ARTICLE

The Magic of Thinking

by Ned Herrmann

Herrmann

Better Thinking. Better Performance. Better Results.

ABOUT THE AUTHOR

Ned Herrmann (1922-1999), who founded Herrmann International in 1981 and was the originator of Whole Brain® Thinking, first pioneered the study of the brain in the field of business while working as Manager of General Electric's Management Education.

In 1988 Ned published his widely acclaimed book, "The Creative Brain," tracing the scientific and historical roots of his innovative Whole Brain® Thinking approach. McGraw Hill published his next groundbreaker, "The Whole Brain Business Book," in 1995, creating a new benchmark in the application of thinking to business performance.

Ned viewed the Whole Brain® Model as metaphor for an organizing principle of how the brain works, and his pioneering work, research and spirit continue to drive the company more than three decades later.

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How in the world can a three-pound bowl of convoluted custard-like matter be capable of thinking?

The brain certainly doesn't look like anything that could be the source of ideas and feelings. Monitoring blood flow, breathing, fight or flight, and appetite, maybe, but thinking original thoughts? Is that possible? Other creatures have similar organs, some larger and some smaller, but they are unlikely to go beyond the basics and be able to perform what we call thinking. By thinking, I mean the ability of having feelings, developing ideas, creating unique thoughts, visualizing concepts, and solving complex problems and, of course, much, much more. Thinking turns out to be a uniquely human capability—a specialized brain function not available to other life forms.

I am not talking about training parrots to talk, teaching dogs tricks, or training circus animals to amaze us. I am also not talking about instinctive brain capabilities that are entirely genetic, like the songs of certain birds or whales or even some insects. I am talking about the human ability to think at the level needed to write a poem or create original music, even if it is confined entirely within an individual's head. I am talking about developing a complete concept that is visualized entirely within a person's brain—a fully developed idea. We all have ideas! For example, one of my favorite ideas is to create a family medallion, 500 of which are cast and put in a perpetual trust to be presented to each child of future generations when they reach the age of 13, including the family genealogy up to that point in time, along with a message from the founding parents. This is an idea that could keep a family's history alive for up to 1,000 years! How delicious! How amazing! There are many well-known examples of ideas from history that have lasted many years—for instance, the Declaration of Independence, the Constitution, the Gettysburg Address, or President Kennedy's inaugural speech.... "ask what you can do for your country..." The major difference between ideas is how good they are, and how long they will last.

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This "squishy stuff" that we call a brain is amazingly able to develop profound ideas like these examples. It resides in the bowl-like skull, and is so soft and fragile that it can be displaced within the skull by violent, twisting, motions possibly causing brain damage and even death. Autopsies reveal that a very high percentage of human brains exhibit multiple scars on the surface of the cortex due to the frequency and wide variety of accidents occurring during life. It is a wonder that our brains survive this trauma and can still think—even everyday thoughts, much less great ideas.

Consider a child's rubber ball that is filled with air. If you cut it open, you would find that it has a surface that is quite thin. This surface is similar to the cortex of the brain, which is where all the thinking takes place. This thin convoluted surface is where the neurons are located that engage in synaptic events that are ultimately the source of our feelings, ideas and thoughts. While the total cortex of the average brain contains as many as 10 billion neurons, there are individual neurons that cluster together to form neural circuits that are the basic elements of a person's thinking mechanisms. These neural circuits can generate an idea and can also transform that idea into a memory.

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When you examine the synaptic process more closely, it becomes extremely detailed and complex. It involves such things as the interaction of as many as 250,000 proteins, numerous neural transmitters such as choline and dopamine, and a multitude of ever changing electrical charges. The wonder of it is not that it can come up with great ideas, but that it works at all.

Take time out for a minute and think about what you are thinking about now. What you just read? An idea you just had? Whatever it was, it was something no other life form can do. Your ability to contemplate your own thoughts is nothing short of a human miracle.

The ability to think is what makes us human. It is our personal, everyday miracle.

Thinking is a precious characteristic that needs to be nurtured.

The magic of human thinking is almost (but not quite) matched by some animals, birds, and insects, even though they have only a fraction of the neurons that humans are so overly endowed with. For example, many species of birds can plant nuts and seeds for later retrieval and know exactly where they are. Apparently, a separate neural circuit is created for each stored seed and nut. It provides the location of a particular item with such precision that the bird goes directly to the place and finds their stored food. Similarly, squirrels store nuts and berries and seeds when food is abundant and then are able to go directly to the place of storage to retrieve them when they are hungry. Once again, neural circuits are created to provide exact location information. In the insect world, bees are known to locate nectar some distance from the hive and to, not only return to that place time and time again, but also to convey its location to other bees. Now the magic of this event comes close to human thinking because it involves intentional communication of a specific location to another member of the species. Even though bees have far fewer neurons than a bird or squirrel, they apparently have a sufficient number to create the needed neural circuits to communicate with each other and survive as a community.

Have you ever looked at a spider's web and marveled at its architecture, and wondered how such a tiny insect could create such a complex structure? Then contemplate the work of Frank Lloyd Wright and Philip Johnson, and other world class architects. Their work represents thinking at a complex level that can affect the lives of uncounted millions of people. This is an advanced form of applied thinking.

This "brain magic," for example, among birds and butterflies is further expanded when we add the dimension of time. For example, the swallows of Capistrano, California return not only to the exact place each year, but also on the same day. When they don't return, it's front page news! Monarch butterflies are known to migrate thousands of miles to the same communal sites and then return the following year to their birth site. The special magic here is that the life cycle of the monarch butterfly doesn't allow them to complete the entire journey as individual butterflies, but only as a species. The destinations of the end points of the migration are embedded in neural circuits in succeeding generations. That is, an individual butterfly might live long enough to make half the journey and then produce an heir that completes the journey for the full migratory cycle.

I find these instinctive events amazing but not nearly so magical as the miracle of human thinking. Not only can we get from one place to another, we can write a song or poem about it, draw a map, paint a picture of it, send an e-mail describing it, and even change our mind about it. While there are still some nomadic tribes that move with the seasons, they do so consciously and deliberately rather than genetically and instinctively. Unlike the migrating wildebeests that sometimes drown because the river is too wide and deep, the nomadic tribes of Africa are able to assess the situation, problem solve it and find a way around that part of the river. This thinking ability of the Masai tribesmen of East Africa allows them to survive while those animals around them are sometimes unable to think situationally and spontaneously and so they die.

Every healthy, normal human brain is able to think; what that human brain thinks about is up to each individual brain "owner."

We all have personal examples of different levels of thinking. From the mundane to the lofty, from simple to complex, from the uneducated and ignorant to the renaissance person and Nobel laureate, thinking, at some level, takes place. The primary differences are the quality and extent of that thinking. But even at its lowest most mundane levels, thinking is magic. It is a precious, exclusively human characteristic that needs to be nurtured, deserves to be taught, developed, and celebrated.

Each brain owner has the opportunity to better understand their thinking process and style, and through that understanding, be able to optimize their personal thinking capability—so as to achieve their personal best. The ability to think is what makes us human. It is our personal, everyday miracle. What we think about and how we apply those thoughts make us the unique humans we are.

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