How the Brain Learns to Read

In humans, speaking comes easily. Reading, however, does not. Our brains evolved over tens of thousands of years to allow us to process spoken language. But we've been reading for only a few thousand years. We have to teach our brains to read.

One of the key differences between humans and other animals is our ability to speak. Other animals communicate in many ways, but when it comes to communicating complex information, humans rule! Even though it comes easily, learning how to speak is really a complex process. But our brains are designed to handle the job. Reading builds on oral language skills, but it's a far more difficult task.

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How We Learn to Read

First We Learn to Speak

There are about 6,500 spoken languages in the world today. Without any specific training, nearly every human can learn any of these languages without trying. You just have to hear the language from when you are born. By the time you're three, you'll know from 500 to 1,000 words. By the time you're an adult, you'll know around 10,000 words, no matter what language you are born into.

Where do children pick up all these words? Toddlers acquire most of their language from their parents. The more a child is talked to, the more vocabulary it acquires. Oral language skills improve rapidly until around age ten or twelve. A person can still expand their vocabulary or learn another language as they get older, but it gets harder.

Interestingly, the brains of boys and girls are different when it comes to learning language. The male brain processes language in the left side of the brain only. Most female brains learn language using both sides of the brain. In addition, the information pathway that connects the two sides of the brain seems to be more efficient in girls. This same structure is used when learning reading. This might explain why girls tend to speak earlier than boys. It may also explain why boys often have more difficulty than girls in learning to read.

Here's another curious fact about the brain. Recent studies suggest that the brain stores the meaning of words in two separate places. Words that relate to clear mental images, such as "dog," are stored in one place. Abstract words that don't create an image, such as "hope," are stored in another place. Researchers suggest that it is easier to learn abstract words if they are somehow tied to related images. For instance, the word "justice" might be presented with a picture of a judge.

Then We Learn to Read

Unlike learning to speak, which comes naturally, learning to read is hard work. Research suggests that for around 50% of children, learning to read is relatively easy. The other half have a more difficult time. And about half of these face a very significant challenge.

Many people never learn to read well. A significant number of adults are functionally illiterate. They cannot read well enough to do ordinary tasks, such as reading a newspaper or completing a job application.

Figuring out how to help children and adults to read better is an important national goal. However, educators do not agree on the best way to do this. The argument about how to teach reading has been going on for over 100 years.

It comes down to this: Should teachers emphasize "phonics" instruction or what is called the "whole-language" approach?

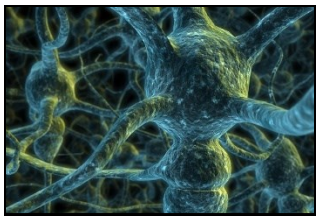
Phonics instruction begins by teaching students the names of letters (A, B, C, etc.) then simple syllables that make up words. (The word "water" is made up of two syllables: wa and ter.) In the phonics approach, bits of words are used to make whole words. Whole words make up phrases and phrases make up sentences, which make up paragraphs, etc. Teachers emphasize repeating the sounds, words, and phrases aloud. It's all quite logical. The problem is the approach doesn't work well with all children.

The ***whole-language approach*** emphasizes learning the whole word rather than starting with its parts. Advocates believe that this is similar to how oral language is learned. In addition, it's simply more fun to learn this way than with the repetitive drilling that is part of phonics learning. They say students are more engaged. Many educators today believe that a combination of these approaches is best.

Here's what brain science has to say about learning a new skill.

- ***Practice is essential.*** In order for the brain to build new neural pathways (connections between neurons that remember things), it must be repeatedly exposed to the new information.
- ***Focus must be intense.*** Learning a new skill requires concentration. This builds more neural connections.
- ***Learning requires high motivation.*** Students will not learn unless they are interested. If they care about the content and the teacher, students can overcome many learning barriers.

The More You Know, The More You Know



Our brain is where everything we know is stored. Information is stored in what is called a "neural network." These are millions of tiny cells that store and share information. In order for new information to be stored in the brain, it must attach to one or more of these cells. Here's the catch: In order for this information to attach, it must be related to prior information stored in the network. Quite literally, the more you already know, the more you can know. Everything you learn multiplies your brain's ability to learn and hold more information.

How the Brain Learns to Read | Key Terms

engaged	Involved in an activity.
motivation	The reason for doing something.
neural network	Millions of tiny cells that store information in the brain.
phonics instruction	A method for teaching beginning readers to read using letter sounds and syllables.
whole language instruction	A method for teaching beginning readers using whole words in sentences.

Discussion Points

1. Our brain is hard-wired to learn speech, but not reading. Why is this? Why is reading so difficult for some people?
2. There are two major approaches for teaching reading to beginners: phonics and whole language. How did you learn to read? Which do you think is more effective?