Revisiting the Left Brain –
Right Brain Metaphor
by Mark Winborn, PhD, NCPsyA

During professional discussions of analytic clinical material I regularly hear references made to “left brain versus right brain” responses to patient material. In general, the thrust of such discussions is that right brain interventions are more creative, relational, affective, and empathically connected while left brain interventions tend to be characterized as logical, rational, emotionally distant, abstract, and exclusively verbally based. Such characterization or categorization of interventions is based upon the split-brain research of Roger Sperry in the 1960’s for which he was awarded the Nobel Prize in Physiology in 1981. His research was primarily carried out with individuals with epilepsy who had undergone a procedure to control severe seizures by severing the corpus callosum which normally connects and allows communication between the two hemispheres of the brain. His research also involved individuals with severe lesions in one hemisphere of the brain. Sperry’s research was clearly groundbreaking and state of the art for neuroscience in that era.

Now we spring forward, fifty years later, and the field has changed tremendously. MRI, fMRI, CAT scan, PET scan, and enhanced EEG technologies have all dramatically improved the level of differentiation and specificity in experimental design which has permitted a much more comprehensive picture of brain functioning to emerge. Many, if not most, contemporary neuroscientists indicate that the way in which Sperry’s research has been taken up in the popular culture is a gross oversimplification of Sperry’s original conclusions. As Mark Solms, author of *The Brain and the Inner World*, puts it: “There is little empirical support for such ideas.” Furthermore, most have now concluded that Sperry’s conclusions no longer accurately reflect the way the brain functions. Sperry’s research was based on a “localization” approach to brain functioning—i.e. figuring out where a particular function or process is occurring in the brain.

Contemporary neuroscience research acknowledges that there is localization of certain brain functions and that the two hemispheres do appear predisposed to process different kinds of experience. However, the bigger picture is much more complex than that. Current research has shifted away from a focus on localization towards an emphasis on neural networks and connectivity. These neural networks are often broadly dispersed across the brain structure and across both hemispheres. Networks have been identified which process or regulate pattern recognition, attention, physiological activation, affective regulation/dysregulation, and empathic responsiveness. One particularly interesting network is referred to as the “default mode network,” first identified in 2001, which describes the neural pattern associated with the resting brain when free of goal oriented activity—such as might be encountered in day dreaming, free association, or reverie. Naturally, the functioning of these neural networks overlaps, contributing to more complex phenomenon such as creativity or logical reasoning.

In addition to neural networks, the focus has also been on three types of connectivity: structural, functional, and effective. Structural or anatomical connectivity refers to a network of physical or structural (synaptic) connections linking sets of neurons or neuronal elements, as well as their synaptic strength or effectiveness. Functional connectivity, in contrast, is fundamentally a statistical concept. It assesses how likely it is for a particular pattern of neuronal activation to occur between distributed and often spatially remote neuronal units. Finally, effective connectivity may be viewed as the union of structural and functional connectivity, as it describes networks of directional effects of one neural element over another.

The results of a number of contemporary studies indicate that the brain functions at its best when bilateral hemispheric activation is occurring—in other words—when both hemispheres of the brain are engaged. For example, in a study of math skills in gifted and non-gifted high school and college age math students the researchers found that the gifted math students demonstrated significantly more bilateral activation than

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average ability students. With the “left brain-right brain” model we would expect the gifted students to rely more exclusively on left-hemisphere activation. Similarly, in another study, two groups were pre-identified on screening measures for creativity. The “left brain—right brain” hypothesis would suggest that more highly creative individuals would activate more strongly in the right hemisphere. However, those identified as highly creative showed significantly higher bilateral activation of the brain than did the less creative individuals. Finally, a study of the resting state MRI scans of 1011 subjects, ages 7-29, showed no statistically significant hemispheric preferences, i.e. lateralization of brain functioning. The conclusion of the last study was: “Lateralization of brain connections appears to be a local rather than global property of brain networks, and our data are not consistent with a whole-brain phenotype of greater ‘left-brained’ or greater ‘right-brained’ network strength across individuals.”

While both hemispheres are capable of functioning autonomously when an artificial separation or disruption of hemispheric communication occurs, this is not how they function in most people. Remember, Sperry’s research was conducted with subjects for whom their neuronal networks and connectivity was severely disrupted. As one author, Carl Zimmer, puts it: “No matter how lateralized the brain can get, though, the two sides still work together. The pop psychology notion of a left brain and a right brain doesn’t capture their intimate working relationship. The left hemisphere specializes in picking out the sounds that form words and working out the syntax of the words, for example, but it does not have a monopoly on language processing. The right hemisphere is actually more sensitive to the emotional features of language, tuning in to the slow rhythms of speech that carry intonation and stress.”

So my appeal is this: let’s let the left brain—right brain metaphor die. The metaphor is based on old and outdated science which does not reflect the current state of understanding of brain functioning in the neurosciences. Yet, this is the position I operated out of myself until several years ago when I began to listen to recent lectures on neuroscience. Yes, the split-brain model has a certain intrinsic attractiveness but it isn’t accurate. The current state of the art in the neurosciences is actually more “Jungian” than Sperry’s work. Current studies clearly show the brain functions in a pattern of bilateral complementation whereby we are capable of being most relationally and creatively present when the preferences of the right hemisphere are augmented by the differentiated verbal capacities of the left hemisphere. Similarly, the differentiated capacities for language and abstract reasoning of the left brain are enhanced by the creativity and nuanced feeling of the right hemisphere. By associating some analytic interventions with right brain relational presence and others, such as interpretation, with the left brain, we are reinforcing an unnecessary and undesirable split within our analytic activity and our own psyches. I believe our goal, as analysts and analytic therapists, should be the integration of these functions and activities. A relational presence without a capacity to reflect on that presence is potentially just as empty as an interpretation made without relational and creative connection. Clearly, relying on outmoded labels, such as “left brain” or “right brain” to define ourselves and our activities in any area of life can result in a restriction of the expression and unfolding of our psyches—the process which C.G Jung has referred to as individuation.