

## Left/Right brain: Debunked or demystified

### Introduction

Over the centuries, the architecture of the human brain has excited the imaginations of writers, artists and scientists alike. Early neuroscientists identified that the human brain is divided into two separate hemispheres, linked only by a bundle of connections (the corpus collosum). This led to the idea that the two sides of the brain act in isolation, each one responsible for different functions. Based on this false 'understanding', people started to believe that personality differences could be attributed to people using one side of the brain more than the other.

This has prevailed in popular culture, and it is not difficult to find online tests telling you whether you are 'left-brained' or 'right-brained'. While the division of all human functions between the two hemispheres might be neat, it is not supported by modern scientific research. The essential thing to understand here is that although the two hemispheres ARE specialised in their processing, the two sides of the brain **DO NOT** work in isolation!

## Every function requires *both sides* of the brain.

Take language, for example, which is often cited as a 'left-brain' function. While grammatical processing, and word recognition is done by the left hemisphere, the right hemisphere is responsible for processing the emotional elements of language, such as irony, sarcasm and metaphor. This is one example of a neural circuit which makes use of the processing styles of both hemispheres to perform one coherent function. Without the activity of the left hemisphere, a person would be unable to distinguish words or their meaning from a stream of speech sounds, while without the activity of their right hemisphere, a person would be unable to 'read between the lines' to understand the emotional context of speech. In order to fully carry out the function of language, the person must use their Whole Brain®.

In short, while most functions require activity in both of the hemispheres, the type of activity in each hemisphere differs—the hemispheres have been shown to process information in different ways. It is, in general, accepted that the right hemisphere processes the here and now, while the left hemisphere relates this information to the past and the future, creating a coherent linear narrative. An amazing example of this division in action is Jill Bolte-Taylor, a neuroscientist who experienced and then documented in great detail a haemorrhage in her left hemisphere. She found that with the damage to her left hemisphere, she had an enhanced sensory experience of the world around her, but lost the ability to make sense of it. She was unable, for example, to distinguish the boundaries of her own body—she could not tell where she ended, and the rest of the world began. For more details of Jill Bolte-Taylor's experience, see her TED talk: My Stroke of Insight. Her description of her experience vividly illustrates the differences in the roles of the left and right hemispheres.

## Processing nature of left vs right brain

Left-brained	Right-brained
Logical	Creative
Sequential	Intuitive
Rational	Holistic
Analytical	Synthesising
Objective	Emotional
Linguistic skills	Spatial awareness

## So how does all of this relate to the Whole Brain® Model?

Firstly, the Whole Brain® Model does not claim to categorise people into left-brained or right-brained thinkers, but plots a thinking preference profile on two spectrums—upper/lower and left/right. While the left/right brain distinction refers to aspects of thinking generally attributed to each hemisphere, there is a second spectrum on which thinking preferences are considered: the upper/lower spectrum, which corresponds roughly to the cortical and subcortical brain regions respectively. The cortex is responsible for our higher human functions, such as conceptualising and analysing, while the sub-cortex is responsible for our instinctive and emotional behaviour.

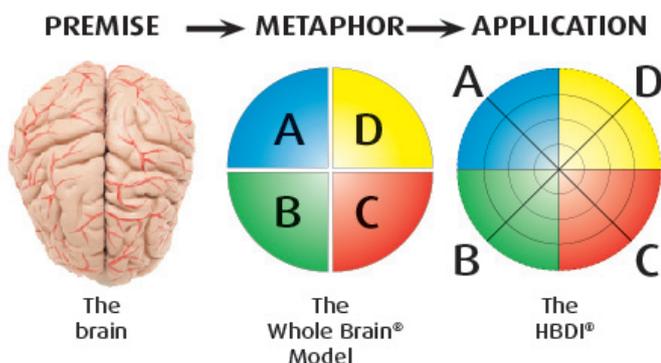
Modern advances in neuroscience have since revealed that thinking cannot be localised to specific areas of the brain in the same way that the visual or motor functions can. Instead, thinking preferences are the product of complex neural networks. Although based on a physiological premise, when Ned Herrmann initially devised the Whole Brain® Model, he was anxious to make clear that the Whole Brain® Model is fundamentally a *metaphor* that has outgrown its roots

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Ned Herrmann 1992

in neuro-anatomy. Something cited early on in his book *The Creative Brain*, the model has continued to develop, not as a physical map of the brain, but as a powerful tool that measures thinking preferences, not brain activity.

In Ned’s own words: “the Whole Brain® Model, although originally thought of as a physiological map, is today entirely a metaphor. The circular display represents the whole thinking brain which then divides into four conscious modes of knowing, each with its own behaviours demonstrably associated with it. Determining precisely which part of the brain was doing what, was looking ... less and less important.” pg. 63.



A common misconception is that our thinking preferences result from one part of the brain being more connected, stronger, preferred or active. This is not the case. Thinking requires activation of multiple complex networks, which are shaped by experience. The HBDI® does not claim to measure activity in these networks, only the resulting thinking preferences. To reflect this we must consciously avoid using language such as ‘left-brained’ or ‘right-brained’, which have come to refer to personality

types in popular culture, and instead refer to left- or right- quadrant thinking preferences.

### Recent research study

Recently a study was published (Nielsen et al, 2013) which claimed to debunk left/right brain theories. This, however, poses no threat to the credibility of the HBDI®. The theory that was ‘debunked’ was not that the two hemispheres engage in different types of cognitive processing, but the theory that when a person demonstrates a certain set of thinking preferences this is due to increased activity in one of the hemispheres.

Nielsen, the primary researcher on this study, said that “everyone should understand the personality types associated with the terminology ‘left-brained’ and ‘right-brained’ and how they relate to him or her personally; however, we just don’t see patterns where the whole right-brain network is more connected in some people. It may be that personality types have nothing to do with one hemisphere being more active, stronger, or more connected.”

Since the HBDI® measures thinking preferences, not the brain activity that causes them, this research only serves to lift the veil on the underlying mechanisms. If anything, it is in violent agreement with our stance at Herrmann International.

The quadrants represent thinking styles, not parts of the brain. It is about as meaningful to interpret preference for left and right quadrants as increased activity in one of the hemispheres, as it is to interpret the Whole Brain® Model as meaning that the brain is divided into four brightly coloured sections!

# Herrmann International Asia works with leading companies and academic institutions to improve employee and team performance.

## About Herrmann International Asia

Herrmann International Asia works with leading companies and academic institutions to improve employee and team performance.

Herrmann's work focuses on practical ways to leverage differences in individual thinking styles. Building on research originally begun at General Electric, the company has developed applications that range from developing strategy at the executive level to increasing sales force productivity.

More than two million people worldwide have completed the Herrmann Brain Dominance Instrument (HBDI), the assessment tool at the heart of the company's approach. Herrmann International Asia is headquartered in Sydney, Australia with offices in:

- ◆ Auckland
- ◆ Melbourne
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The Originators of Whole Brain Technology® and the Creators of the Herrmann Brain Dominance Instrument® (HBDI®)

### Asian Headquarters—Sydney

PO Box 383  
Pymble NSW 2073  
Australia  
Phone: +61 2 9880 2333  
Fax: +61 2 9880 2343

### Auckland

PO Box 25549  
St Heliers, Auckland 1740  
New Zealand  
Phone: +64 9 585 4050  
Fax: +64 9 585 0222

### Melbourne

273 Camberwell Road  
Camberwell VIC 3124  
Australia  
Phone: +61 3 9813 3332  
Fax: +61 3 9882 2843

### Singapore

150 Orchard Rd  
#07-02 Orchard Plaza  
Singapore 238841  
Phone: +65 6752 5188  
Fax: +65 6570 1141