

## Right Hemisphere Dominance and Creativity – Debate and Evidence

**The argument against RH dominance for creativity relies on evidence that the brain works as a unit generally, and specifically for creativity. However,**

- 1) As with a sports team that functions as a unit but has specialized positions with specialized functions intensely employed at certain times, integration of the whole brain and profound distinction of capacity are not mutually exclusive, and different circumstances may call for different capacities to ramp up and “dominate”.
- 2) There actually are instances of the hemispheres acting unilaterally <https://corrosion-doctors.org/Dreaming%20is%20Personal/Brain.htm> "Though these parts of the brain are all active during REM sleep, it is important to know that the two hemispheres of the brain work unilaterally in dreaming”.
- 3) Creativity has more than one definition. Problem solving or inventing use tactical and L hemisphere logical/analytical processes, while other forms of creativity are daydream imaginings, a “channeling” of an urge, sensory impulse, or information out of the blue with no ties to logic, rational thought or logistics. Surely, as with “intelligence”, there is not just one expression of or box for creativity.
- 4) Even if in the case of brain damage one hemisphere can to a degree in many cases compensate for the other, it doesn’t disprove hemispheric dominance for a type of function...that someone can learn to turn a door-knob with their foot doesn’t disprove hands are specialized for it.

Citing interconnectedness, which should go without saying (given the corpus callosum and its purpose to connect the hemispheres) does not disprove that creativity is a R brain dominant activity. Such a claim of “debunking” makes the mistakes of either/or thinking (interconnected *or* specialization), of all-or-nothing rather than recognizing degrees of activation/engagement which can indicate dominance, and of assuming creativity has one definition or expression.

Studies like the oft-referenced Utah (1,000 subjects studied in MRI tube) 2013 study argue a moot point of general communication between/activation of the two hemispheres, which do not disprove evidence of L/R hem dominance for logic/creativity, and in fact acknowledge “unequal” participation. If unequal, might one side dominate?

Are distinctions between kinds of creativity or degrees of activation/engagement important?

For example, Norman Lear, award winning TV producer (All in the Family) said creativity is seeing the connection between things...which fits smoothly with the fact big picture thinking and new/“novel” connections are R hemisphere (while focus on separate parts and pieces (categorizing, labeling, and analyzing) is very LH). What exactly does “novel” mean or infer? What exactly is creativity?

Is dreaming an act or expression of creativity? **dreams are created/originate in the RH\* while the LH subsequently analyses them.** Yes, that shows the LH has an involvement but a) as above, how does a clearly unequal involvement of LH disprove RH dominance for this creative act? You don't need to analyze a dream in order to have one, but you need to have one in order to analyze it...b) is there a relevant primary and secondary distinction between originating/hosting dreams while they occur, and later analysis?\* <https://corrosion-doctors.org/Dreaming%20is%20Personal/Brain.htm>: "The right hemisphere of the brain actually creates and displays the dream, shown by an increase in blood flow and electrophysiological stimulation in that hemisphere during REM."

If creativity has a "feeling" dimension or draws from emotion, is the fact that the R H has more connections to the emotional/animal/midbrain/limbic system than LH further indication that for certain acts or aspects of creativity ("pristine" creativity?), the process is based in or channeled through the RH?

Regarding the following links/excerpted evidence, there is often a blanket rebuttal, a sweeping generalization like, old research isn't credible or an appeal to authority (referencing what "leading experts" say without providing specific refutation evidence that holds up under scrutiny).

It's important to stick to facts and objective criteria to ward off dismissive sweeping generalizations like "your research is too old and outdated." Research is cited from the same year as the vastly popular 2013 Utah study – and more recent but regardless, isn't very valid research often many decades old, like Ed Belbruno's celestial mechanics (40 years), or even 100 years when it comes to evidence and interpretations of quantum reality *only now* getting attention/validation from "leading thinkers"? Sweeping generalizations aren't evidence. Assertions of what's right or wrong aren't evidence.

<https://nextbigideaclub.com/magazine/one-ancient-idea-holds-future-physics-bookbite/40213/>  
**The One: How an Ancient Idea Holds the Future of Physics.**

The leading voices: Bohr, Heisenberg and Pauli **couldn't accept a sudden quantum reality, so they concluded that what we see is real... the orthodox scientific interpretation became that there was no other underlying reality regarding what qp means. Evidence dismissed.**

Einstein's thinking was initially rejected...working in the mailroom while challenging the go-to experts of the day. Which leads me to "appeal to authority" or to consensus among (one's preferred) experts. **There are 1000s of examples that even the most credible leading experts can be wrong about some, many, or even all of their conclusions** – despite apparent corroborative subsequent findings or lack thereof...like Carl Sagan and Asimov said there was no *evidence of being visited by extraterrestrials, dismissing claims otherwise*. When clearly, as of forced release of information, there was evidence.

**Much of what the experts and consensus say has been misguided and even harmful.**

[Debunking the Two Chemical Imbalance Myths, Again \(psychiatrytimes.com\)](https://www.psychiatrytimes.com/debunking-the-two-chemical-imbalance-myths-again/) Aug 2019 "Scientifically speaking, there never was a network of validated hypotheses capable of sustaining a full-blown, global chemical imbalance theory of mental illness."

<https://www.nature.com/articles/s41380-022-01661-0> July 20, 2022 "Our comprehensive review of the major strands of research on serotonin shows there is no convincing evidence that depression is associated with, or caused by, lower serotonin concentrations or activities...The chemical imbalance

theory of depression is still put forward by professionals [17], and the serotonin theory, in particular, has formed the basis of a considerable research effort over the last few decades [14]. **The general public widely believes that depression has been convincingly demonstrated to be the result of serotonin or other chemical abnormalities**" [15, 16],

**Back to Creativity and the hemispheres...**

### **Hemisphere distinctions, aspects of creativity, and evidence of RH dominance**

the right hemisphere develops before the left, or that children primarily operate out of their R hem until 3 years old, when it's quite clear that babies and toddlers are fountains of creativity...of scribbling outside the box literally and metaphorically.

(<https://pubmed.ncbi.nlm.nih.gov/9217688/#:~:text=The%20subsequent%20time%20course%20of,functions%20earlier%20than%20the%20left.> "Between 1 and 3 years of age, the blood flow shows a right hemispheric predominance, mainly due to the activity in the posterior associative area. These findings support the hypothesis that, in man, the right hemisphere develops its functions earlier than the left.")

Or that listening to music is RH dominant unless it is listened to/analyzed by someone technically or professionally engaged with music, then it lateralizes to the left hemisphere (see below).

Or that there's a left-over-right inhibitory mechanism during figural creative thinking in healthy non-artists (*Human Brain Mapping 34 (10), 2724-2732, 2013* [logic can be cold water on creativity]).

Another asymmetry of L/R is that R hem has more connection to the emotional brain/limbic system and given the role of emotion in creativity – while logic/rational thinking works to steer clear of emotion's influences – that's additional circumstantial evidence and narrative coherence.

In 2012 (only one year before the widely cited 2013 Utah research (assumed to be current enough) providing the basis of "debunking" the "myth", Yale Scientific published findings that "story-telling is emotionally/experientially engaging and research showed students' brains lateralizing to the right hemisphere when students went from looking at an unemotional image and devising a story about\* it, to hearing a story with emotion."

Decades of additional research confirming dominance and R/L specialization of the sequential, analytical, monosemantic, probabilistic, verbal, detail orientation for LH while, big picture, imagery, polysemantic, deductive, non-linear modes of mentation, are RH dominant. Dreams are about as non-logical as you can get...dreaming is very creative, and it's predominantly a RH thing until the LH joins in to bring logic and analysis to the activity.

**If the key elements of creativity and logic are R and L H dominant respectively, doesn't it make sense that creativity is RH dominant? Dominant, not necessarily exclusive. Or RH-LH involvements vary depending on the particular kind of creativity?**

Above is mentioned the research showing lateralization to the RH when students creative imagination is engaged (Yale Scientific 2012), and that dreams are created/originate in RH...evidence has been steadily piling up since the 70's that creativity and its various tools and elements are R H dominant and logic/its tools are LH dominant. (My comments are in this font)

<https://corrosion-doctors.org/Dreaming%20is%20Personal/Brain.htm> "Though these parts of the brain are all active during REM sleep, it is important to know that the two hemispheres of the brain work unilaterally in dreaming. The right hemisphere of the brain actually creates and displays the dream, shown by an increase in blood flow and electrophysiological stimulation in that hemisphere during REM. The right hemisphere uses a form of visual-spatial and emotional language, which creates the themes and images of the dream through remembered emotions. These sorts of memories, such as those used as the material for dreaming, and those that later will become the remembered dream are called **lateralized memories, for they are only remembered by one hemisphere of the brain, the right.**"

**Hemispheric asymmetry, interaction, and creativity:** Laterality: Vol 16, No 4 Dec 2010

<https://www.tandfonline.com/doi/full/10.1080/1357650X.2010.497813?src=recsys>

the research reviewed indicates greater right hemisphere activity during creative tasks "The main finding was significant between degree of creativity and reaction times to novel metaphor processing in the right hemisphere, thus supporting the involvement of this cerebral hemisphere in both tasks of verbal creativity and novel metaphor processing"

**Hemispheric specialization and creative thinking: A meta-analytic review of lateralization of creativity**

Konstantin M Mihov, Markus Denzler, Jens Förster

**Brain and cognition** 72 (3), 442-448, 2010

[https://scholar.google.com/scholar?hl=en&as\\_sdt=0%2C24&q=creativity+and+right+hemisphere+dominance&btnG=#d=gs\\_qabs&t=1677448189791&u=%23p%3DkgX-EV-jCRkj](https://scholar.google.com/scholar?hl=en&as_sdt=0%2C24&q=creativity+and+right+hemisphere+dominance&btnG=#d=gs_qabs&t=1677448189791&u=%23p%3DkgX-EV-jCRkj)

"In the last two decades research on the neurophysiological processes of creativity has found contradicting results. Whereas most research suggests right hemisphere dominance in creative thinking, left-hemisphere dominance has also been reported. The present research is a meta-analytic review of the literature to establish how creative thinking relates to relative hemispheric dominance. The analysis was performed on the basis of a non-parametric vote-counting approach and effect-size calculations of Cramer's phi suggest relative dominance of the right hemisphere during creative thinking."

**Thinking outside the left box: the role of the right hemisphere in novel metaphor comprehension** Miriam Faust  
*Advances in the neural substrates of language: Toward a synthesis of basic science and clinical research*, 425-448, 2012 **[The Handbook of the Neuropsychology of Language, 1&2](#)**

[https://scholar.google.com/scholar?hl=en&as\\_sdt=0%2C24&q=creativity+and+right+hemisphere+dominance&btnG=#d=gs\\_qabs&t=1677448753754&u=%23p%3Dfq3JUHbd1oEJ](https://scholar.google.com/scholar?hl=en&as_sdt=0%2C24&q=creativity+and+right+hemisphere+dominance&btnG=#d=gs_qabs&t=1677448753754&u=%23p%3Dfq3JUHbd1oEJ)

"I will review research suggesting that the violation of semantic rules [ie logic LH] requires the involvement of the right hemisphere RH. I will argue that RH contribution to the comprehension of semantic violations, such as novel metaphoric expressions [ie creativity RH], extends the range of language processing available to the brain and serves as a major tool for verbal creativity." Symbolism/creative literal/logical-analytical"

**The "Creative Right Brain" revisited: Individual creativity and associative priming in the right hemisphere relate to hemispheric asymmetries in reward brain function**

Kristoffer Carl Aberg, Kimberly C Doell, Sophie Schwartz

*Cerebral Cortex* 27 (10), 4946-4959,

2017 **Oxford Academic**

[https://scholar.google.com/scholarj?hl=en&as\\_sdt=0%2C24&q=creativity+and+right+hemisphere+dominance&btnG=#d=gs\\_qabs&t=1677448356017&u=%23p%3DhPzclwxqX44J](https://scholar.google.com/scholarj?hl=en&as_sdt=0%2C24&q=creativity+and+right+hemisphere+dominance&btnG=#d=gs_qabs&t=1677448356017&u=%23p%3DhPzclwxqX44J) "Our findings offer

unprecedented empirical support for a crucial and specific contribution of the right hemisphere to

creativity. More importantly our study provides a comprehensive view on potential determinants of human creativity, namely dopamine-related activity and associative processing.”

**Human memory, cerebral hemispheres, and the limbic system: A new approach** Vadim S Rotenberg, Igor Weinberg *Genetic Social and General Psychology Monographs* 125 (1), 45-70, 1999

“This paper presents an integrative approach to human memory in context of brain asymmetry. According to the results of psychophysiological investigations it is suggested that the right hemisphere functioning is closely associated with the limbic system.”

[https://scholar.google.com/scholar?hl=en&as\\_sdt=0%2C24&q=right+hemisphere+more+connections+to+emotional+brain+limbic+system&btnG=#d=gs\\_qabs&t=1694038079729&u=%23p%3DVvEDrs2EwrQJ](https://scholar.google.com/scholar?hl=en&as_sdt=0%2C24&q=right+hemisphere+more+connections+to+emotional+brain+limbic+system&btnG=#d=gs_qabs&t=1694038079729&u=%23p%3DVvEDrs2EwrQJ)

[https://scholar.google.com/scholar?hl=en&as\\_sdt=0%2C24&q=creativity+and+right+hemisphere+dominance&btnG=#d=gs\\_qabs&t=1677448186611&u=%23p%3DL\\_Z7sDP32XAJ](https://scholar.google.com/scholar?hl=en&as_sdt=0%2C24&q=creativity+and+right+hemisphere+dominance&btnG=#d=gs_qabs&t=1677448186611&u=%23p%3DL_Z7sDP32XAJ) Are

**creativity and schizotypy products of a right hemisphere bias?** Sara Weinstein, Roger E Graves *Brain and Cognition* 49 (1), 138-151, 2002

“Results are consistent with individual differences in creativity and schizotypy being partly related to a response criterion favoring right hemisphere.”

**The University of Arkansas Enhanced Learning Center Eric Jensen Brain-based Learning**

**2000:** “*Researchers discovered that musicians process music to a greater degree in the left hemisphere, while non-musicians process it more in the right hemisphere. This paradox points to the complexity of our brain functions. In this case, since musicians tend to analyze music more than the novice, their left brain is engaged to a greater degree.*”

“analyze music” and “left brain is engaged to a greater degree.” “Greater degree” means there are degrees to which an area is activated/engaged...it is not just an on or off setting.

And here, from work with stroke patients:

**Stroke Smart Magazine July/August 2007 AMAZING BRAIN**

**Right vs. Left: What Does It Mean? By Jay Schneiders, PhD:**

*“In the case of tasks such as talking, listening, reading and writing, both sides of the brain constantly communicate and work together no matter what we think, feel or do.*

***Still, the left side of the brain does process information differently from the right side. This is especially important to stroke survivors who have had a stroke on one side of the brain or the other.***

***The left side of the brain (again, in most, but not all of us) deals with putting information in order and analyzing things in a more sequential way. It handles details, is (in some ways) superior for reading and writing, and is probably more responsible for positive emotions such as joy. People with left-sided strokes may have trouble with skilled movements, depression and speech.***

**In contrast, the right side of the brain has a more big-picture, large-scale processing style.** It pulls information together, seems better at handling new information, and is probably more responsible for negative feelings. People with right-sided strokes may have problems with music, melody in speech, confusion and anxiety reactions."

LH putting things in order, analyzing, sequential, RH larger-scale processing to put things together for bigger pictures. **Are these not key elements of creativity and logic?**

[https://scholar.google.com/scholar?start=20&q=right+brain+hemisphere+creative&hl=en&as\\_sdt=0,24#d=gs\\_qabs&t=1676566590370&u=%23p%3DpwILbGxrawoJ](https://scholar.google.com/scholar?start=20&q=right+brain+hemisphere+creative&hl=en&as_sdt=0,24#d=gs_qabs&t=1676566590370&u=%23p%3DpwILbGxrawoJ)

**The role of the right hemisphere in learning & creativity implications for enhancing problem solving ability** Ron Rubenzer

*Gifted Child Quarterly* 23 (1), 78-100, 1979

"By generating empirically testable physiological models of cognition and affect, the understanding and facilitation of learning and problem solving can be advanced. A review of the representative research and theoretical literature on right hemisphere processes and psychophysiological models regarding the functional organization of the brain is presented. **The major roles of the right hemisphere processing modes in language, learning, perception, creativity and affect are discussed.** A psychophysiological model of problem solving is proposed."

[https://scholar.google.com/scholar?hl=en&as\\_sdt=0,24&qsp=11&q=brain+hemisphere+functions&qst=bh#d=gs\\_qabs&t=1676570466354&u=%23p%3DsR4oOEZ--WwJ](https://scholar.google.com/scholar?hl=en&as_sdt=0,24&qsp=11&q=brain+hemisphere+functions&qst=bh#d=gs_qabs&t=1676570466354&u=%23p%3DsR4oOEZ--WwJ)

**The right brain hemisphere is dominant in human infants.** Catherine Chiron, Isabelle Jambaque, Rima Nabbout, Rachid Lounes, Andre Syrota, Olivier Dulac *Brain: a journal of neurology* 1997

"The development of functional brain asymmetry during childhood is confirmed by changes in cerebral blood flow measured at rest using dynamic single photon emission computed tomography. **Between 1 and 3 years of age, the blood flow shows a right hemispheric predominance,** mainly due to the activity in the posterior associative area. Asymmetry shifts to the left after 3 years.

[https://scholar.google.com/scholar?start=100&q=right+brain+creativity&hl=en&as\\_sdt=0,24#d=gs\\_qabs&t=167657794526&u=%23p%3DvgRqkM8iqxAJ](https://scholar.google.com/scholar?start=100&q=right+brain+creativity&hl=en&as_sdt=0,24#d=gs_qabs&t=167657794526&u=%23p%3DvgRqkM8iqxAJ):

**Evidence for a left-over-right inhibitory mechanism during figural creative thinking in healthy nonartists** Piyyut Huang, Lihua Qiu, Lin Shen, Yong Zhang, Zhe Song, Zhiguo Qi, Qiyong Gong, Peng Xie *Human Brain Mapping* 34 (10), 2724-2732, 2013

"As such, these data suggest that the left frontal lobe may inhibit the right hemisphere during figural creative thinking in normal people. Moreover, **removal of this inhibition by practicing artistry or through specific damage to the left frontal lobe may facilitate the emergence of artistic creativity.**"

[https://scholar.google.com/scholar?start=100&q=brain+hemisphere+functions&hl=en&as\\_sdt=0,24#d=gs\\_qabs&t=1676574334745&u=%23p%3DAwBSB5z072YJ](https://scholar.google.com/scholar?start=100&q=brain+hemisphere+functions&hl=en&as_sdt=0,24#d=gs_qabs&t=1676574334745&u=%23p%3DAwBSB5z072YJ) **Richness against freedom: Two hemisphere**

**functions and the problem of creativity** Vadim S Rotenberg *European Journal of High Ability* 1993  
"According to the results of psychophysiological investigations, it is suggested that the "freedom" displayed by the isolated left hemisphere in manipulating information is due to the loss of multidimensional connections between objects. **The ability to grasp such connections by the right hemisphere determines the richness of its mental activity and permits creativity.**"

<http://www.vsrotenberg.rjews.com/human.html#.Y-7W-6RME0E> Vadim S. Rotenberg and Igor Weinberg *Genetic, Social and General Psychology Monographs*, 1999 "Research provides increasingly abundant evidence that the ability to arrange a polysemantic context is a specific, immanent function of the right human hemisphere...In meditation, which corresponds to the right hemisphere pattern of thinking (Ornstein, 1972), alpha waves have a high amplitude and become generalized. When a person with a high creative potential succeeds in solving a problem that calls for imaginative and creative handling, his alpha-rhythm is very distinct, especially in the right hemisphere."

**New evidence for distinct right and left brain systems for deductive versus probabilistic reasoning — Princeton University** 2001 <https://collaborate.princeton.edu/en/publications/new-evidence-for-distinct-right-and-left-brain-systems-for-deduct>

"**Probabilistic reasoning activated mostly left brain areas whereas deductive activated mostly right.** Deduction activated areas near right brain homologues of left language areas in middle temporal lobe, inferior frontal cortex and basal ganglia, as well as right amygdala, but not spatial-visual areas. Right hemisphere activations in the deduction task cannot be explained by spill-over from overtaxed, left language areas. Probabilistic reasoning was mostly associated with left hemispheric areas in inferior frontal, posterior cingulate, parahippocampal, medial temporal, and superior and medial prefrontal cortices."

**RH Deductive – many possible conclusions, LH probabilistic – computation of probability (probabilities not possibilities/creativity of options). Creative expansive possibilities, logical reductionist probabilities. Wings are being clipped with LH domination of "intelligence".**

**The prisoners of despair: Right hemisphere deficiency and suicide**  
Igor Weinberg *Neuroscience & Biobehavioral Reviews* 24 (8), 799-815, 2000

"This paper presents an integrative approach to understanding of the inner experience of suicidal persons in terms of hemispheric asymmetry. **The right hemisphere is involved in formation of polysemantic context. Polysemantic context is determined by multiple interconnections among its elements, while each concrete element bears the stamp of the whole context. Left hemisphere functioning leads to formation of monosemantic context.** It is suggested that due to functional insufficiency of the right hemisphere the suicidal person demonstrates a compensatory shift to left hemisphere functioning."

**RH Polysemantic – many variations, LH monosemantic – one**

Right hemisphere keeps a more accurate record of events.

Michael Gazzaniga worked with Nobel neuroscientist Roger Sperry for decades. They had an experiment with someone operating out of only left hemisphere, who was instructed to take an apple out of the bag and then asked why they did it. They manufactured an explanation out of a need to provide one. RH keeps more accurate record of events. Too much LH can be divorced from reality while manufacturing stories.

In "Spheres of Influence," a 2008 article for Scientific American Mind, Michael Gazzaniga explained this concept of the left brain trying to explain behaviors about which it had no information...In one experiment, "To the researchers' amazement, the patient came up with a totally fabricated story of why he had pulled an apple from the bag. The "story" was an attempt to explain or interpret his behavior, to make sense out of what he didn't know."

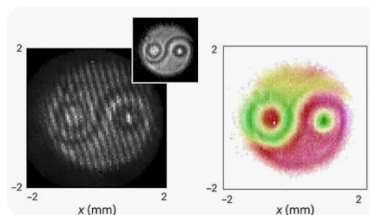
**Interesting. Left brain dominance at expense of right hemisphere capacities leads to delusory explanations, or explanations ignoring important information/distinctions.**

[https://scholar.google.com/scholar?hl=en&as\\_sdt=0%2C24&q=right+brain+hemisphere+creative+&btnG=#d=gs\\_qabs&t=1676565423979&u=%23p%3DN7oIQJE3ycQJ](https://scholar.google.com/scholar?hl=en&as_sdt=0%2C24&q=right+brain+hemisphere+creative+&btnG=#d=gs_qabs&t=1676565423979&u=%23p%3DN7oIQJE3ycQJ) **Delusional misidentifications and duplications: right brain lesions, left brain delusions**

Orrin Devinsky **Neurology** 72 (1), 80-87, 2009

**"The unchecked left hemisphere unleashes a creative narrator from the monitoring of self, memory, and reality by the frontal and right hemisphere areas, leading to excessive and false explanations. Further, the left hemisphere's cognitive style of categorization, often into dual categories, leads it to invent a duplicate or impostor to resolve conflicting information. Delusions result from right hemisphere lesions. But it is the left hemisphere that is deluded."**

Ultimately the emotional brain really runs the show. Emotions - their chemical and electromagnetic correlates, and their influence on perception - are always operating but too often unconsciously w/o self-awareness. Insight and *non*-rational modes of mentation, like intuition, help best understand, navigate, and leverage the emotional substrate. Non-rational modes like intuition are RH and line up with the list of functions complementary to the LH. Perhaps they are on a continuum? Why such establishment resistance to logic and creativity respectively connected to the L and R hemispheres, Doesn't the principle of complementarity make sense?



Quantum 'yin-yang' shows two photons being entangled in real-time

Space.com · 5d



Yin Yang = the Principle of Complementarity

An honest appraisal of the nature of creativity and the best methods to nurture it for improved content and quality of life is warranted. How operational are one's findings/conclusions and how do they inform a better education system? Clearly our current models are failing, and that's been true long before covid. Our schools fail to develop vital brain/human capacities and to engage students. Huge failure.

[https://scholar.google.com/scholar?start=10&q=brain+hemisphere+functions&hl=en&as\\_sdt=0,24#d=gs\\_qabs&t=1676570791521&u=%23p%3DPbv4Fb\\_UiScJ](https://scholar.google.com/scholar?start=10&q=brain+hemisphere+functions&hl=en&as_sdt=0,24#d=gs_qabs&t=1676570791521&u=%23p%3DPbv4Fb_UiScJ) **Discourse impairments following right hemisphere brain damage: A critical review**



Clinton L Johns, Kristen M Tooley, Matthew J Traxler Language and linguistics compass 2 (6), [1038-1062](#), 2008 "Our review suggests that the right hemisphere plays a critical role in managing inferred or implied information by maintaining relevant information and/or suppressing irrelevant information."

Creativity, connecting dots, greater understanding of meaning because of ties to emotional brain...but a bias against evidence for the creativity/logic R/L has been evident for a long time:

### **Right hemisphere contributions to creative problem solving: Converging evidence for divergent thinking** Stephen M Fiore, Jonathan W Schooler labs.psych.ucsb.edu pdf

"Ever since Broca documented the relation between damage to the left hemisphere and aphasia, claims have been made regarding the intellectual inferiority of the right hemisphere. Although recognized to possess strong perceptual-spatial abilities, the right hemisphere is usually considered to possess minimal linguistic abilities and to be virtually devoid of the inferencing skills necessary for complex problem solving. As Gazzaniga (1983) observed, **"Indeed, it could well be argued that the cognitive skills of a normal disconnected right hemisphere without language are vastly inferior to the cognitive skills of a chimpanzee"** (p. 536). **The standard low assessment of the cognitive capabilities of the right hemisphere (RH) has led "serious" researchers to view with some disdain claims in the popular press that the RH is the seat of creativity. The claim that creativity may be associated with the RH is typically considered purely pop psychology, which, like other taboo psychological subjects (eg, at least until recently, consciousness; cf. Cohen 8: Schooler, 1997), is outside the fray of appropriate topics for rigorous research. In our view, however, the excesses of popular discussions should neither lead us to accept unfounded claims regarding the RH's creative capacities, nor discourage us from exploring the possibility that such capacities might in fact exist.** Only with clear definitions of constructs coupled with strong empirical findings will we be able to begin to understand the relation between the RH and higher cognitive processes. In this chapter **we review evidence suggesting that at least one component of creative human behavior may have some association with RH functions. Specifically, we argue that insight—the sudden recognition of an alternative approach that leads to the solution of a problem."**

A reluctant admission for sure...

### **Evidence and Argument for NO Hemispheric Dominance for Creativity**

**The evidence and argument have been A) that the whole brain is always working together so therefore no task or function is right- or left-brain, B) Creative tasks engage the left and right hemispheres so creativity is not right-brain.**

The problems with the evidence and arguments: A) regions can be active to varying degrees, hemisphere dominance is not uncommon, and sometimes only one hemisphere is activated, and B) there are different forms of creativity and not all engage logical, analytical thought or engage it after the initial creative act.)

**A) The whole brain is always working together so therefore no task or function is right- or left-brain**

<https://drsarahmckay.com/left-brain-right-brain-myth/> No evidence from brain scans that people are 'right-brained' versus 'left-brained'.

"This popular notion was debunked in 2013 by University of Utah neuroscientists who used brain imaging to show *there is NO evidence that people are 'right-brained' or 'left-brained'*. A team from the University of Utah scanned the brains of 1,011 people between the ages of seven and 29. They used a technique called resting-state functional connectivity magnetic resonance imaging (rs-fcMRI)..." Nielsen et al. 2013. [An Evaluation of the Left-Brain vs. Right-Brain Hypothesis with Resting State Functional Connectivity Magnetic Resonance Imaging.](#) *PLoS ONE*. Costandi M. 2013

Sarah McKay and many others reference the **2013 study that monitored subjects while they were a "resting state" which is nothing like real life activities and engagement. Additionally, it was never claimed or suggested that anyone is left brained OR right brained.** Sarah says "just don't attribute whole brain global functions to one hemisphere or the other" **Again, it misses the point to be talking in either/or language.**

<https://www.lifehack.org/781752/right-brain-left-brain> (This references the same 2013 study they all claim debunks the l/r "myth"): "They confirmed that certain brain functions occur predominately in one hemisphere or the other, but, in reality, the brain is actually much more interconnected and complex than the right brain/left brain lateralization theory makes it seem."

Confirmed that certain functions occur predominantly in left or right(!) but now pivot to an argument that it's never one or the other. I have never said one or the other and have tried to clarify that just like a soccer team acts as a unit, goalies, centers, etc clearly have specific roles. **It's a straw man argument to claim dominance of any specialized functions has been debunked because the brain works is interconnected. He basically repeats what every "debunking" article claims.**

<https://wexnermedical.osu.edu/blog/right-vs-left-myth>:

"The left hemisphere of the brain tends to be mostly associated with language skills, such as the ability to name objects and remember a list of words. The right hemisphere tends to be more associated with visuospatial skills, such as visual memory. However, the opposite or a mixture of both can occur, especially in individuals who are left-handed."

[Yet again, **showing functional specialization...verbal...naming and categorizing is an aspect of LH rational, analytical processes...just because there is cross communication and team play doesn't mean there aren't strengths based in L or R hemisphere.** How exactly does this debunk "the myth"?]

"One thing I find interesting is that the left hemisphere is more associated with speech production, but the right hemisphere can help us understand the broader social meaning of the words that are said, such as whether someone is telling a joke versus being mean."

[Facts=left, context=right That's what having more emotional intelligence is about...and the right hemisphere is better wired for that, with more connection to emotional brain than the left.

**"Another myth is that one dominant side of the brain determines our personality."**

[**Not one of our claims. Notice the assumption that gene-environment interaction is causative, but no room for hemispheric dominance...and "determines" is a strong word.**]

"Everyone has strengths and weaknesses in terms of their cognitive abilities. We also have different personality traits. The idea that some of us are more analytical versus creative seems to combine both of those aspects of us. **There is likely a gene versus environment interaction that ultimately determines those characteristics among individuals.** But it hasn't been supported as a right-versus left-brain phenomenon."

Just because the conventional scientific system hasn't set up the right research and often pursues the wrong research does not mean evidence doesn't exist. That I met so many “special ed” students who had stories of their transcendent perceptions, that R brain lateralization has been monitored in students whose emotions and imagery get engaged, and that a Harvard brain scientist described right hemisphere perception, cognition, and personality changes, are a few data points that don't at all fit with the claim of no important difference between the two (let alone when it comes to creativity).

<https://www.apa.org/monitor/2013/11/right-brained>

Same 2013 study of people lying in a tube settled the issue? Doesn't seem at all like good science...especially because none of it debunks significant functional hemispheric differences (and the evidence RH dominant students struggle w LH dominance, and lying in a tube is far removed from every day, out in the world, activities like students in a classroom seeing pictures and hearing stories.

## **B) Creative tasks engage the left and right hemispheres, so creativity is not right-brain.**

A 2020 study with 32 jazz musicians of varying degrees of skill is also widely referenced...

<https://new.nsf.gov/news/where-brain-does-creativity-come-evidence-jazz>: “According to a popular view, creativity is a product of the brain's right hemisphere -- innovative people are considered “right-brain thinkers” while “left-brain thinkers” are thought to be analytical and logical. Skeptical neuroscientists have argued that there is not enough evidence to support this idea and that an ability as complex as human creativity must draw on vast swaths of both hemispheres. A new [brain-imaging study out of Drexel University's Creativity Research Lab](#) sheds light on this controversy by studying the brain activity of jazz guitarists of varied experience during their improvisations.

The study, [published in the journal NeuroImage](#) and [funded by a grant from the National Science Foundation](#), shows that creativity is, in fact, driven primarily by the right hemisphere in musicians who are comparatively inexperienced at improvisation. However, musicians who are highly experienced at improvisation rely primarily on their left hemisphere. This suggests that creativity is a “right-brain ability” when a person deals with an unfamiliar situation, but that creativity draws on well-learned, left-hemisphere routines when a person is experienced at the task.”

<https://drexel.edu/news/archive/2020/march/jazz-musicians-brain-creativity#:~:text=The%20study%2C%20which%20was%20recently,primarily%20on%20their%20left%20hemisphere>

The above confirms that there are ways experience level or advanced knowledge of a creative art like music affects what parts of the brain are engaged. An earlier study (directly below) showing musicians process music more in LH than non-musicians, concluded that experienced musicians were more prone to LH analysis...so why would the fact that creativity for those with a certain music proficiency uses L and R hemispheres, be generalized to all of creativity?

**The University of Arkansas Enhanced Learning Center Eric Jensen Brain-based Learning 2000:** *“Researchers discovered that musicians process music to a greater degree in the left hemisphere, while non-musicians process it more in the right hemisphere. This paradox points to the complexity of our*

*brain functions. In this case, since musicians tend to analyze music more than the novice, their left brain is engaged to a greater degree."*

Could it be that scientists or journalists misinterpret the data to confirm "truths" that are partial at best?

<https://www.labroots.com/trending/neuroscience/17263/creativity-left-brain-hemispheres>: April 2020

"Not all neuroscientists agree that creativity comes from the brain's right hemisphere, while analytical and logical activity is thought to come from the left. Instead, they insist that creativity draws from both hemispheres. Now, a group of researchers may have just found this to be true.

For their study, the researchers recruited 32 jazz guitar players with varied experience levels. Each musician was then asked to improvise to six jazz songs alongside programmed drums, bass and piano accompaniments while being recorded. Afterwards, each of their improvisations were played to four musicians and teachers specializing in jazz music to rate their creativity. Throughout each performance, the researchers also recorded high-density electroencephalograms (EEGs) from each musician.

Following this, the researchers compared the EEGs taken during the performances of those considered to be highly creative and those considered less creative. In the end, they found that among those rated highly creative, there was typically more activity in the brain's posterior left hemisphere regions, whereas in the lower-rated performances, there was typically greater activity in the frontal right hemisphere areas.

...Alone, these findings may suggest that performances considered as highly creative are associated with activity in the posterior left hemisphere regions, whereas less creative performance...s are linked to the regions in the right hemisphere. However, this conclusion would be premature

Upon controlling the results for factors such as experience level, the researchers found that virtually all of the differences between the performances rated as more or less creative could be found in the right hemisphere's frontal region. Given that musicians with more experience in public performances tended to perform more creatively, the researchers thus said that from their research, it seems that although creativity is a 'right-brain' ability when a person engages in an unfamiliar situation, when in a more familiar situation, creativity become more of 'left-hemisphere' pursuit.

**"If creativity is defined in terms of the quality of a product, such as a song, invention, poem or painting, then the left hemisphere plays a key role," said John Kounois, one of the lead authors of the study. "However, if creativity is understood as a person's ability to deal with novel, unfamiliar situations, as is the case for novice improvisers, then the right hemisphere plays the leading role."**

It's so important to define terms.

And to check ourselves for smug assertions based on evidence that has alternate interpretations fitting a far wider range of studies, with real-life widely beneficial application and results. But smugness persists.

<https://www.psychologytoday.com/intl/blog/the-athletes-way/202004/creativity-can-flip-flop-left-brain-right-brain>:

"If there were a grand prize for the most persistent and pesky [neuromyth](#) of all time, the misconception that creativity only occurs in the so-called "[right brain](#)" would win. In recent years, countless studies have

debunked the myth that creative thinking only occurs in the right cerebral hemisphere. (See [here](#), [here](#), [here](#).)”

“So-called” right brain? That’s not a valid, anatomically correct term?)

**Remember: this is about evidence for “unequal” participation, degrees of activation, and dominance, NOT all-or-nothing, one side OR the other** (as the general rule with creativity and human processes).

## **Argument**

Basically aligning with consensus and the conclusions of experts, like Lian McGilchrist

McGilchrist has concluded that it's wrong to think the left is language and reason and the right is images and emotion. His conclusion is that they both do everything but do them differently.

I heartily disagree.

Just because all areas of the brain show some activity when various tasks are undertaken, doesn't mean that all regions are fully or equally engaged and activated, as it's been shown how levels can change, say, with meditation. But really, aside from the brain as a unit with all parts turned on when going about one's day and both hemispheres being activated, they don't "both do everything" or why would McGilchrist spend much of his talk disapproving of the domination of the left hemisphere while the gifts of the right languish. And why did my former roommate (serious RH damage) and Jill Bolte Taylor (serious LH damage) have their remarkable transformations from R or L dramatic handicap. Some compensation can happen but that doesn't disprove hemispheric dominance...like learning to open doors with your foot doesn't disprove that hands are specialized for it.

Could his point about laser focus really be an expression of the analytical, separate parts orientation of the left hemisphere, "details" as he later says? But that's not really a "how" issue...focus is what you do if details are your specialty, just like wandering lost in ideas is what you do if imagination is your specialty. And like yin and yang there's some of both in both. The experts have been wrong as many times as they've been right.

The "scientific community" can really miss the mark. For instance, about 5 years ago there was research that there's less lung disease at higher altitudes. Many strong voices scientific community - and in journals - responded by concluding that oxygen is not good for the lungs...rather than considering maybe because lungs work harder in high altitudes, they are healthier.

Or how it was compelling evidence of genetics causing mental illness with the definitive study of twins separated at birth who both developed anxiety and depression. It apparently wasn't considered that being separated from your twin and your mother might cause anxiety and depression. But they were convinced by their rock-solid evidence.

Or how in the 60's ivy league scientists proposed lobotomies for young black men as the solution to their anger.

Or the science community found ketchup to be considered a vegetable.

Or that there was sufficient evidence to push AZT for AIDS and criminalize Peptide T.

Or how polar bears who swim non-stop in circles in their zoo pool are labeled "mentally ill" rather than concluding they are *emotionally* depressed cooped up in a zoo.

Or that mental illness was concluded to be universal, even in indigenous cultures, after observing a tribal medicine man conducting ceremony...unable to entertain the construct of him accessing an other-than-material dimension of reality and behaving strangely according to the Western Newtonian science box.

I could give many more examples...scientists are often misguided, as is consensus.

To sum up the rebuttal to the above argument for NO H dominance in creativity, no one is claiming anyone or any task is all RH (except originating/hosting dreams or if LH is shut down), but there is agreement for functional specialization, that the two hemispheres are anatomically different, with asymmetry the rule, and participation/activation of either H is "unequal" depending on various factors. Re creativity, not all expressions are of the problem-solving or invention type that would engage the LH.

I try to clarify that it's rarely the case that both sides aren't engaged (to certain degrees) but in the case of a stroke, Harvard neuroanatomist Jill Bolte Taylor made it very clear how perception, emotion, and modes of thought - as well as personality - are hemisphere-based, not to say compensation can't occur.

Below is part of a debate I had which precipitated the in-depth treatment of these 15 pages

**Sent:** Saturday, February 18, 2023 7:19 AM

**To:** Voice in this font: I think, at this point

**Subject:** Re: Research and my thoughts on the Hemispheres, Logic, and Creativity (in this *Calibri italics*)

I think, at this point, what it comes down to, for me, are trusted sources for information. In the brain science research/ neuroscience world, every modern source I'm finding makes the same conclusion. Creativity and logic are a complex dance between the two hemispheres. Even in the piece you sent you see that dance. The left hemisphere has to interpret the dream. The left brain puts the dream in order. When I worked with a Jungian analyst for months doing dream work I was interpreting my dreams and finding my answers to my dream's meaning, using very much the left brain, pulling data from the right. There was no dominant side working in this area of creativity.

*The RH created the dream and hosted it. Creativity. The LH subsequently analyzed it. Logic. Yes, indeed the work together after the dream has happened but an act of subsequent analysis does not disprove RH dominance and origination for creativity. You seem very certain of how and when and to what degrees your hemispheres were engaged in your personal dream work. In my personal experience I could feel a definite shift from being in ultra creative mode of free association and many possibilities to one of focusing on how to operationalize my creative visions.*

It was a shared dance. Both sides were attending to different aspects of creativity to come to conclusions.

*You have supplied no evidence besides one 10 yr old study. I have presented much more evidence that it is in fact not a matter of different aspects of creativity, but it was creativity and logic in a complementary relationship of creating/originating a dream and then analyzing it. Does that make sense?*

Again, it seems so clear to me that Sperry's big problem with his original work in the 60's was that he cut off the corpus callosum to do his study.

*The point was to understand what each side specializes in and the findings were crystal clear and definitive re the hemispheres having specialized functions that align with creativity and logic.*

*Seeing many possibilities, seeing connections/big picture non-linear thinking, seeing connections, “novel” (not connected to past knowledge/memory),*

*Sperry never once suggested that though there is specialization of function in a typical brain, the two hemispheres don't work together as a unit.*

As all subsequent neurobiologists and brain scientists have pointed out, a healthy person has their brain fully connected and there is firing going back and forth, constantly, between the hemispheres, resulting in a whole brain being used in creativity and logic, not one side over another. That's what ultimately discredited his conclusions.

*The evidence you presented - and all other – never said equal engagement. Unequal engagement indicates one side dominates, right? Again, no one claiming dominance ever suggested “no participation” of the whole brain as a unit.*

<https://www.msn.com/en-us/health/medical/star-neurosurgeon-admits-he-took-out-the-wrong-bit-of-a-woman-s-brain-during-surgery/ss-AA17X7ZW?ocid=msedgdhp&pc=U531&cvid=d6e67bbc8a374dfaf7d3ea26586454c2&ei=21#image=3>

If there were any modern neurobiologists and brain scientists arguing for the return to this logic/creativity divide, I'd gladly hear them out, but it seems to me new science has superseded old science and the sheer numbers of experts who conclude this is sort of overwhelming.

*I listed about 10 studies after a quick initial look, and have added more...it doesn't take long to find evidence of RH dominance for creativity. There was research from 2019, 2013 (same year as your heavily referenced study) and many studies over the last 20 years confirming RH dominance for creativity...including publications from Oxford and Princeton to Brain and Cognition, The Handbook of the Neuropsychology of Language, and the journal of Human Brain Mapping.*

That was the end of that. I did not receive a reply after I sent my responses above. I since came across the 2020 Drexel jazz musician research...which has been included in the first 12 pages of evidence and argument, updated since this Feb 2023 exchange.