The Broken Logic of "Sold a Story": A Personal Response to "The Science of Reading"

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> …those who assume, or even claim, that there is a settled Science of Reading, especially one that dictates unequivocally how reading should be taught for all students, are not operating in the spirit, or within the accepted interpretive tradition and practice, of science.
>
> David B. Yaden, Jr., David Reinking, and Peter Smagorinsky, "The Trouble with Binaries: A Perspective on the Science of Reading"

"Sold a Story" is a brilliantly produced podcast, downloaded by millions of teachers and parents interested (and concerned) about reading instruction in this country. It uses individual stories, interviews, and archival recordings to "debunk" a method of teaching reading that promotes a "three-cuing system," an "idea" that journalist Emily Hanford traces to New Zealand educator Marie Clay—and that has been successfully promoted in the United States by Irene Fountas, Gay Su Pinnell, and Lucy Calkins. It makes unprecedented—and very personal—accusations against these educators, essentially holding them responsible for a national crisis in reading.

Even as I listened to the podcast, I felt myself pulled along, and emotionally troubled by the portraits of children struggling to read, and of parents distraught by the failure of schools to teach their children. You'd have to be a stone not to feel this. But it is also necessary to step back from this emotional impact and explore the logic—the many causal claims, and the representations of various reading methods—in the podcast. I will argue that if we do, cracks begin to appear, hidden perspectives emerge. In the end it falls apart.

1. Not Investigative Reporting

Emily Hanford describes this project as "investigative reporting"—yet it is clearly not that. It has a predetermined conclusion and marshals the material in support of that conclusion. In doing so, she brings in voices of reading researchers who support her position—Mark Seidenberg, Susan Neuman, and Reid Lyon. But if this was truly an investigative report, we would hear from other researchers who would be critical or skeptical of her conclusions. This list might include the editors of Reading Research Quarterly, prominent researchers such as David Pearson, Rachael Gabriel, Nell Duke, Rob Tierney, Peter Smagorinsky, Peter Johnston, Donna Scanlon, Luis Moll, Lisa Delpit, Kris Gutiérrez, Anne Dyson, and Richard Allington, and noted practitioners such as Ellin Keene, Debbie Miller, and Regie Routman. We hear from none of these experts[1]. If we did we would hear strenuous objections to the narrow and selective use being made of research. To be sure, Hanford has every right to push her own perspective—it's just not investigative journalism.

In a masterpiece of branding, Hanford and others call their approach "The Science of Reading," not so subtly implying that it is an unquestioned consensus among reading researchers, beyond dispute. That is not the case.

2. The Manufactured Crisis

The claim for a national reading crisis is a central part of now-familiar Science of Reading narrative, and it is a claim that sets off "Sold a Story". The key evidence for this crisis comes from the 2022 National Assessment for Educational Progress (NAEP) which found that only 33% of 4th grade students tested Proficient or Advanced. The overall performance in 2022 was equivalent to 1992 with the small gains over that period disappearing. This result led to alarming (but misleading) headlines about the majority of students struggling to read—a real crisis. "Proficient" is wrongly equated with "grade level" or even basic reading ability.

We could also conclude, more positively, that students taking the test in 2022 are reading as well as their parents when they were in school. In fact, the results of this and other tests, like the widely-respected PISA (Programme for International Student Assessment) tests, show essentially a flat line, at least before the pandemic

[1] Robert Tierney and P. David Pearson have recently published a book-length review of Science of Reading claims, entitled, Fact-Checking The Science of Reading: Opening Up the Conversation. While it covers far more than the claims in "Sold a Story", it is clearly relevant and will be cited in this response.

The cut-off points for any assessments are, to a considerable degree, arbitrary. Those for NAEP are particularly stringent, virtually guaranteed to assign the majority of students to below proficient. The levels produce what David Reinking, a former editor of Reading Research Quarterly and his coauthors have called a "custom-made crisis." (2023, 115) If we look at the math NAEP scores we can see a similar "crisis"—as 64% of students score below proficient. I suppose we can imagine a similar conspiracy in math education to promote failing methods, but the more plausible explanation is the math cutoffs are also set very high. [2] Over the entire period of it administration, the NAEP results in proficiency level in math have never exceeded 42%. Never.

To make sense of these results, we need to place them in an international context. If U.S. students are broadly failing because of flawed teaching methods, we would expect to find them well behind students in other economically advanced countries. But that is not the case. Here are some relevant, and surprisingly positive, findings:

- In the Programme for International Student Assessment (PISA) 2018 assessment of high school reading, the United States placed ninth among the 38 economically advanced countries, about level with Sweden, the United Kingdom, Japan, and Australia-- and well above the international average.
- Reading was a minor area for the 2022 PISA assessment, but there again US students did well, ranking seventh out of 41 countries, comparable with New Zealand, Finland, and England.
- We get similar results if we turn to the international performance of fourth-graders. In the 2016 PIRLS (Progress in International Reading Study) the US was ranked 15 out of 50 countries, behind Finland, Sweden, and Hungary, but ahead of Denmark, the Netherlands, and Australia.
- The PIRLS ranking in 2021 was even higher, ranking 6th among the 38 countries that took the comparable test.

These international tests do not use the same cut-off distinctions that NAEP uses—and the tests are not identical. But it is almost certain that if the NAEP cutoffs were used, comparative countries like England and Sweden would also have the majority of their students below proficient.

Again, there is no evidence, in these respected studies, of a national reading crisis—though the assessments confirm troubling socio-economic gaps in the United States. It's no time for complacency. In fact, the reading "penalty" for being poor in the United States is greater than in most of the countries tested.

[2] One striking fact about these international assessments is the discrepancy between US achievement in reading as contrasted with math. Comparatively US students are doing far better in reading.

Specifically, on the 2018 PISA assessment only two countries have a wider gap between the bottom and top economic quartiles than the US—and 34 have a smaller gap. And this disadvantage widened during the pandemic. (Gee, Asmundson, and Vang, 2023)

But, reading IS a crisis for a child who is not progressing, and for their parents—which leads to the next point.

3. Breakdowns in Monitoring Student Progress

Some of the most poignant moments in "Sold a Story" come when we hear from parents, distraught over their children's lack of progress in learning how to read. We hear the desperation, sadness, sense of betrayal in their voices—as we learn of their rush to get outside tutorial help for their children.

While my wife and I never had to employ tutors in reading, we did have to do so in math, and I can identify with the feelings of these parents. At the time my daughter had missed several days of school because of a persistent respiratory infection was falling behind in an algebra course; her grades were sinking, and she was losing confidence that she could keep up. My complaint, even anger, at the time came not from my disapproval of the teaching methods—it came from the schools seeming tolerance of her problem, their inaction, even their blindness to her situation. It seems OK for her to "slip through the cracks."

No reading program can ensure that all students progress, but they all should have screening in place to identify students who are not progressing—and to intervene to remedy the situation. Some schools call these systems a Multi-Tier System of Supports—where there are tools (formal and informal tests, teacher observation) to identify children who are not progressing satisfactorily and, working in tandem with parents, providing degrees of extra help. Ironically Marie Clay, portrayed as the architect of the flawed "idea" in "Sold a Story", saw this need in the 1970s and created systems of early diagnostic intervention to bring students to grade level through intensive tutorial sessions. More on her later.

In some cases, this help might be more intensive and systematic phonics instruction—but there can be many causes for student difficulty, some not tied to method (there can be emotional issues as well like the death of a parent, or bullying). Pam Mueller (2001) in her interviews with "lifers," children who never left the remedial system, found that intensive phonics was sometimes part of the problem—it never "took" and students who made progress were given the kind of

authentic and appealing options of the reading workshop, disparaged in "Sold a Story". Each case is different.

4. Lack of Differentiation

We can see the problem of undifferentiated instruction is a wonderful scene early in To Kill a Mockingbird. Scout's teacher, Miss Caroline, prints out all the capital letters on the blackboard and asks Scout to read them—which she does. Then, surprised at this accomplishment, Miss Caroline asks her to read a story in her reader, which she does, then the stock market quotations in The Mobile Register, which she again does. Miss Caroline is flummoxed about what to do with Scout—and solves the problem this way:

> "Now you tell your father not to teach you anymore. It's best to begin reading with a fresh mind. You tell him I'll take over from here and try to undo the damage—" (19)

Scout will need to sit through sequential lessons in the alphabet like her classmates. What I find fascinating in this scene is that Miss Caroline's first instinct—to see what Scout can read—is exactly right. She does an informal assessment, and really learns something about Scout and her interest in her family's history. But Miss Caroline is too inflexible or unimaginative to do anything good with that knowledge.

Scout's situation is an extreme example of a general problem. We can argue that no harm will come to Scout from sitting through these lessons. There's no way she won't be a reader. We can make an analogy to a vaccination—we all are encouraged to get a flu shot, even though only a relatively small percentage of us will get it. If all students do through this "foundational" instruction they have a vaccination, if you will, against illiteracy. But a shot takes a few seconds, and a literacy program can take years—class after class "learning" something you already know. I have heard this justified—that it can't "hurt" students like Scout. But it can. She can become bored, tuned out, alienated from school, and she if a child is like I was at that age, disruptive.

There is an opportunity cost here. Scout loses experiences that might interest and challenge her. She might have been directed to books about local history, a clear interest she has. Or given her opinionated personality (and her interest in

newspapers) she, should could have been invited to write about her views. In "Sold a Story" Reid Lyon, estimates that 60% of students need systematic intensive phonics, which invites the question of what to do with the 40% who need less intensive instruction. Do they get the same intensity, and if they do, what is the opportunity cost? What else might they be doing?

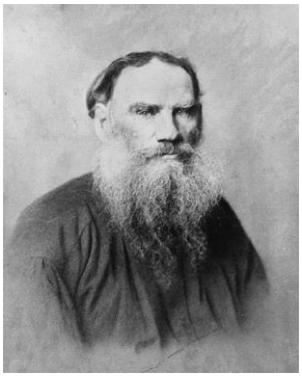
In the limited depictions in "Sold a Story" of what reading instruction should look like, there is clearly a reassuring, back-to-basics vibe. The emphasis is on structured, whole-class, teacher-directed lessons, recitation-focused instruction. A reading teacher I spoke with described one "science-based" program that required 30 minutes of direct instruction in phonics to 5 and 6 year-olds. She commented, "Have you ever tried to keep the attention of 5 and 6-year-olds for 30 minutes?" These programs are described—not unfairly in my mind—as one-size-fits-all. It's difficult to see how they make needed differentiations, how they even take the diagnostic step Miss Caroline took.

Not only are some students farther along in their ability to read, but they also vary in how they learn to read. My own children varied widely, my son being very precise and cautious in his word reading, my two daughters more willing to take risks and be "wrong."

Leo Tolsoy had something to say about this.

In the years before he began devoting himself to writing War and Peace, Leo Tolstoy took an active interest in how reading was taught in the schools on his estate, Yasnaya Polyana. He described the ways he saw children as differing and what teachers should do about it. He noted that some thrive on a "most rational sound system" (i.e. phonics), which others are more visual and grasp "the law of word combinations by reading whole words at a time:"

> The best teacher will be he who has at his tongue's end the explanation of what is bothering the pupil. These explanations give the teacher the knowledge of the greatest possible number of methods, the ability of inventing new methods, and, above all, not a blind adherence to one method, but the conviction that all methods are one-sided, and that the best method would be the one which would answer best to all the possible difficulties incurred by the pupil, that is, not a method, but an art and talent. (1967, 58)



As we will see, this is a fair description of the work in Reading Recovery.

One final irony here. Educational science has long tried to emulate the more established research models of the hard sciences, including medical research. But if we look at the innovations in medical treatments, they are clearly trending toward more individualized diagnoses and treatments—the mantra is often something like "we don't treat cancer, we treat your cancer." For example, patients may differ greatly in the response to certain drugs or how their immune systems work—and these difference need to be monitored, and if necessary adjustments made. That's what we hope for. But the so-called "science of reading" is moving in the opposite direction—toward a monolithic and standard approach.

5. Pictures and Other Cuing Systems

One of the seemingly self-evident, criticisms the podcast makes is against the use of pictures as cues to reading. Readers who rely on pictures—and not the words—will make approximate guesses that restrict their understanding of what they read. Clearly, a child who begins by looking and the picture and relies on it, needs to be directed to the words—and as one reading expert told me, it's quite evident when this reliance gets in the way of their reading. On this point I think we can all agree. And, as we will see later, this kind of reliance, this guessing based on the picture, is not what Marie Clay, or those she has influenced, support

But, it would seem to follow from "Sold a Story", that reading should be taught without the support of pictures—or at the very least it is unclear on that point. Yet it is barely conceivable to imagine children learning to read without picture books, without illustrations, without The Wild Things, without Viola Swamp, without The Very Hungry Caterpillar or the illustrations of Goodnight Moon. Beyond the obvious visual and narrative appeal, there are sound reasons for the support of pictures in early reading.

Children often begin their reading journey with what might be called high-support, high-context reading. Take for example one of its earliest forms—reading street signs. The child sees a sign:

The child has the support of knowing that street signs tell you what to do—and stop is a basic direction. They can read it in context once it is pointed out—though they wouldn't be able to read without this context:

STOP

But seeing the word repeatedly in a meaningful context helps them create an image of the word that they can later use without the support of the sign. It can also start them on deciphering letter sounds—which some kids do with astounding efficiency. Attending to this high-context environmental print is an extremely useful way to start the reading journey. (Harste, Burke, and Woodward, 1984). Marie Clay was a pioneering figure in exploring this emergent literacy.

Pictures obviously provide contextual support as does memory. Early readers often read (and reread) books that have been read to them (often many times), and that memory of the reading is a support for their own reading. It is the same principle as scaffolding: learners begin learning a task with some special supports, which are gradually removed

6. The Limits of "Sounding Out."

The one cuing system that "Sold a Story" promotes, exclusively it seems, is phonics. In fact, if there is a hero on the horizon, it is the return to extensive, systematic whole-class instruction in phonics, or working through words sound by sound. It makes sense in a way—letters encode sounds and knowing these correspondences is a useful, even essential, tool in learning to read. But it is also one with limits—and I'll note two of them:

Irregularity. Contrast these two words—cow/tow. You would think, from looking at them, that they would be rhyming words—but they're not. In fact, if you sounded out cow to rhyme with tow—you'd get something unrecognizable the k sound followed by long o (this is assuming that the child knows that the c in cow is a "hard c"). The English language (as distinguished from Spanish, for example) is permeated with examples like this; vowels in particular can take many forms.

There are historical reasons for this irregularity, as explained by Nancie Atwell in the Parents Handbook for the Center for Teaching and Learning:

> The English language we speak today evolved over the long history of the British Isles, a history filled with invaders and visitors. Because of this, English is a combination of diverse influences: Angles and Jutes and other Germanic tribes, the Latin of missionaries, the Vulgar Latin of Roman soldiers, the Scandinavian tongues of Norse warriors, and the French of the Norman Conquest. (CTL Handbook, p. 22)

It is a "mongrel" language, filled with words drawing from diverse languages.

Let's try another word: "routine"—which has Greek, Latin, Old French, and Middle English roots—obviously a mutt. The consonants are our stable friends here, but the vowels are a big problem. The "ou" does not match the way we usually hear it—as in "out." And the "i" would appear to the child as an example of the way the silent "e" makes the preceding vowel, the "i", to be long—as if the word should rhyme with "fine." But it doesn't.

I'm sure linguists could show that this is not truly irregular, that is may be the result of the evolution of the word's spelling. But I'd wager that few non-linguists could explain the rule that governs the way we pronounce "routine." For this reason, a huge proportion of English words defy exact "sounding out" and must be learned as sight words.

Effort. In Thinking Fast and Slow, Daniel Kahneman describes two systems of thinking, one that he calls system 1 (fast) and the other system 2 (slow). System one is seemingly automatic and effort-free—it's what we do when were are using a skill we have developed long ago. I read the op ed section of the New York Times, and have no sense of expending energy. I'm coasting along with system 1. Contrast that to my attempt to understand the IRS tax procedure for claiming a home office, something I have not done before. I labor over the terminology, especially "gross income limitation": I am tense, literally sweating, and unsure of myself. Kahneman notes that we use up glucose, body sugar, when we do system 2 thinking—we tire easily and need a break.

When students sound out long words, they are using system 2 thinking; it is effortful and difficult, and it is not sure to succeed. For example, to sound out "microscope" the reader would have to sequence and assemble seven phonemes:

- "m"
- long "i
- "cr" blend
- long "o"
- "sc" blend
- long "o"
- "p"
- and assume the final "e" is silent.

If the reader doesn't have "microscope" in their oral vocabulary, all bets are off.

An alternative to "sounding out" is what we called in my grad school days "structural analysis"—which allows for the reader to process bigger "chunks." We can compare it to how we remember numbers. For example, which of the following would be easier to remember:

14921776 *or* 5789107

Obviously the first because we can see it as 2 units, two common dates (1492 and 1776) where the second we have seven to process. Clay refers to this as finding small words in big ones. Similarly, if we can see "microscope" as comprised of 2 known units (micro scope) it takes less effort to process. It follows that both phonics and structural analysis should be in the reader's toolkit. And attention to prefixes, suffixes, word roots are important to show parts of words.

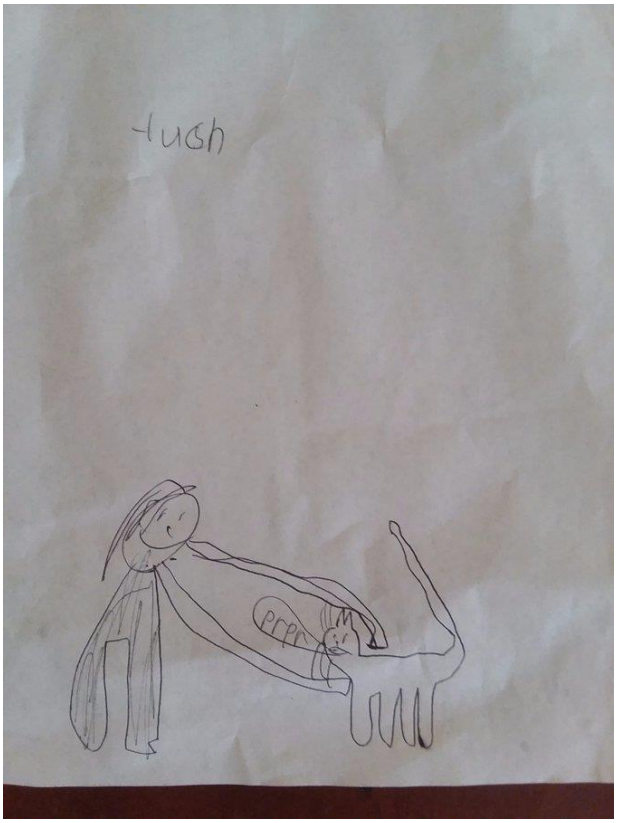
This explicit decoding of unfamiliar words, whether it be a phonic approach or a structural approach, pushes the reader into system 2 thinking. It is effortful, with no guarantee of success, and if frequent enough can derail comprehension. And if children are expected to read material that requires a lot of this work, they can come to dislike reading and resort to "fake reading."

7. How Early Writing Teaches Decoding

"Sold a Story" briefly describes a 1980-1982 research project Lucy Calkins participated in that was formative in the development of the writing and later reading workshop method—The Atkinson Study. But she fails to acknowledge the contribution it made to reading instruction, specifically the learning of sound-symbol connections. In fact, Calkins, in her late 20s at the time, served as a research assistant to Donald Graves a leader in writing instruction—and the

workshop method is an adaptation, for elementary students, of what was called "writing process" teaching. The leading proponent was a mentor and friend of both Calkins and Graves (and me), Donald Murray, author of A Writer Teaches Writing (1968).

There was a major hurdle to bringing this workshop model into the primary grades. A big preconception stood in the way: that students couldn't write until they could accurately spell all the words they wanted to use—which profoundly limited what they could write. Often anything beyond copying—any real composing—was postponed until the later elementary years, if it existed at all. One other alternative that was sometimes used at the time was a Language Experience approach, where the class might dictate a story that was then transcribed by the teacher—or when students might compose a short piece of writing from correctly spelled words that might be available on a blackboard or easel chart. But here again the child was restricted to the available correctly spelled words.

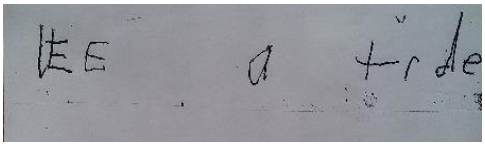


At about this time, in the early 1970s, educators were exploring the early development of writing where children explored and learned the conventions of print—often long before they entered school. This field was called emergent literacy, and again Marie Clay was a pioneer. In a brilliant book, What Did I Write?: Beginning Writing Behavior (1975) she explores they ways young children begin to understand print through their writing. For example, a 3-year-old might be scribble writing—a sequence of marks, something that might not appear to be writing at. But---the child might be making those marks on a line from left to right, demonstrating what Clay called the "directional principle."

No development in Clay's work was more dramatic than children's explorations of sound-symbol correspondences, yes phonics. Children used their phonic knowledge to write in what was then called "invented spelling" or "transitional spelling." We can see an example on this page: a six-year-old accompanying the

drawing with the single word, "touch." What's interesting about her spelling is she seems to use two versions of the final blend, "ch"—she has "sh" overwritten by "ch" (or possibly the reverse). Both make sense phonetically. Note also the cat purring.

Young children also experiment with how to separate words and syllables. It was not uncommon for children to write in columns or to put a dot between words (a technique actually used in ancient Greek, Hebrew, Phoenician or Ugaritic inscriptions). Children could also experiment with using spaces to separate syllables, similar to pronunciation guides in the dictionary. We can see this rendering at work in a six-year-old's attempt at "leotard."



A number of researchers (including Charles Read, Carol Chomsky, Glenda Bissex, Elizabeth Sulzby, Emilia Ferreiro and Ana Teberosky) began documenting this phenomenon of invented spelling and the developmental route to conventional spelling, but the Atkinson Study was one of the first where invented spelling was part of the writing curriculum. I was a colleague of Graves at the time and visited Mary Ellen Giacobbe's first grade—and it felt like a phonics factory as kids sounded out the words they were writing. The research team recorded some of these attempts, and in one video a child made 23 attempts to sound out the beginning of the word he wanted to write. The mantra was "If you can hear it you can write it" and virtually any word in their vocabulary could be attempted. For example, a 7-year- old wrote a thank letter to a robotics team that came to his school. He wrote that he learned a lot about:

Marie Clay On Invented Spelling:

What does this achieve? It forces children to carry out a splendid sound analysis of words they want to write—a first to last segmenting of the sounds in the word. They pay attention to the sounds of words and search for a visual way of representing these. (1979, 66)

ROWE BODIX PARTS

Often the "invented" version was published as a small book, with conventional spelling, which became part of the classroom library. This innovation opened the door for children to be authors—and it powerfully reinforced the phonics knowledge they knew and gave them an additional incentive to hear and learn letter sounds.

8. Reading and Poverty—Cause and Effect

Even if we might object to the way "Sold a Story" uses the NAEP's "proficient" designation, Hanford is absolutely correct to note racial disparities in reading achievement, results that coincide with socio-economic disadvantage. As I've noted the PISA assessment explored effects of socioeconomic status in a number of countries including the United States—and found that it had a significant effect across the board. But there was a bigger effect in the US that in other countries with comparable scores such as Finland and Japan. Your zip code matters.

Let's take an example from my own state, a comparison of two communities, Claremont and Hanover NH, both about the same size, located 30 miles apart on the scenic Connecticut River. If you took aerial photos of both towns they would look similar. But the differences are dramatic. Take a look:

Claremont, NH compared to **Hanover, NH**
• *26%* **79%** of 11th graders are proficient or above in math and 40% **90%** in reading
• *78%* **96%** of students graduate
• *39%* **91%** of AP test takers score a 3 or above
• Teachers make an average of *$49,823* **$78,930**
• Median household income is *$46,141* **$136,992**
(NH Fair Funding Project)

This reliance on property taxes has a brutal effect on the education of students. Where would Claremont get the funds to pay for tutors if they wanted to institute a three-tier support system? Will teachers there need a second job to supplement that income, limiting out-of-school planning? Would it be even able to hire and retain a reading specialist (in short supply in NH)? Would teachers stay, given the salary? Would administrators? Spoiler alert, they don't.

In his book Poverty by America, Matthew Desmond makes the point that more affluent segments of our society not only tolerate poverty—they benefit from it. That's the case in NH. I have served as a school board member in a district similar to Hanover. We have a very stable teaching faculty, and when a teacher does retire, we have no difficulty bringing in a promising young replacement from the poorer

districts like Claremont. This practice creates churn and instability in these schools, but it is great for us.

In my experience, money cannot always buy excellence, but it can buy stability and consistency. I once heard a wise teacher say that we imagine children as free spirits, sometimes resistant and rebellious—but they are in fact extreme conservatives. They thrive on steadiness, predictability, and reliable emotional support—and they don't do well when these are missing. That's what you "buy" when you move into a district like the one I live in. Marie Clay puts it this way: "One of the necessary conditions for learning for the young child is a predictable environment in which he can recognize consistency and regularity." (1979, 210). Anything which "destroys the continuity of people and procedures in the strange world of school" does harm to student.

I recently had two conversations that brought home this issue. One was with the principal of a charter in low income area who had close to a dozen unfilled positions—in June! The other, also with a principal in a low income school had to postpone work on her dissertation because had two teachers resign in mid-year and she was covering for one of them. These kinds of disruptions, this chaos, while not unheard of in more affluent areas, are very rare.

Here is how this disadvantage often plays out for the struggling reader. In her book, Reading Lives: Working Class Children and Literacy Learning (2002), Deborah Hicks offers us a portrait of Laurie, a primary age child who grew up in a loving but financially strapped home in the rural Southeast. Kindergarten was fairly successful for Laurie—she seemed confident are was developing the emergent reading skills that might be expected. She loved writing. But the shift to first grade was disabling: she had trouble attending to the whole-class lessons (a big shift from kindergarten):in a writing session she copied the story of a more proficient classmate and cried when caught: and was overmatched by the reading selections she was expected to read. Phonics instruction and phonemic awareness were part of the reading program—but it was not the solution for her.

Hicks summarizes the crux of the problem this way:

> Laurie was unable in first grade to build on her strengths from kindergarten. Though she had made impressive gains in areas such as alphabetic knowledge and invented spelling/writing and reading highly predictable texts, Laurie needed time to solidify her fluency and confidence as an emergent reader and writer. In first grade, however, she participated in a

> literacy curriculum that emphasized a linear path of development reflective of the school's grade-level expectations. (2002, 71)

The school lacked resources to help her—the district couldn't afford Reading Recovery, and the limited tutorial help was used up on more extreme cases. No effort was made to adjust the reading selections to more workable levels, or to capitalize on some of Laurie's interests in fantasy writing. The fact that Laurie was a "good girl," not overtly disruptive, also worked to mask her difficulty. Her family, overwhelmed by their own economic challenges, was in no position to advocate for her.

This is a pattern Pam Mueller saw again and again in her interviews with "lifers," students who never managed to become readers and persisted in remedial programs their entire school careers. Here is Kayla, a lifer, reflecting on her journey:

> Before first grade I sort of liked reading. I had a stack of books when I was little. I loved to look at the pictures. My mom would sit down and read the stories to me. She helped me learn little words. In preschool and kindergarten, I was doing great. They gave me words with two letters in them and I knew them. It was really easy until I got to first grade. Then in first grade something happened. They gave harder words and I couldn't do them. I didn't do a very good job in reading. School just kept going and I went along with it. It got worse and worse. (2001, 20)

There was no intervention to stop the slide, no adjustment or diagnosis. The train leaves the station and some children are not on it. And in most of the cases Mueller cites, there was a significant emphasis on phonics!

9. Misrepresentation of Marie Clay

No part of "Sold a Story" is more central than the depiction of Marie Clay's work—and none is so inaccurate. Specifically, Hanford and others challenge the multiple strategies that Clay argues struggling readers need to employ. Clay supports the strategic use of :

- Letter-sound analysis
- Syllabication and clusters (obvious in the invented spelling cited already)
- Little words in big words
- Visual analysis by analogy (if you know "boat" you can analogize to "coat")
- Syntactic (sentence structure) and semantic (meaning) context

She writes that "Pupils must acquire a variety of approaches and develop flexibility in dealing with new words…." (1979, 261).

Here is the gist of Hanford's critique:

The problem with this approach, according to "Sold a Story" is that it does not assign exclusive priority to the first cuing system—sounding out-- which she claims is more exact. The other cuing approaches allow imprecision, even guessing. According to "Sold a Story" this range of cues (with the exception of the first) encourages approximation and guessing, even sampling of text and not attending to full words. However, studies of proficient readers illuminate a process that does not match this approach. When skilled readers read, they are not guessing. Reading is not a puzzle. In fact, Clay is portrayed as teaching that skilled reading is sort of a detective game—"look at some of the letters and make a good guess." In effect children are taught to read like struggling adult readers. Thus—Clay's approach to cuing is debunked by science.

I hope this is a fair summary of the criticism made in "Sold a Story".

Is this Science? Unfortunately, Marie Clay is no longer alive and able to respond to this depiction of her work. What follows is a deeply imperfect substitute. A response might start with her challenging the use of "science" in "Sold a Story". *How is it scientific to ignore the extraordinary and well-established variation in reading difficulties children experience? How is it scientific to assume that one method—sounding out—is the key factor for all children?* Perhaps her greatest contribution to reading education is the precise diagnostic tools and frames she gives, especially the running record. A child's difficulty could be caused by not knowing letter-sound connections—but it could be difficulty with directionality, or reading words as units and not part of sentences, or failing to self-correct when a mistake is made, or a comprehension issue. It's a long list. Phonics instruction may be a solution—or it might be part of the problem. According Clay the effective teacher knows what to look for, knows how to be precise about the difficulty children are experiencing—and can devise strategies for helping the child. This, she would say, is being scientific.

Hanford seems to argue that one strategy and one alone—phonics—is the key to reading success. Clay would argue that the successful young reader has a number of tools or strategies that become mutually facilitating—and that it is the characteristic of the struggling reader to focus only on one approach. (Clay, 1979, 250) In fact, successful readers seem to find their way to multiple strategies even

when that is not part of the instruction—that is, even in "whole word" approach, such as the iconic "Dick, Jane and Sally" Scott Foresman readers that I was taught on, I suspect we saw the word Spot (the name of the irritating small dog) so many times that we inferred the sound of the sp blend.

Accuracy. According to Hanford, Clay is accepting of approximation and guessing—leading to serious comprehension problems; a reader who reads "invite" or "invade," in a description of Germany's attack of Poland, is deviating from the message in a major way. But any fair reading of Clay would demonstrate that accuracy is a major expectation. One of her major contributions is the "running record" which notes any error. If a child had made the invite/invade substitution, it would be noted as error, and if this was a pattern—not attending to the full word—instruction would be planned around it.

When it comes to picture cues, Clay is clear that while a picture can be a general help (and she did use caption books in her teaching), reading is about accurately processing print. She describes one young boy who could "read a book" with only the pictures, with the words covered. The child even boasted that he could read the book with it closed (i.e. from memory). Her comment:

> His confusion had gone undetected and no-one had taught him that a picture is only a rough guide to a precise message, and that to read means to discover the precise massages in print. (1979, 76)

In an essay on the Clay's influence on reading education, New Zealand educator Stuart McNaughton comments that the running records she promoted were particularly important in assessing "accuracy, fluency, and comprehension." (emphasis added, 2014, 115) And accuracy is enhanced—not diminished—when multiple tools, multiple resources, can be employed; when, for example, a reader can cross-check the reading of a word by asking if it made sense, sounded like language, or if it matched the letter sounds in the word.

Proficient Reading. If we get to the crux of the "debunking" of Clay, is comes down to this statement in which Hanford compares Clay's methods to the difficulties of Dan, an adult, who was never learned to read as a child, and during his service in Vietnam, was ashamed of his inability to write a letter for a dying fellow soldier—but who later learned to read through a phonics method. It's an affecting story:

> For Dan, reading used to be like a detective game. Most words were puzzles and he was searching for clues. He had strategies. Look at some letters, make a good guess. That's how Marie Clay described skilled reading. But it's not how skilled reading works.

It's a stretch to connect Dan's difficulties to Marie Clay—the dates just don't line up. He would have been in elementary school in early 1960s at the latest, before Clay had even done her work. We really don't know what in his reading education didn't click.

But Hanford is surely right that if reading is a set of puzzles and uncertainties—it can't lead to fluent reading. Too much of our mental work will be used up in solving (or not solving) those puzzles, instead of comprehending and evaluating what we read—sometimes called higher order thinking. Her position resembles that of William James writing about habit:

> The more the details of our daily we can hand over to the effortless custodian of automatism, the more our higher powers of mind will be set free for their own proper work. There is no more miserable human being than one in whom nothing is habitual but indecision….(1958, 58)

As Hanford states, once the identification of words is automatic, "You're not using your brain power to identify the words. You're using your brain power to understand what you read." We can make a crude test of this by removing vowels from sentences. Let's take a sentence from the quote above from Hanford:

> For Dan, r_ading us_d to b_ a d_t_ct_v_ gam_.

Suddenly we are on Wheel of Fortune, needing to buy an "e" from Vanna White. But with a bit of effort we can read it. The problem is that effort spent decoding is effort subtracted from thinking about the message, exactly as Hanford (and James) argue. No reading teacher, no parent, no reasonable person would say that skilled reading should be a detective game, "look at the letters, make a good guess."

And neither would Clay. It is a misrepresentation of her work. And because Hanford's argument hinges on Marie Clay—the author of the "idea" that, according to "Sold a Story", has so undermined reading instruction in the English speaking world—it's important to explore this misrepresentation.

According to Clay, the skilled reader processes words "accurately and quickly." She writes:

> For example, you had no difficulty in perceiving the words in this and the preceding paragraph. You did not stop to study the form of separate words. You did not analyze words by consciously noting root words, prefixes, suffixes or by "sounding them out" syllable by syllable. It is highly unlikely you consulted a dictionary for the pronunciation or the meaning of any word. Why not? Every word was familiar. You have used each one yourself in writing, and have seen it in print thousands of times. (1979, 8)

In other words, fluent reading as Clay understands it, is hardly a puzzle where we are spending energy making guesses. In sum, then, the science Hanford cites debunks a "reading as guessing" approach to skilled reading.

But inconveniently that is not Clay's position.

Clay and Hanford actually agree that the goal of reading instruction is to make word recognition effortless and automatic—in James' words to hand it over to "the effortless custodian of automatism." But they differ in strategies. The five-year-old, who may enter kindergarten with only one sight word, her name, is confronted with the task of learning to read the words of an entire language. Unlike the skilled reader the emergent learner is constantly confronting words she doesn't know—and needs supports, what Clay calls props or what are commonly called scaffolds. An obvious example is pointing—the emergent reader may be encouraged to point to words to focus her attention, but as she progresses she becomes more able to focus without the prompt of pointing.

Clay argues for the flexible use of multiple tools, often in conjunction. Like Tolstoy she sees all teaching approaches (whole word, phonics, balanced literacy, language experience) as "one-sided" and if learned exclusively they may disempower the young reader. Letter-sound correspondence, and learning the more stable letter combinations are part of what the reader needs—and this "word work" is part of the Reading Recovery approach, based on Clay's work. For example, Clay recommends a technique first described by Carol Chomsky where the names of students in a class (i.e. words children are naturally interested in and want to use in their writing) are used to learn sound-symbol correspondence.

By contrast, Hanford assigns exclusive priority to "sounding out" as a prompting strategy—and claims that any other approach would only reward imprecision and

guessing. Of all the strategies Clay endorses, clearly the use of semantic and syntax would be the most suspect; in anticipating a word based on the structure of the sentence, or the expected meaning, the reader would be, for Hanford, guessing. And she would be right if these were the only tools being used, without analytic ones to check predictions. But this anticipation and prediction persists into skilled reading—as I painfully realized when I created an audiobook.

I had to read aloud a 50,000-word book, my own, with 100% accuracy; someone checked me along the way. This should be no problem, right? I was reading my own words. But it was extraordinarily difficult, as I was regularly anticipating and substituting a word that fit the context for what I actually wrote. Often the word I substituted was better, and I wished I had used it in the first place. I was coached to adjust this normal pattern of reading, with its imprecisions, for a slower pace where I didn't look ahead and focused on the words I was reading. It's misleading to say I was "guessing"—but I was predicting based on meaning and sentence structure. In normal reading we frequently are willing to sacrifice some exactness for reading speed—which makes proofreading so difficult for many of us.

In the end, Clay wants emerging readers to have a Plan B and a Plan C, to be flexible and opportunistic. "Sounding out" is one tool, but it runs up against the irregularity of the English language and will often derail. It is a necessary but not sufficient tool—and if it is the only one taught, the child is deprived of strategic power. (see also Johnston and Scanlon (2021, 115)

Robert Tierney and P. David Pearson come to this very conclusion. They reject claims that "Three Cuing System"[3] has been shown to be ineffective, even harmful for young readers (a central tenet of SOR). There is more support for providing young readers with a "full tool box" of word solving strategies. Even the widely cited Report of the National Reading Panel, which views phonics as a research-validated practice (particularly with struggling readers), has this caution: "Phonics should not become the dominant component in a reading program, neither in the amount of time devoted to it nor in the significance attached." (2000, 136) I suspect Clay would agree.

[3] There is some variability in what these three cues are. Tierney and Pearson view them as semantic, syntactic, and orthographic. But more popularly they are often viewed using pictures, meaning, and orthography (i.e. phonics). Ellin Keene has argued in To Understand: New Horizons in Reading Comprehension (2008) that this list should be expanded to include discourse-level cuing systems like the use of schema. For example, if we are read fairy tales our prior knowledge of how that genre works is in play when we read.

If the "debunking" of Marie Clay is the central hinge of the "Sold a Story" argument, it is a broken hinge.

10. Motivation to Read

One clear limitation of the research base underpinning the Science of Reading, as it is presented to teachers, is its failure to factor in student interest and motivation (Duke and Cartwright, 2021, Parsons and Erickson, 2024). There is research on that as well, summarized in the authoritative compendium How People Learn: Brain, Mind, Experience and School, issued by the National Academy Press:

> Learners of all ages are more motivated when they see the usefulness of what they are learning and when they can use that information to do something that has an impact on others—especially their local community. (2000, 61)

Reading, as imagined by SOR advocates, often seems a technical proficiency created by teaching methods that the child (and, of course, the teacher) is fully compliant in employing. Yet what reason do we have to believe that children-- in this age of distraction-- will be interested (or even attentive) in the long periods of direct whole-class instruction required in some phonics programs, especially when many have mastered what is being taught?

And here we get to one of the central objection made to the SOR—the narrow definition of reading itself. More specifically the problem is that reading is seen as an individual cognitive neural act, in the head, removed from any cultural or social context. Tierney and Pearson claim that proponents " largely ignore the extent to which reading in about making sense of one's world and the world of others…." (2024, 103) They bluntly criticize this narrowness:

> …any research-based description of reading processes and reading development that does not account for social, cultural, historical, and other contextual elements of reading cannot and should not claim to call itself "a science of reading." (2024, 104)

The narrowness also allows proponents of SOR to attribute the pernicious social inequities in reading performance to a particular instructional problem, the lack on phonics instruction, ignoring issues of resources, racial and economic resegregation, as well as considerations of cultural and personal relevance (i.e.

whether young readers see themselves and their lives represented in what they read).

If we think about it, there is an embedded argument in the very term, the metaphor "foundational" as used to describe the "basics" of early reading. The foundation is built first, and it is unseen with none of the attractive visual features of the above-ground building, no color, no texture to the building surface. That comes later. To analogize to reading, the argument seems to be that the basic decoding skills come before the opportunity to read for pleasure or meaning or information. They enable this reading—later. That is the above ground part of the building.

But most reading educators I know, and parents as well, see engagement and love of reading as just as foundational—and that it should be continuous, starting with early experiences being read to. It is the engine that drives growth. Explicit instruction should not replace or displace—or postpone—the practice of independent reading of favorite authors, even if that reading is something as simple as reading a caption in a picture book. I am aware that proponents of SOR would reject the claim that they don't support extensive reading. But time is limited in schools—as one teacher put it, "time is our currency and we are very poor." In my own state there is legislation, similar to that enacted in other states, being proposed that would require:

> All school districts that provide elementary education shall provide measurable, evidence-based instruction in literacy for all students through grade 5, including: explicit, systematic instruction in phonemic awareness, phonics (both decoding and encoding of sounds and words), fluency, vocabulary and comprehension; (NHHB 1015, 2024)

Not only is self-chosen reading missing from this list, but with all the time spent of explicit instruction in so many areas, usually in a whole-class format, it is unlikely that there would be time for much actual reading.

Extensive voluminous self-chosen reading has long been conclusively associated with reading proficiency (Cullinan, 2000). It's hard to imagine it wouldn't be. To become skilled readers, we need multiple--hundreds, thousands—of encounters with individual written words. It recalls the story of the NY city tourist walking along 56th Street who spots a woman who looks like a resident in the area, and asks, "How do you get to Carnegie Hall." Her answer: "Practice."

11. Science and Being Scientific

I recently came across a comment from a parent, I've lost the source, but the gist was: even though the SOR reading programs restricted teacher decision-making, they were firmly based on science. And according to the parent, that was a good trade off. Publishers are lining up with scripted, paced, structured, explicit programs that are advertised as based on the science of reading. There is a paradox here: "science" is viewed as a set of established truths that teachers implement, without being scientific themselves. That is, without the expectation that they monitor the results of their own teaching, and adjust that teaching based on what they see. In these systems they are not acting, or allowed to act, with the agency Tolstoy advocated: "the best method would be the one which would answer best to the difficulties incurred by the pupil, that is not a method but an art and talent."

The problem here is that science is viewed as coercive, and producing results so certain, so conclusive that the only ethical position for practitioners is to accept and implement these truths. The issue, we are told, has been settled, the question of best practice answered. Yet the very nature of science is to be unsettled, to restlessly challenge received wisdom, and to constantly test out conventional wisdom in the cauldron of our own experience and professional work.

In a powerful review essay I quoted earlier, David Reinking, George G. Hruby, and Victoria J. Risko object to the dogmatic ways in which reading research is being used. They write:

> Science, used this way, is not a means of inquiry toward better understanding or to obtain better results, but something that requires uncritical deference and genuflection. It suggests that the aim of science is to reach a state where no further understanding is possible, where no more questions need to be asked, where no more evidence needs to be considered, where no other perspectives or interpretations can be reasonably offered, and where anyone who thinks otherwise is a misguided, if not a heretical denier of immutable truth. Such perspectives are not science, especially in matters of teaching and learning, which are always embedded in an incredibly complex social system that entails cultural norms, values, and beliefs, including issues of equity and justice. (123, 2023)

There is few more "complex social systems" than the classroom. I tried to capture this complexity in the opening to an essay I wrote a few years ago:

> In Lorrie Moore's short story, "Real Estate," the main character reflects on marriage: "Marriage, she felt, was a fine arrangement generally, except one never got it generally. One got it very, very specifically."
>
> The same holds for teaching; whatever theories and research base we have as we enter a classroom, we are very quickly overrun with the particularities of the work—with the personalities of students, the established curriculum, the dynamics of friendship groups, the school schedule, the specials, interruptions, ones relationship to the principal and other authorities, the space and environment of the classroom ("can anyone adjust the damn heat?"). Not to mention the personal baggage we bring in—our passions, personality, hesitancies, the sense of our own teaching style and limitations. In this welter of interacting "variables," if we can even use that term, it is easy to feel that research and theory are purified, rarified, remote and unresponsive to the realities of teaching—which we all experience "very, very specifically." (215, 211)

In practice, a teacher, or architect, or physician is often confronted with a "mess," a situation with so many interacting variables, so many complicating problems that there can be no predetermined path forward. A patient has diabetes, for which there may be a standard treatment—but she also has high blood pressure and suffers from depression. There are treatments for these, too, but how do they interact—or does one take priority? Add to these factors, the way patients differ in their attitude toward taking medication itself, some who would comply with a complex regime of pill-taking, some who would balk at it.

In other words teachers deal with what Richard Ackoff, one of the founders of operations research, calls "messes." He writes: " managers are not confronted with problems that are independent of each other but with dynamic situations that consist of changing problems that interact. I call these situations, *messes*. " (in Schon 16) In classrooms, a reading problem might be complicated (or caused) by a self-image problem (overweight) exacerbated by social isolation in the classroom—leading to the student acting out inappropriately for attention. And each situation is subtly, or not so subtly, different from other messes the teacher has dealt with. We can't just repeat what we have done before

This is the bad news, but it is also the good news. Teaching is situational and unpredictable; the approach that works with one child fails with another, and no program, research-based or not, can anticipate and eliminate these failures. We get knocked down and we have to pick ourselves up. What we do have working for us—at least potentially—is our evolving skills at observation and reflection. As Donald Schon describes in The Reflective Practitioner, the situation (whatever task we are attempting) "talks back" to us, and pushes us to adjust what we are doing. And this "conversation" goes back and forth. And it is precisely this recursive process of action and reflection that characterizes the work of Marie Clay.

If we strip away this professional agency, if we assume that reading is just too complex to allow much room for teacher judgment, if we put our faith in prescriptive programs, invariably advertised as "evidence-based," we deny the basic scientific fact of human difference—and we foreclose the deep professional gratification of working our way through the messes that teaching throws our way. At a time of teacher shortages, what is the opportunity cost of deprofessionalizing teaching in this way?

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As my word count is nearing 10,000, I have the sinking feeling that I may be talking to an empty room. So in closing let me acknowledge that this response lacks the powerful narrative thread of "Sold a Story"; it lacks the pathos, the heart-touching stories. It lacks the villains, and the single-solution to the reading problems in this country. It is always a let-down to hear "it's more complicate than that" or "it depends" or "there are more ways to look at this." The single story is powerful.

H. L. Mencken reportedly commented that "for every problem there is a solution that is simple, neat—and wrong." We naturally prefer a story is which right and wrong, good and bad, are neatly confronting each other. We long for the single cause. But not all children learn the same way, and children have learned to read in diverse countries, diverse eras, with diverse approaches. Science can identify trends and "effect sizes," but it cannot dictate the right action in any situation. That takes teacher judgment. It can't be legislated.

It's messy that way—and human.

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