

I am not an artistic person. My drawing, if you can call it that, consists of stick figures. In school, I studied Science. I found it fun to think about, and I was pretty good at it. My mother is a ballet teacher, and she can draw anything she sees. In school, she studied Fine Arts. This scenario is probably familiar, and in popular culture the terms right-brained, for the creative and thoughtful, and left-brained, for the logical and scientific, have been used to categorise these two types of people. For some reason this theory appeals to us, but we actually know very little about what the brain does to make us good painters or good scientists. So there is, in fact, no scientific evidence to support or refute this idea.

What we do know is that some mental processes that our brains perform happen more on one side than the other. Our skills in language occur because of the activity of groups of nerve cells located mainly on the left side of the brain. By contrast, attention ('are you paying attention?') is due mainly to the activity of nerve cells on the right. This happens much the same in all of us; in you and me, in Einstein and Picasso. So, for language and attention, there is no right-brain left-brain difference – Picasso's language was driven by the left side of his brain, and Einstein's attention by his right. So, might the right-brain left-brain theory be too simplistic to explain complex behavioural differences such as creative versus logical thought?

To address this quandary Neuroscientists looked at over 7000 areas in the brains of over 1000 people and asked: can we find evidence that some peoples' behaviours are driven more by the nerve cells on the right side of their brain and others more by the left?

To investigate this Neuroscientists use fMRI (functional Magnetic Resonance Imaging), a technique that can reveal the connections that brain cells make to one another. When researchers did this, they found no evidence for right side or left side dominance. What they did find was that many places in the brain are like the language and attention areas – mainly on one side where the nerve cells make connections with other cells near them to control a particular mental process. It's a bit like neighborhoods that each have their own identity resulting from interactions among the people that live near one another. To me this makes good sense: many very creative people are also logical and vice versa. Einstein was an exquisite violinist. These findings also mean that discovering the neural secrets of what makes us who we are continue to remain just outside our reach.

REFERENCE: Nielsen JA et al. (2013) "An evaluation of the left-brain vs. right-brain hypothesis with resting state functional connectivity magnetic resonance imaging." PLoS ONE 8(8): e71275. doi:10.1371/journal.pone.0071275