‘cat’ do you associate it with other short /a/ words? Or the /at/ phonogram?



cat

Or do you associate it with cat things?

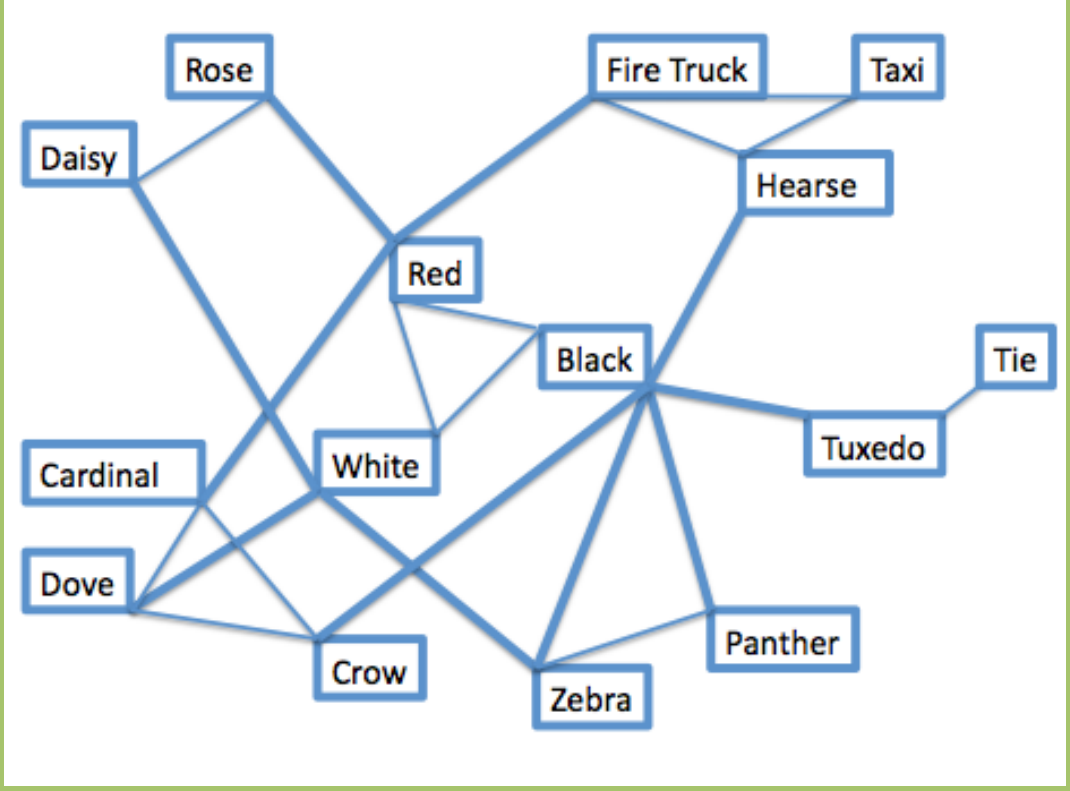
Semantic mapping (memory) – based on meaning and associations not letter pattern.



6. Words stored in LTM create networks

a. words are connected to other words

b. semantic relationship is MUCH more powerful than any orthographic relationship

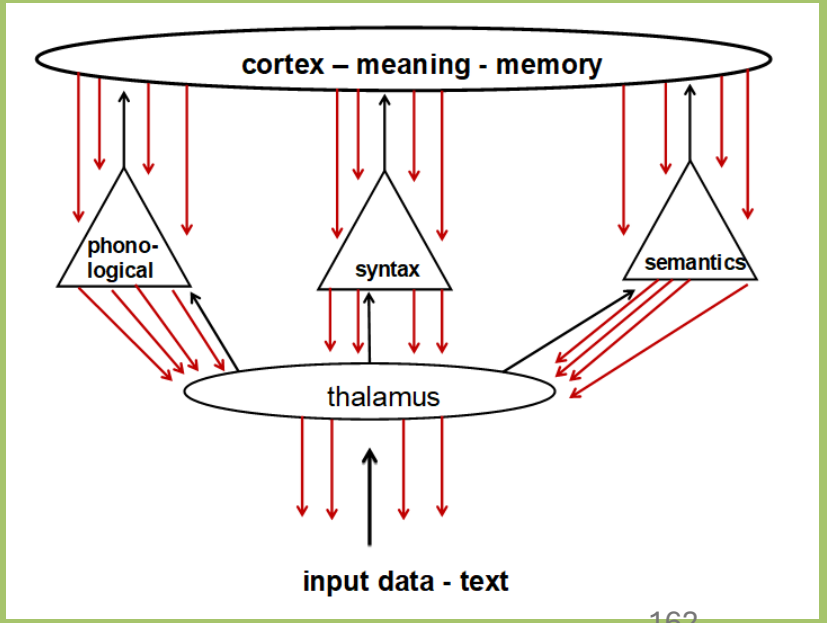


7. The strongest level of word representation in LTM is not letter patterns (phonological or lexical), but meaning (conceptual). Orthographic may be a thing, but semantic mapping (memory) is much more of a thing.

a. top - conceptual level – contains the semantic information about words

b. next – lexical level – word form that matches the concept

c. bottom - phonological level – sound information that corresponds to the word



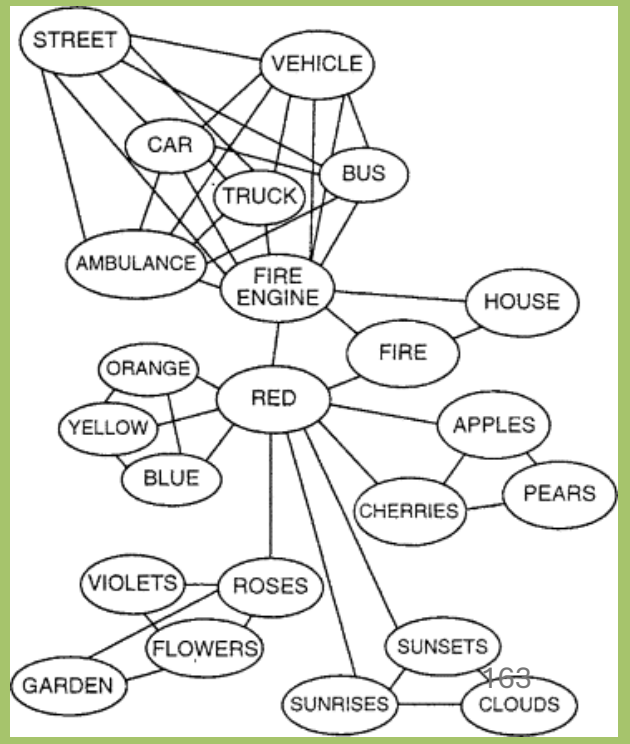
Domasio, H., Grabowski, T.J., Tranel, D., Hichwa, R.D., & Damasio, A.R. (1996). A neural basis for lexial retrieval. *Nature*, *380*, 499-505.

Spreading Activation

1. Semantic memory is organized by semantic distance or relatedness, not letter patterns
   Semantic similarities not orthographic similarities

2. Activation of a node on a network spreads to related nodes and facilitates word recognition.

3. Spreading activation accounts for semantic priming

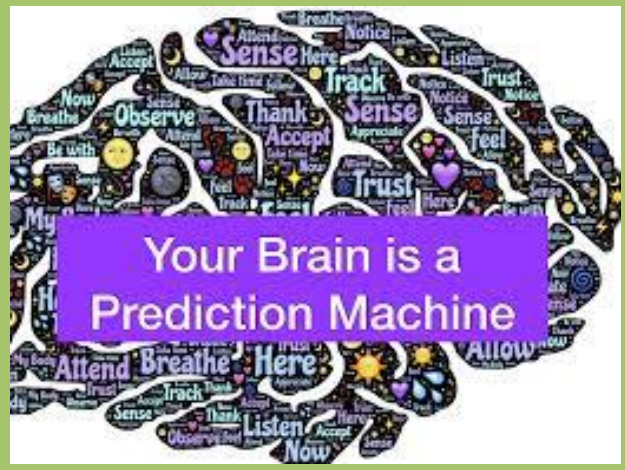


Predictor

1. The brain is a predictor – reading and reality – constantly reaching out and filling in the blanks.

2. Hierarchically system (meaning), used to predict activity below (letter patterns).

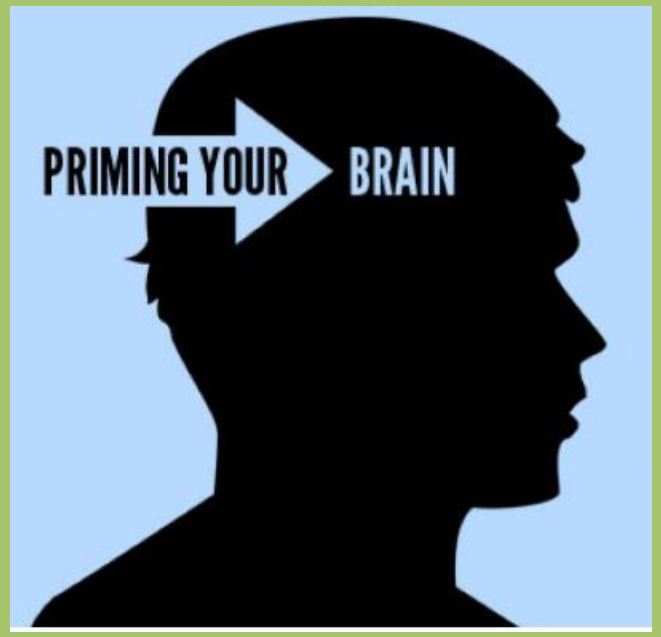
3. Readers use higher-level linguistic ability (semantic knowledge and syntactic awareness) to perform lower-level skills (word reading) in context



Priming Studies

1. Priming studies examine how quickly and accurately a person identifies a word or concept based on a previous stimuli (association).

2. We identify words much more quickly and accurately when put in the context of a sentence vs. in isolation.



Semantics

1. Semantic priming correlated with both word reading and comprehension.

2. Semantic priming shows (a) faster word recognition time and (b) enhanced accuracy.
   Example: Bread to butter vs. bread to nurse

Syntax

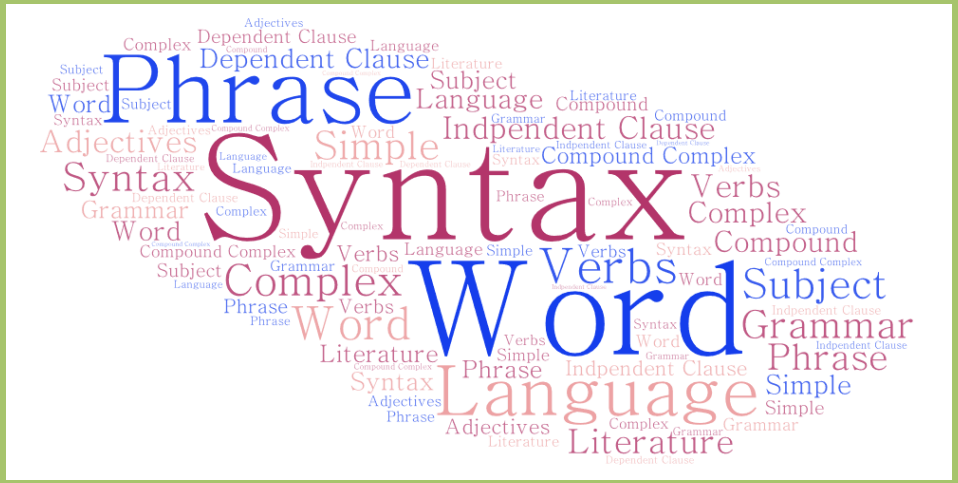
1. Syntax plays an important role in learning to read.

2. Syntax contributes to reading comprehension

3. Syntactic information improves word recognition

4. Syntax correlated with reading comprehension, comprehension monitoring, and reading achievement.

5. Training to develop syntax improves comprehension

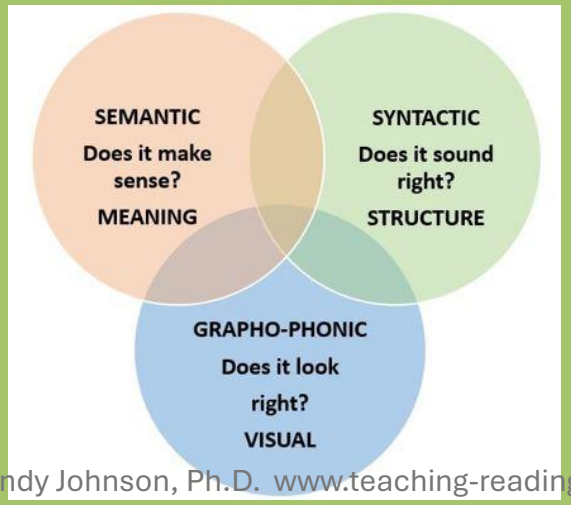


Syntax and Semantics

1. Students benefit by being taught to use both phonics and context (semantics and syntax)

2. Semantic and syntactic information are important sources of contextual information used to recognize words during reading.

3. Reading comprehension requires both syntactic and semantic processing.



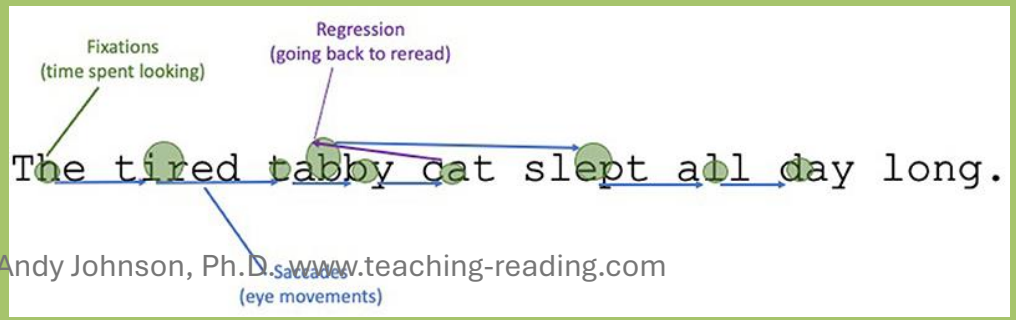
Eye Movement

1. We look longer at low-frequency words than high frequence words (doesn't matter the length of the word.) Fixations shorter and less frequent with highly predictable words

2. When words are predictable (using semantic or syntactic clues), fixations are short or tended to be skipped over vs. fixated on.

3. Word skipping decisions based on semantic processing

4. Information about a word can be obtained before the eyes fixate on it.



The International Literacy Educators Coalition

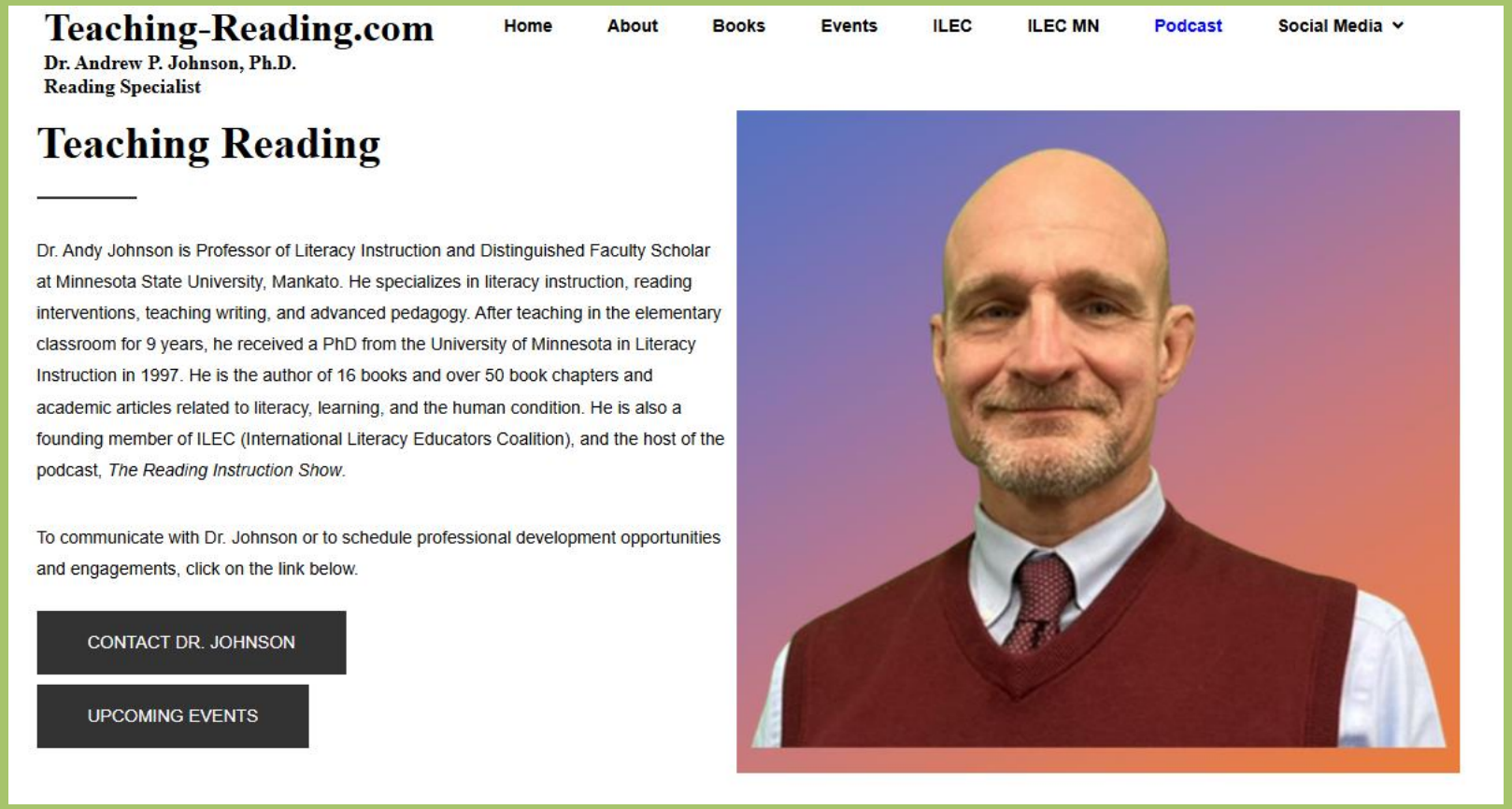
www.ILEC-Reading.com

The Reading Instruction Show

podcasts and YouTube videos

Dr. Andy Johnson

www.teaching-reading.com



www.teaching-reading.com

If time ...

Do you really want children to learn to read?

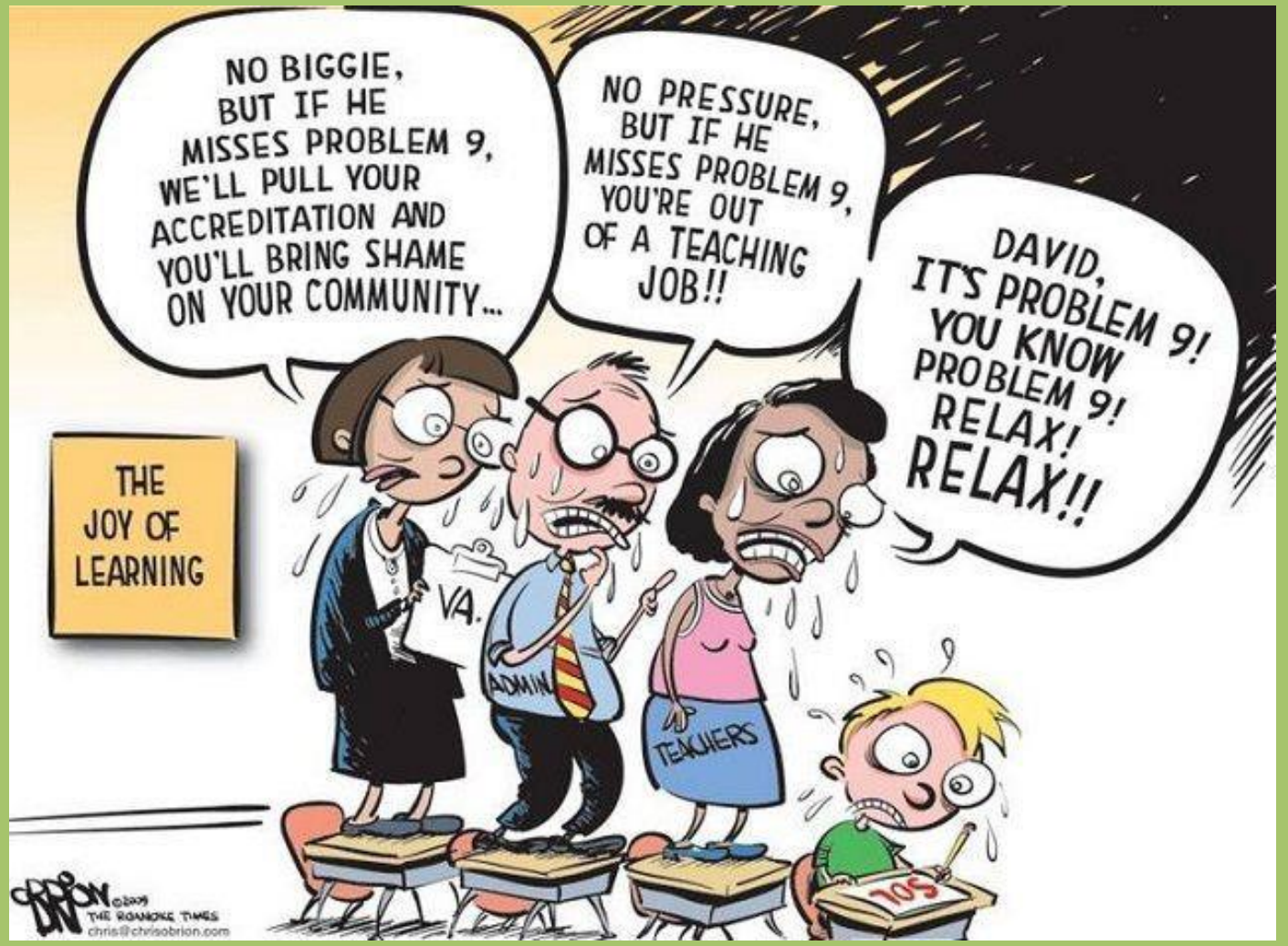
Do you really want children to develop their full literacy potential?

There's talking and there's doing.

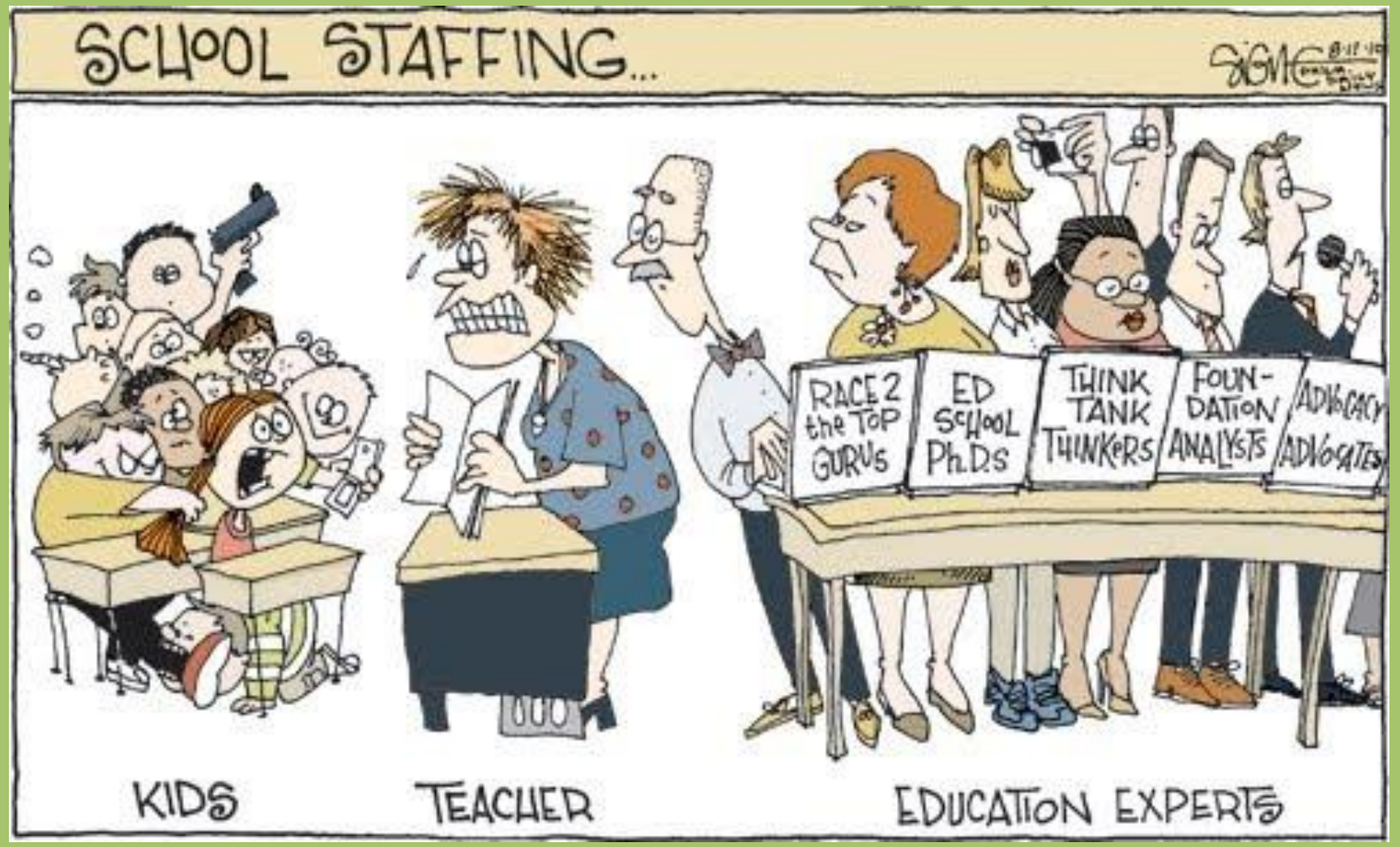
The answers are simple

Ban all standardized testing.

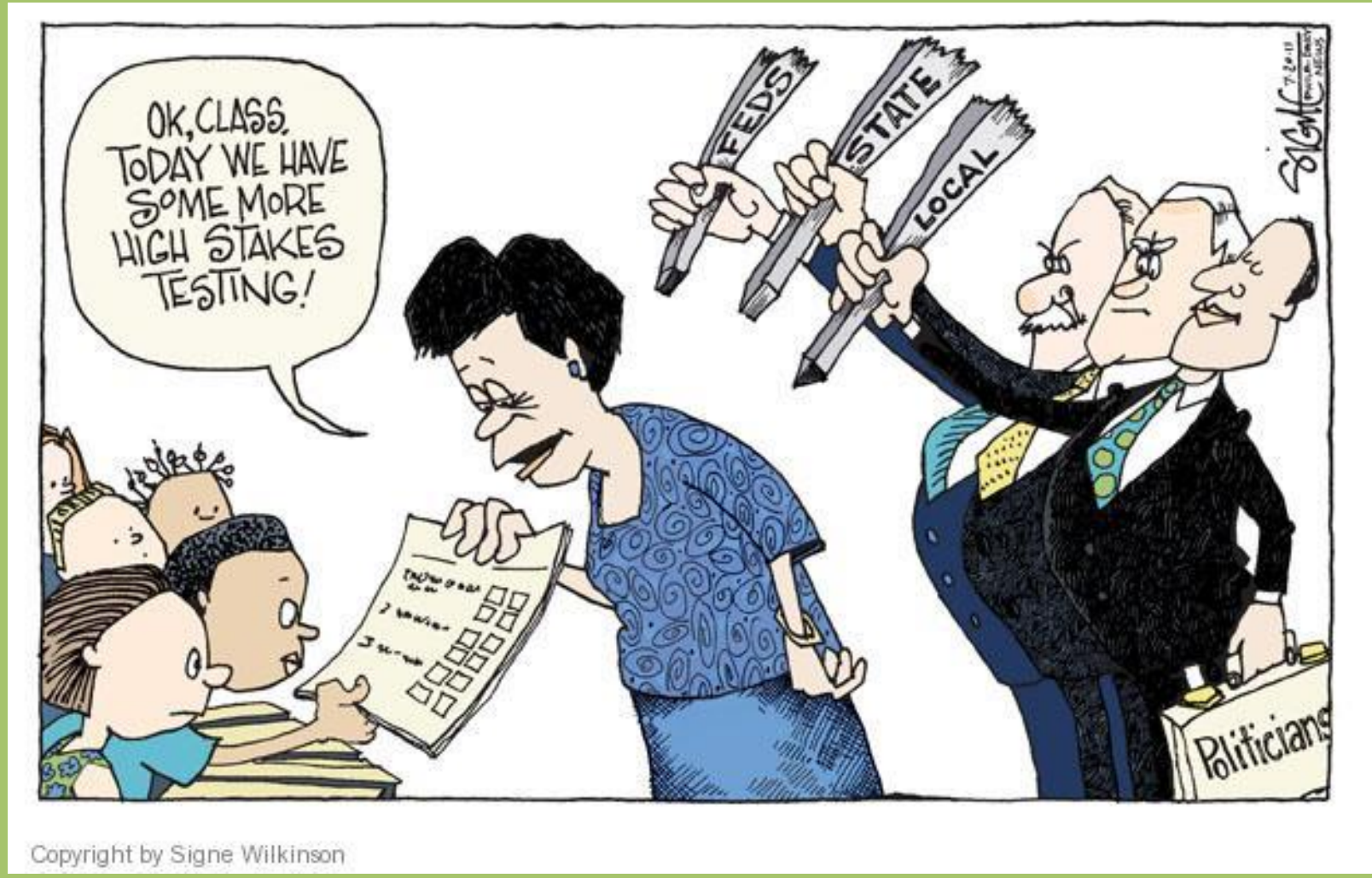
- Other ways to assess learning
- Lots of learning took place before standardized test



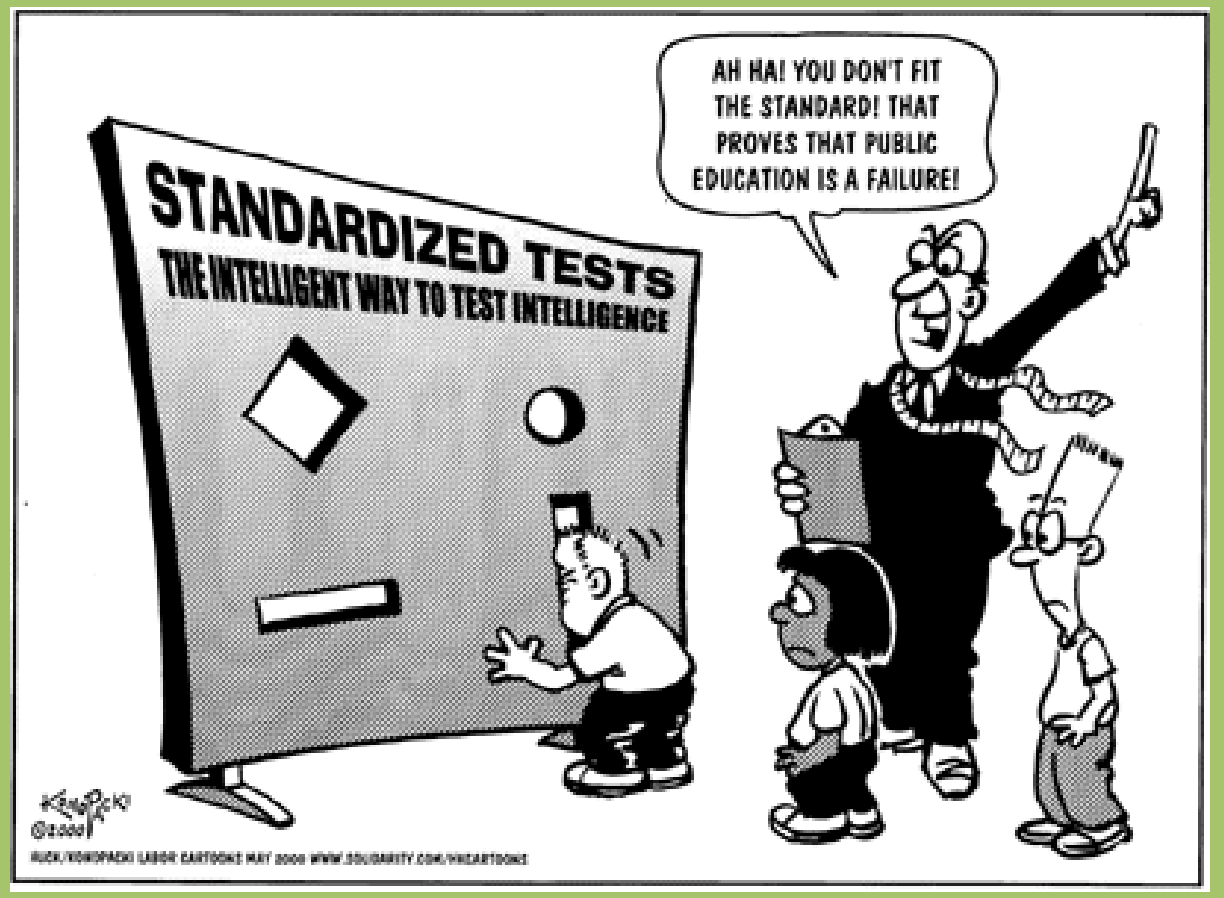
Use the money to buy lots of good books.



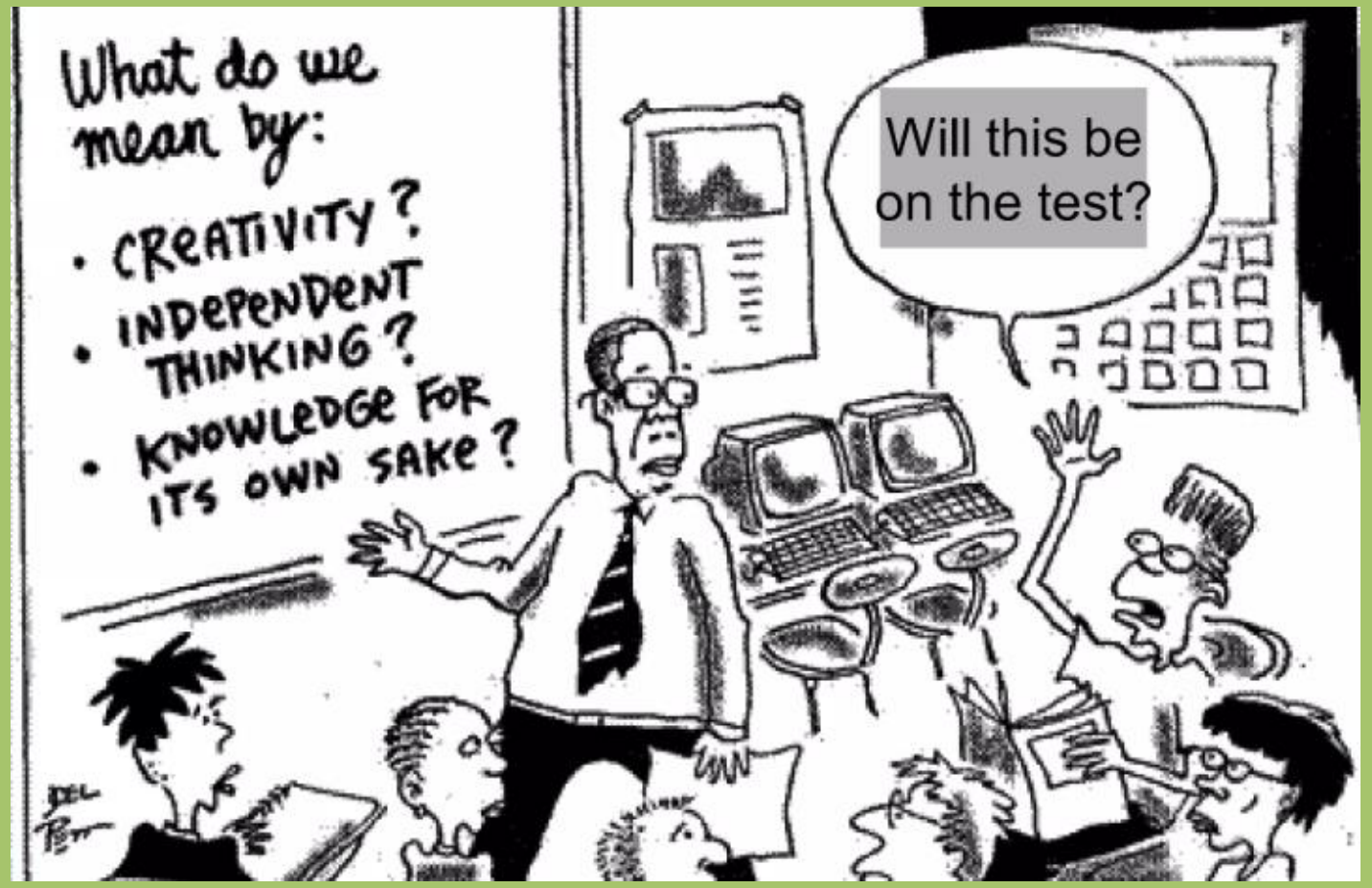
Spend a minimum of 15 minutes a day engaged in self-selected, silent reading.



Engaged in authentic writing and sharing every day.



Stop listening to radio journalists for information about reading instruction



Do you really want expert reading teachers?

Or are you looking for test preparation coaches?

There's talking and there's doing.

The answers are simple

1. Legitimate and continued professional development

Expert teachers have four kinds of knowledge

a. content knowledge – (know about reading)

b. pedagogical knowledge – (general teaching strategies – discovery learning, question-discussions)

c. pedagogical content knowledge – (specific content strategies, strategies for teaching reading)

d. knowledge of learners and learning – (human development, how humans learn, emotions)

three semesters?

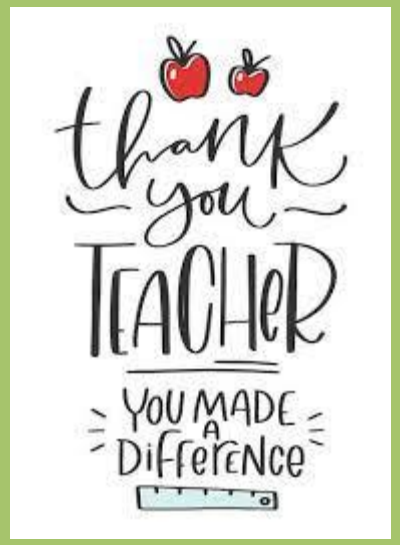
two literacy courses?

20 years old?

learners permit for teaching

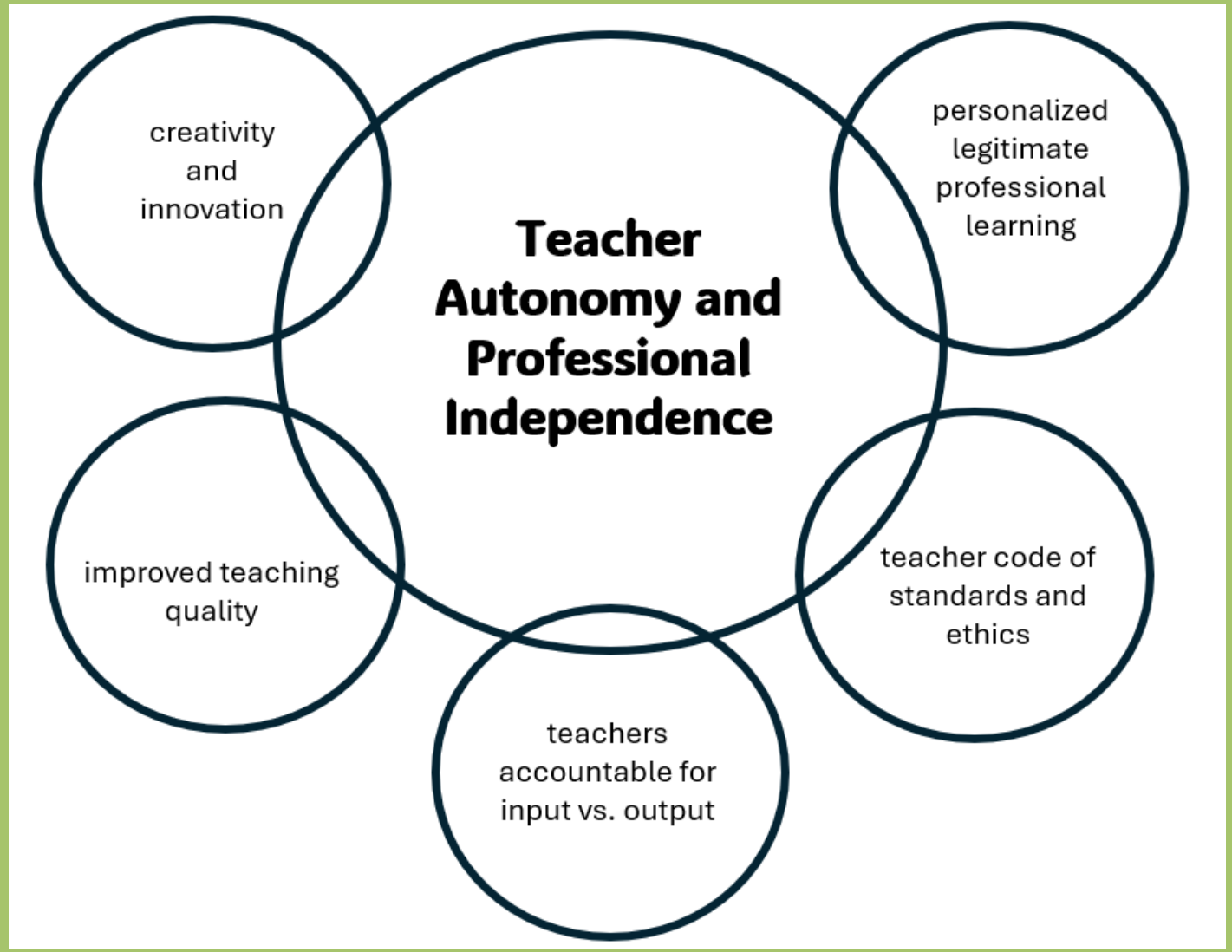
2. Stop thanking teachers.

Pay them!



3. Teacher professional autonomy with (legitimate) professional recertification responsibility.

- content knowledge
- pedagogical knowledge
- pedagogical content knowledge
- knowledge of learners and learning



4. National standards related to teaching conditions

a. class size

b. school and classroom conditions

c. teach quality, certification

d. books in library

e. school size

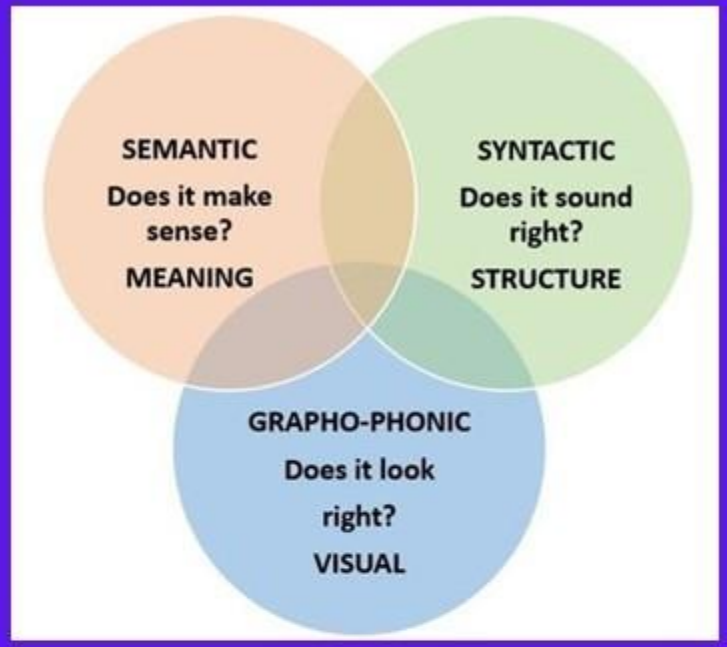
f. funding

g. breakfast and lunch

Fast track teacher preparation program?

Fast-track dentist program?

Dentists for America?



The 3 Cueing Systems

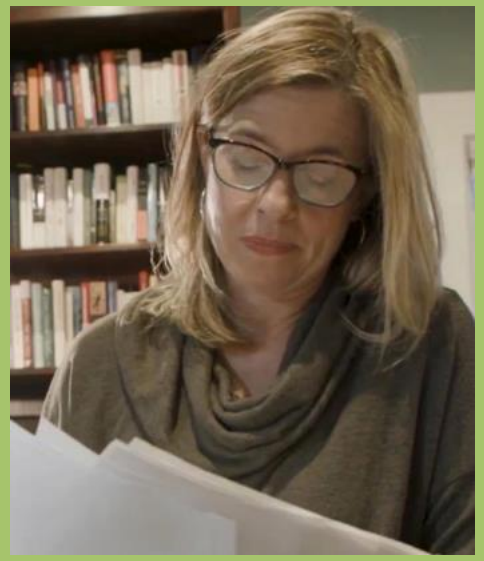
Clarifications

Dr. Andy Johnson

Inviting Emily Hanford to speak at an academic conference related to reading is like inviting a faith healer to speak at an AMA medical conference.

AMA
AMERICAN MEDICAL ASSOCIATION

Having been to first grade does not make you a reading expert.



“Sound it out!”