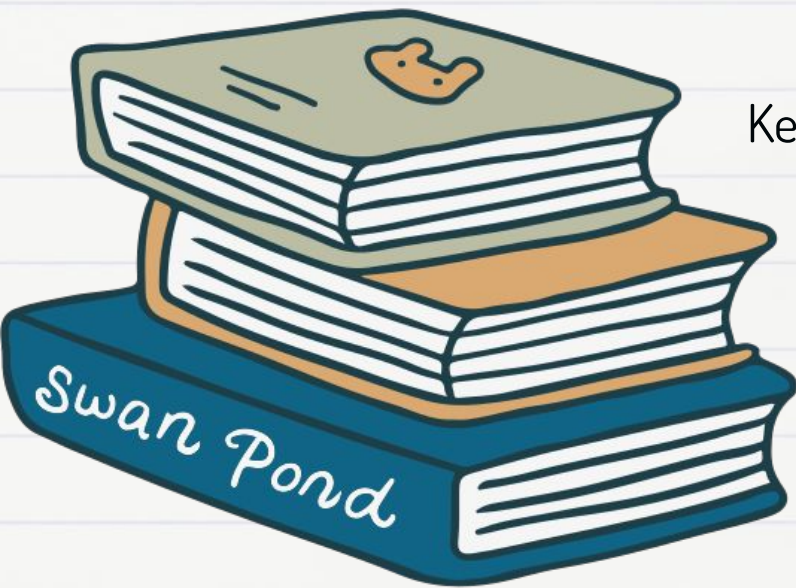


Language at the Speed of Sight



Keating Professional Book Club



The Problem and the Paradox

- The author begins the chapter by wondering why Americans are such poor readers. He includes references to other highly developed nations such as Canada being superior to Americans in reading but also not being as skilled as they could/should be.
- He talks about how we have learned a lot about how children learn to read and how reading is the one skill in life that we do more than any other, every single day but then he wonders why are literacy levels so low in America despite all that we already know?
- The impact of poor readers in society:
 - Children - it affects learning other subjects and their ability to stay in school and graduate.
 - Adults - can't fully participate in the workforce, can't manage their own health adequately, and can't help further their own children's success in school.
 - Poverty is a huge factor - both cause and effect but it isn't just that.
- He states the problem that he will explore throughout the book: "The only certain way of to obviate low literacy rates is prevention: successfully teaching children to read in the first place. Would more people be better readers if they had been taught differently? How much does schooling affect how well children read and, with it, their engagement of reading." p.9 He further states "There is a profound disconnection between the science of reading and educational practice. Very little of what we have learned about reading as scientists has had an impact on what happens in schools because the cultures of science and education are so different...the methods commonly used to teach children are inconsistent with basic facts about human cognition and development and so make learning to read more difficult than it should be." p.9.
- reading is interesting, it's complex, it's essential, and throughout this book, he vows to further examine how we can bridge the gap between the science of reading and educational practices so teachers, parents etc., can have the necessary tools to effectively teach reading early on.

PREVENTION is key!

- The author of this slide would like to say she's so sorry she isn't there, she wishes she was. She also wants a disclaimer noted that she has taken copious amounts of DayQuil and nasal spray while typing this, therefore is not responsible for the accuracy of what is written nor is she libel 🤖.

Visible Language

- ★ The starting point for reading is speech, however reading is secondary to spoken language (there are no natural languages that have a written form but not a spoken one).
- ★ The capacity for spoken language evolved in humans well before writing was invented.
- ★ Writing and speech are not interchangeable, but they are closely intertwined.
- ★ Children's progress in learning to read is greatly affected by their experience with spoken language. Further to this, people's reading and spoken-language skills tend to be very closely matched (dyslexics are exceptional as their reading is much poorer than their spoken language).
- ★ An interesting thing I read: deaf individuals who learn ASL as their first "spoken" language must learn a second language, English, for reading and writing.-- this then led me down a rabbit hole online, researching more about sign language!
- ★ Texting is a mashup of written and spoken language, as typing a text message is more like formulating a spoken utterance. Interestingly- evidence suggests that people do *not* find it difficult to maintain a distinction between texting and more formal writing (even tweens and teens!)
- ★ Writing systems represent spoken language, but are not close representations of speech itself (as speech contains signals which tell us things like speaker's sex, age, race, education, etc...)
- ★ We can represent differences in emphasis in writing by using *italics*, **boldface**, CAPS, or **color** (which helps to convey or change meaning of what we are reading; ie: *Fred* didn't take the test yesterday vs. Fred didn't take the test *yesterday*.)
- ★ The spelling of words affects how we hear them: we are quicker to know that goal/coal rhyme, versus bowl/coal.

Writing: It's All Mesopotamiam

Cuneiform to Me

Writing - one of the most important inventions in history

- Many systems created - took a long time to develop, refine
- Movement from depiction to symbol - It took a couple of thousand years to develop writing that fully represented language (as opposed to things like object, quantities)
- Need to communicate more complex things as civilizations became more complex
- Writing systems needed to represent both **Sound** (phonology) - **Alphabets** and **Meaning** (semantics) - **Morphology**
- Writing system must work for language it represents
- Keyboarding is putting pressure on some languages to become alphabetic in writing

The Eyes Have It

- Eye Movements involve 2 decisions: where to look and when to move
- Reading isn't left to right, readers make backward saccades to reread part of the text



- Perceptual Span - reader can focus on up to 20 letters at a time

- Faster reading = better reader? Speed reading strategies don't work

"I took a speed reading course and read War and Peace in 20 minutes. It involves Russia" Woody Allen.

- Training children to move their eyes like a good reader (some types of vision therapy) is ineffective.
- The best way to improve reading (speed, efficiency, comprehension)

Read. As much as possible. Mostly new stuff.

- Skilled readers know about language (words and structures) and have better background knowledge. Knowledge of language expands through exposure to structures we do not already know (new stuff).

Function, you can get a good job and reading research

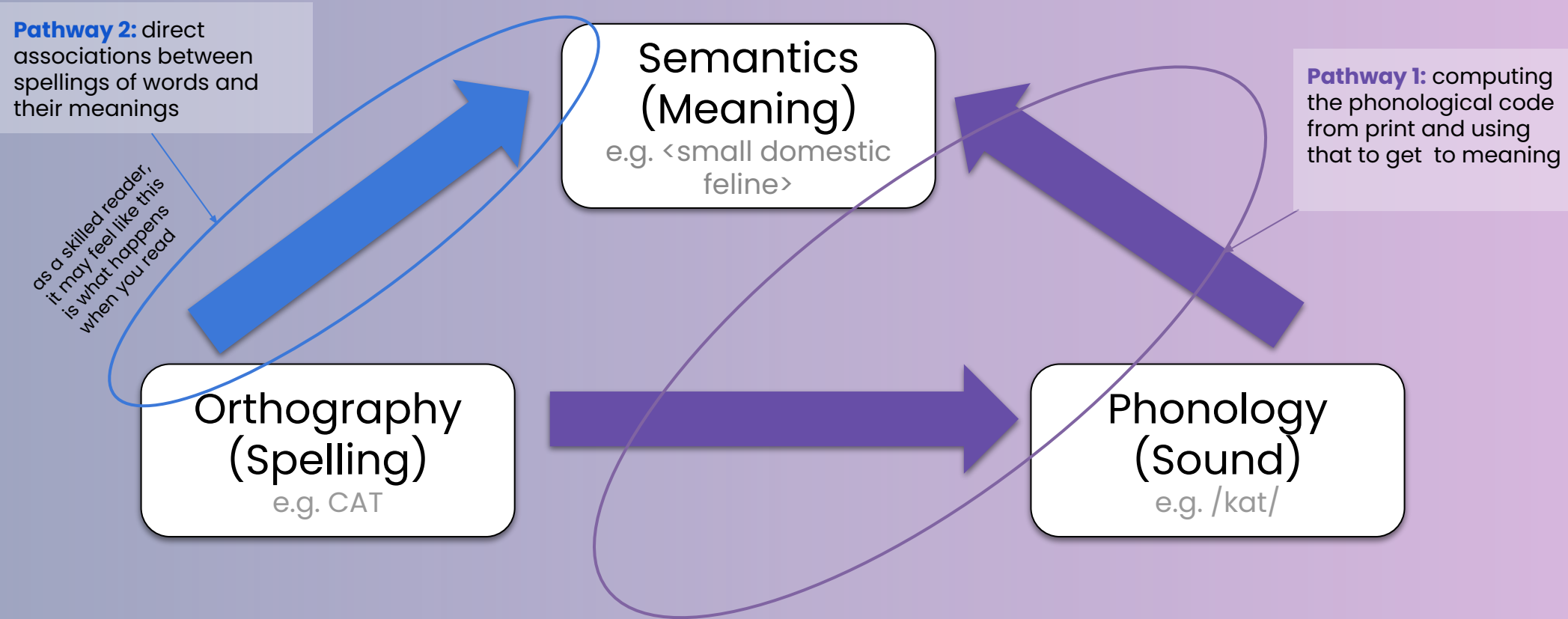
- **Stylometry:** applying statistical analysis to a book based on content, style and authorship
- All texts have a statistical structure - eg:the distribution of words and phrases, which words occur and how often
- Becoming a skilled reader is like gathering Big Data - Language exhibits statistical regularities at many levels (phonology, morphology, words, word sequences, etc.)
- Language acquisition is driven by an exposure to a massive amount of data that exhibit statistical regularities and then we interpret those regularities in language and how it relates to the world as experienced
- Internal analysis of this data is what we call learning
- **Orthographic statistics:** patterns in words that we know, like words that could occur and words that are not likely to occur
- the average vocabulary for a good reader is between 20,000-40,000 words. There are 170,000 words in the Oxford Dictionary.
- the 150 most common words count for about half of the words that we read
- the top 2000 words count for about 90 percent
- readers become orthographic experts by being exposed to massive amount of data which is one reason why the sheer amount and variety of text that children read is important
- only a limited amount of spelling can be taught, the rest comes from lots of practice at reading
- orthographic experts are tournament Scrabbles players and kids who compete in Spelling Bees
- we are experts at reading 'kid writing'(where lots of words are misspelled) because we are experts of recognizing orthographic redundancy, misspelled words and able to comprehend the meaningful text in which these words occur

Becoming a Reader

- Becoming a reader is impacted by the adults in homes/preschool/childcare/school and their beliefs about learning to read!
- ***Imagine if there were requirements for licensure as a certified skilled reader!***
- As humans we are on a lifelong trajectory of reading. Our reading skills modified by how the activity fits into our adult lives.
- Learning to read is complex because it requires an overlapping of sub skills developing at the same time. What it means to be a skilled reader depends on where an individual is on this trajectory. (Eg good fourth grader reader would make a poor eighth grade reader)
- Children entry into reading and their progress depends on their knowledge of speech. Takes less than a year to learn the inventory of sounds in language, longer to learn phonological forms of words.
- Beginning readers have to learn to recognize letters and the many forms they can take.
- **Vocabulary: so much to learn, so little time.** Individual differences in vocabulary size and quantity upon entry to school.
- **Reading to children: necessary but not sufficient.** Talking with children guarantees they speak but reading to children doesn't guarantee they will read. Impact of economics circumstances and a family's ability to have access to quality literature.

Reading: The Eternal Triangle

accessing meaning from print



Division of labour between the 2 pathways changes with the development of reading skill.

Reading is not purely visual, **phonological information is essential.**

Van Orden Study

demonstrates that even good readers use both routes.

animal

BARE

Reading: The Eternal Triangle

English is not so simple

- **Orthographic depth:** how consistently and transparently units in orthography and phonology correspond.
English = deep
Finnish = shallow
- Preserving information about morphological structure won out over spelling-sound consistency in development of English language.
- Using a single spelling simplifies one part of the system (the spelling-sound mappings) only by increasing complexity elsewhere (loss of morphological clues, more homonyms to disambiguate).
- English borrows a lot from other languages.

apostrophe → Greek
algae → Latin
chipotle → Spanish
cello → Italian
amateur → French
bagel → Yiddish

shallow does not
equal easier

"The claim is not that phonics is all there is to reading. Rather, it is that the use of the phonological pathway is an essential component of skilled reading. For most children it requires instruction, hence phonics." p. 126

"For reading scientists the evidence that the phonological pathway is used in reading and especially important in beginning reading is about as close to conclusive as research on complex human behavior can get." p. 124

"Children who struggle when reading texts aloud do not become good readers if left to read silently; their dysfluency merely becomes inaudible. Reading aloud and silent comprehension are causally connected ..."
p. 130

Dyslexia and Its Discontents

What is Dyslexia?

- ❖ “Dyslexia focuses on reading impairments that are neurobiological and genetic in origin rather than wholly environmental” (p.153). That is: the brain of dyslexics are different from the brains of typical readers.
- ❖ “Dyslexia is a condition that gives rise to poor reading, but some poor readers are not ‘dyslexic’” (p.153). Sometimes students are poor readers because of lack of motivation, poor instruction, lack of repetition etc.
- ❖ There are different reasons one can struggle to read, language comprehension being one of them, but dyslexia is reserved for those who struggle simply with decoding (the first part of the Simple View of Reading)



How can Dyslexia be identified?

- Dyslexics are those whose reading is at the low end of the normal bell curve distribution.
- Since it is believed that everyone can learn to read eventually (assuming normal IQ), and that some just take longer, it is difficult to determine where the cut off line is for poor readers who are just poor readers, and those that are dyslexic. Like deciding who is overweight vs. obese (without considering multiple other factors)
- We used to diagnose dyslexia based on a score difference between IQ and reading scores, but research now shows that “patterns of brain activity for higher and lower IQ poor readers are nearly indistinguishable, and both differ from those seen in good readers”. (p. 156). So IQ is independent of this neurological disorder.

How early can we see the precursors for Dyslexia?

- “Studies in several languages conclusively show that precursors of dyslexia can be detected in infants and toddlers. The known precursors involve speech and language” (p.168).
- “children who developed reading difficulties by age five had exhibited spoken-language deficits at thirty months” (p.168)

RTI (Response to Intervention)

- Since Dylexia is difficult to definitely identify, diagnose, and assess, there is a model of intervention that has emerged called Response To Intervention (RTI)
- The model goes like this: K-1 students are screened to determine who is at risk for reading difficulties (e.g., simple tests of pre-reading skills, family history due to its strong genetic link)
- These students are then monitored closely while their classroom teachers (“who are supposed to have received additional training in effective instructional practices and strategies for targeting areas that need the most work provide ...‘**Tier 1’ intervention**” (p. 162)
- Children who do not make adequate progress then move to **Tier 2 intervention** consisting of additional small group or 1:1 support
- If students still continue to struggle they may move to **Tier 3 intervention** which could include things like “special education classrooms”, or other services your district may offer
- Under this approach students are included in intervention and support without needing a diagnosis, you are able to apply the intervention early, and it weeds out who is just developing slowly and who actually has a neurological disorder of Dylexia
- THERE IS JUST ONE FLAW: it has to be implemented in the real-world (ie: do teachers have the training they need? Do they have the personal and resources for the different tiers?)

A possible model to explain Dyslexia

- One theory of Dyslexia is that the brain of Dyslexics have a harder time making generalizations and finding commonalities between sounds, text, and phonics rules
- A typical reader will see the following versions of “a” over time and come up with a general understanding of what “a” represents - able to trim the inconsequential parts - coming up with a consistent sound to text correlation

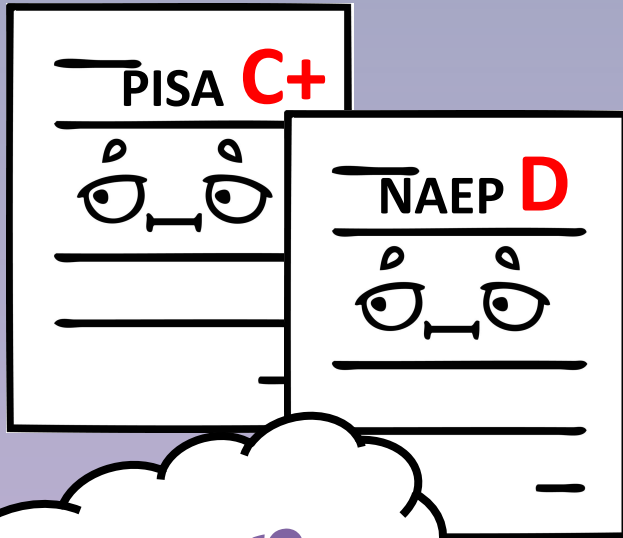
a A *a* *a* **A** *a* ANT plant **a**

- It seems that the brain of dyslexics see each of those letters as being unique and have to learn the sound they make, almost individually. They struggle to make generalizations
- For this reason “they learn new words more slowly, and they struggle to sound out unfamiliar words or nonwords” (p. 173)
- This is being described as the “noise” model: “failing to generalize, treating instances as ‘too different’... (a) failure to inhibit irrelevant information” (P. 175)
- Therefore, Dyslexics are working much harder to read than typical readers because they can’t rely on generalizations and commonalities

Brain Bases of Reading

- *Reading is a behaviour that is the product of our capacities to see, hear, write, speak, learn, remember, and think. (p. 187)
- *With a better understanding of the brain bases of reading, we could devise behavioral activities that tune specific components of the neural substrate. (p. 188)
- *Acquired dyslexia- reading impairments that develop after a literate person experiences brain damage.
- *Surface dyslexia- head injury that is fully recovered, but errors mainly exist with similar word confusion.
- * Phonological dyslexia-often results of a stroke. Non-word pronunciation is more impaired.
- *Deep dyslexia-more impair on abstract words. Non-brain injury people.
- * Alexia- involves the code that is unique to reading , orthography.

How Well Does America Read?



We, the PISA (Programme for International Student Assessment, and the NAEP (National Assessment for Student Progress), are two assessments administered in 34 market economy countries around the world as a way of measuring student achievement in Literacy, Math and Science.

According to our results, America ranks as one of the lowest in reading compared to other countries of similar economic power.

BUT WHY?



Canada ranks a fair degree higher than the US overall, but similarly to Education positive States such as Massachusetts and Connecticut. We still rank much lower than places such as Finland, Shanghai and Singapore.

What the critics of these assessments say

VS

The author's rebuttal and conclusions

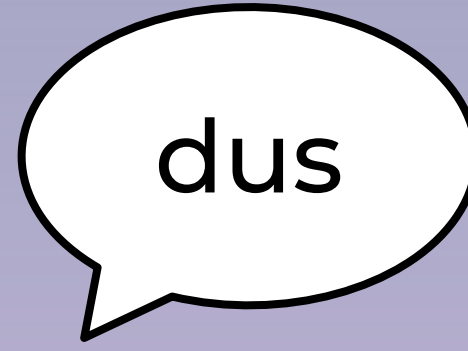
- The reason for the low scores is because of poverty. If we remove the data from the most poverty affected areas, then the US actually ranks higher than most countries.
- If we remove poverty from the equation, the US education system is working for most people. Why fix something that's not broken?

- We can't remove 100% of the poverty affected data from one country, and keep 100% of it from other countries. That would also not yield conclusive results.
- This idea perpetuates the idea that the education system is designed for White middle and upper class citizens.
- Perhaps the bulk of the issue stems from language dialects which mostly affect non-white, less educated and by default, more poverty affected citizens. **NEXT PAGE ->**

How Well Does America Read? Cont'd

Mainstream American English (MAE)

Reading is closely linked to speech. Children's knowledge of spoken language is the most important determinant of early reading success.



African American English (AAE)

The final consonant is removed, which eliminates meaning for non-AAE speakers, but makes complete sense to AAE speakers.



Children who speak AAE in their homes and communities have to accommodate to the mainstream dialect used in schools, making their brains work on overdrive compared to their white peers. It is similar to being an ELL, but they are seen the same as MAE speakers.

Quotes from this chapter

“Teachers know that assigning higher grades on a softer curve does not mean that students learned more, but it may be good for self esteem.”

“Parents' verbal engagement with their infant is often a better predictor of that child's developing language proficiency than is family SES.”

“Much attention has recently focused on the role of personal traits such as self-motivation, tenacity, perseverance and “grit” in achievement. I suggest instead that engagement in a task such as learning to read depends on success, and that failure is a powerful disincentive, especially when it is in part built in.”

The Two Cultures of Science and Education

- Oh 248
- Cross cultural divide of 258
- Teachers are guess and check method of reading how many classes suffer pg 261 ...
questions ethics of teaching pg 256 .. pg 255 reality bites
- Pg 264 why phonics is good
- Debunks some more famous wrong research: Smith and Goodman on Phonics, The
psycholinguistic Guessing game, Components of Text Comprehension

Reading the Future

- The chapter begins with a bluntly critical history of teacher education and teacher colleges. Included in this criticism is that teachers are rarely taught to be experts in the fields that they will be teaching, but rather people with experience teaching.
- Seidenberg describes that problems compounded when “an inbred community of practitioners and scholars developed an arm’s length stance towards research,” and that this has distorted how science functions in education.
- The Flexner Report was described as landscape changing in the medical field. It was determined that the lack of standards and credentials for medical schools and programs had led to numerous practitioners entering medical professions dangerously unprepared. These schools were popular with many students because they were cheaper and less rigorous. Following the Flexner Report there were standards and regulations put in place in colleges for medical training.
- Seidenberg makes the case for this being necessary but unlikely in education. Obstacles he notes include that schools are well established, well respected, and often closely tied to publishing companies and their deep pockets.

Reading the Future cont'd

- As Seidenberg is not optimistic that teacher colleges can be reformed, he suggests changes to curriculum, or increased standards for teacher licensing that would require teachers to demonstrate knowledge of important concepts such as the science behind how we learn to read.
- Seidenberg closes by stating that teachers don't adopt flawed practice because of "lack of integrity, commitment, motivation, sincerity, or intelligence." He states that this happens (specifically in teaching reading, but alludes that it could happen elsewhere) because teacher training has been poor. He states that with regard to teaching reading, teachers were not taught the relevant science or convinced it was irrelevant.

Additional Reading and Resources

- [Reading Rockets Blog and Book Summary](#)
- [Online Book Club](#)
- [Reading Matters](#)
- [Study Guide](#)
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