

## **Fantastic Plastic Brain**

In the golden age of progressive spirituality, where every character on TV has an analytic therapist and wall street brokers practice Buddhism and meditation, how do we make peace with the unequivocal truth, the fact that the one organ that governs it all, the human brain, stands divided? Regardless of breakthrough research in neuroscience, it is impossible to ignore the fact that this most mysterious and complex organ is divided into two hemispheres. What does this really mean? How does this great divide affect our nature? Can people really be categorized as primarily left or right brained? And if so, what does this perspective do to the concept of free will, change and integration? Are we simply organic robots, predetermined by our biological apparatus? Can the brain be mapped and people's experiences predetermined? So far, the answer is no, we are miraculous ever changing adaptable beings that reflect the mystery and wonder of the universe we occupy.

It is impossible to understand the complexity of neurobiology in terms of left and right brain functions, which is perhaps why vast generalizations and misconceptions shroud this subject. It is true that the right hemisphere of the brain controls the left part of the body and vice versa. The original hemispheric lateralization was popularized in the 60's and 70's when Roger Sperry conducted split-brain surgeries on epileptic patients in the attempt to eliminate seizures. In these experiments it was discovered that, the two sides of the brain could be unaware of one another and even respond differently to the same stimuli. For example, when patients were processing visual information only using the right hemisphere, they were able to draw the object but not name it, while using the left brain, they were able to name the object, but not able to draw the image.

It does appear that in a very rudimentary sense, two hemispheres have their own domains. The right hemisphere is more actively involved in comprehending and processing context, understanding the bigger picture, processing visual and special information, as well as intuitive knowledge, imagination and fantasy, allowing us to understand metaphors and symbols. Left brain on the other hand, is mostly in charge of processing details, quantifying, sorting and organizing experiences, it is also where most of the language processing takes place and it is part of the brain that tackles processing reality based information in a logical and sequential manner.

Due to Sperry's discovery, the idea of hemispheric lateralization became popularized and widely misinterpreted by the media. Creative people were categorized as more right brained while left brained individuals understood to be more logical and scientifically minded. Women were pegged as right brained and men left brained. Yet if these dual categorizations were true, the fact that right-brained women are linguistically far superior to their left brained counterparts remains a conundrum. Equally confusing is the fact that men seem to be more adept in processing special and visual data, which is

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mostly operating in the right brain. As much as we try to simplify this organ in order to understand it, it continues to present itself as a riddle. Recent research indicates that there is an inherent difference in the way female and male brains process information, women appear to have more bilateral connections while men seem to process tasks in a more linear manner. This does not however imply that women and men can be categorized as left or right brained.

Most current understanding of the two hemispheres is that they are far more interconnected and reliant on one another than once thought. Language, which was once believed to be a left-brain function, is in fact processed on both sides. The left hemisphere is responsible for grammar and punctuation, while the right side is responsible for intonation. Without intonation language becomes incomprehensible to us. Visual and auditory information for example is processed in the occipital lobes in both hemispheres. It is the right brain that seems to help us make greater meaning of our experiences, while the left hemisphere handles the specifics of things. Lateral functions however are the very rudimentary and incomplete way of understanding the brain. In reality we use all of our brain at all times, and it is not only the hemispheres that divide brain functions but also four lobes that reside in each hemisphere. Bilateral connections in the brain allow for information integration, while we can function with a severed Corpus Callosum, we are definitely not able to process our experiences in an integrated and complete manner.

Studies in neurobiology show that the Brain has an extraordinary capacity to rewire itself throughout its life span. Patients with severe brain injuries are able to use the plasticity of their fantastic brains to create compensatory systems in either side of the hemispheres to allow for new neural connections. Gray matter can actually shrink or thicken and neural connections can be forged and refined or weakened and severed both laterally and bilaterally. Changes in the physical brain manifest as changes in our abilities. For example, each time we learn a new dance step, it reflects a change in our physical brains: new neural pathways that give instructions to our bodies on how to perform the step. Each time we forget someone's name, it also reflects brain change, a pathway that once connected to the memory has been degraded, or even severed.

Neuroplasticity means that the brain is a living changing and molding organ, which allows us to grow, learn connect change and transcend our original genetic and biological settings. Metaphysically speaking it contains in its very nature hope for change, it is the unknown that holds the promise of the better. We are not right brained or left brained, logical or artsy. We are just born with a set of depositions and approximately 100 billion neurons that have the capacity to wire and transmit information in an infinite number of ways. Neurons that transmit information in our brains are like actors

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performing on the stage, they have the ability to change roles and perform different plays. We are not predestined to play out the same story over and over. Our will has the ultimate power in defining who we are. In a sense our new understanding of the nature of this organ brings us closer to the concept of the divine, in that there is an infinite potential encoded in the very physical nature of our brains. A snapshot of a brain in a given window of time, does not adequately define its capacity or nature. Who we are is a mystery, because the will itself is a source of mystery. We need the executive functions of logical thinking in order to construct our concrete worlds, but we need to be able to see its context in order to understand it's purpose and thus escape the existential despair of meaninglessness that comes with predictability and over investment in left brain functions like logical categorizations, quantifiers and value judgments. The basic hemispheric lateralization simply indicates that two polarities can exist as one. It is a beautiful metaphor that transcends duality in all its form.

“The intuitive mind is a sacred gift and the rational mind is a faithful servant. We have created a society that honors the servant and has forgotten the gift.”

Albert Einstein