Memories—*or Not*—of Learning to Read

Based on e-mail exchanges in 2011 between Christopher Kaufman, Ph.D.,
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"I don't know *how*. I just learned to read. I picked it up naturally. Doesn't everyone?"

"My parents read to me every night. I was surrounded by good books. That's how I learned."

Do you remember *how* you learned to read? Most people don't. Perhaps as we believe our children did, we think we learned to read as naturally as we learned to speak. Or we learned by listening to parents read to us, by attending library story hours, manipulating magnetic letters on the refrigerator, or singing the alphabet song. These activities certainly are very important to the process of learning to read, but they are not sufficient…just ask anyone who struggled to learn to read.

Why don't we accurately remember how we learned to read? What part does memory play in our recollection of learning to read? Why are these questions even important?

Let's begin with memory. Consider two basic memory processes. The first is *declarative memory*, memory for facts and events. These explicit memories can be accessed and verbalized (described), thus 'declared.' For example, you can likely recall the happiest day of your life in great detail or the specific dates of important historical events.

The second process is *procedural* or *implicit memory*, which is memory for skills and other cognitive operations that generally cannot be represented or declared. These memories are more nonverbal, or automatic, in nature. These would include such skills as riding a bike, tying one's shoes, and even decoding letters (if a fluent reader).

The longer a process or skill has been mastered to the point of true automaticity, the more it is accessed from *procedural* memory, *not* declarative memory. Thus, it is more difficult to bring back into consciousness the declarative elements of a now-fluent skill lodged in procedural memory.

Further, memory research by F.C. Bartlett in 1932 demonstrated that children and adults *construct* memories, often inaccurately. Personal interpretation and prior knowledge impact this process of memory construction. In his 2015 book titled *The Brain: The Story of You*, Dr. David Eagleman confirmed that not all the details we recall from memory are accurate. Our memory is fallible.

Consider learning to read. Reading begins heavily *declarative* for children who receive good early reading instruction as they learn to manipulate the sounds in spoken language (phonemic awareness) and begin to understand the relationship between the written letter (orthography) and sound (phonology). Once greater levels of reading fluency are obtained, however, reading becomes increasingly *procedural*, or automatic. Remember, the longer a process has been mastered to the point of true automaticity or fluency, the more difficult it is to verbalize, or declare, the specific steps of acquiring the particular skill.

Skills accessed primarily from *procedural* memory *can* be task-analyzed into at least some discrete declarative elements if one thinks about them. For example, try to recall how to tie your shoelaces, an automatic skill. "Take the ends of the shoelace and make an X…" In

reading, however, it is highly unlikely that individuals who are experienced fluent readers will ever access those discrete declarative elements of reading. In most cases, there is no need to resurrect these particular how-to memories. They are irrelevant if the individual is a fluent reader with good comprehension. That is the reason that many adults cannot accurately recall or analyze the specifics of learning to read. Consequently, such adults are likely to assume that learning to read is a natural skill and that children will pick up the requisite skills 'naturally.'

Reading, however, is not a process one learns naturally. Our brains are not hard-wired to learn to read, as they are to speak. Reading is, in fact, a cultural invention of about 5,000 years and has only been used by the general populace for a few hundreds of years. We have not been reading long enough for this skill to be hardwired. In order to become literate, the brain must rewire in order read. It must, in fact, change elements of its neurocircuitry over the course of the first ten years of life. We can do this, but for many children this does not occur without great effort.

> Research shows that about 40% of children learn to read fairly easily with any instructional approach. For another 30-40% of children, learning to read requires more effort. For the remaining 20-30%, reading may be one of the most difficult tasks they will have to master in their school years.
>
> G. Reid Lyon, Ph.D.

This at-risk group—up to 60%--reaches across race, socioeconomic status, and family background. Children of poverty, English language learners, children with language-based learning disabilities are among this at-risk group, which also includes middle-class children from language-rich homes. We have the knowledge to teach all but 2-5% of children to read. Do we have the will?

We must first acknowledge that our notions about learning to read are, ironically, clouded by our own fluency in reading. Our declarative memories have been displaced by our procedural memories. Further, our constructed memories are frequently inaccurate. We cannot rely on our memories of how we learned to read and, by extension, how others learn to read. It is imperative, therefore, that we understand and use current evidence-based findings from neuroscience about how we learn to read to inform the teaching of reading.

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