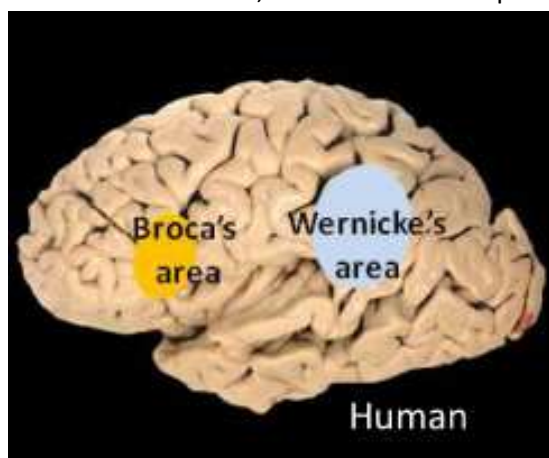


The left-brain-right-brain dominance myth

Brain lateralisation

There will be no attempt here to persuade you that brain lateralisation or at least the fact that certain areas of our brains are involved in specific functions does not describe a real phenomenon. It clearly does and that has been known for a very long time. Some mental processes do happen in one or the other hemisphere of the brain. For example, language production and processing is focused on the Broca and Wernicke areas on the left but attention is more usually considered a right-brain skill. However, it is not so simple. The right-hand side of the brain is also involved in language, specifically intonation and stressing. If you can't recall for the moment where Broca and Wernicke's areas are, here's the mini-map:



That these two areas are crucial to the production and perception of language has been known since the mid-nineteenth century.

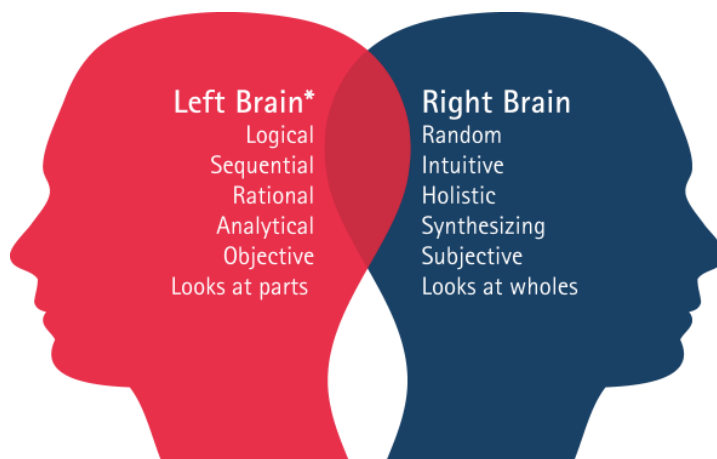
The following, however, does seek to persuade you that a naïve and ill-informed piece of pop psychology which avers that one side or the other of your brain contains either logical or creative abilities is not only fundamentally wrong but can also be wasteful of classroom resources and time and contribute to poor professional practice.

Where did the idea come from?

The observation that damage to one side or other of the brain does not result in the same kind of disability dates back at least to 1800. It was noted then that damage to certain areas of the brain resulted in the loss of certain functions (notably language). Later, in Nobel-prize-winning work², it was demonstrated that severing the connection between the left and right hemispheres of the brain resulted in different responses to stimuli and that led researchers to postulate (note, postulate) that the two hemispheres performed different functions.

Since then, the idea has been taken up by bands of enthusiastic amateurs to suggest that the two sides of the brain (in people who have not undergone drastic brain surgery) function in entirely different ways. From that, it was a short step to asserting that schools favoured left-brain analytical thinkers, that people with right-brain dominance were being given a raw deal and even that the whole curriculum and methodology in schools should be constructed around catering for left- and right-brain dominance. Then of course, it crept into English Language Teaching and there flourishes today a whole left-brain-right-brain sub-industry.

Here are the major assertions (although you will find the two sides confused on some websites, proving that it is possible to make an even number of mistakes and still be wrong³):



*Source: Funderstanding.com, Inc., New Jersey

Very much longer lists of the purported functions of the left and right hemispheres can be found but the above is the usual division.

The assumption, therefore, follows that people who are left-brain dominant will be no good at all the stuff in the right brain's sphere and *vice versa*.

Take a test

If you would like to test yourself and discover your dominant hemisphere go online to take a test. You may even find a test in an ELT classroom coursebook. Here is the first question from a website test which declares itself to be 'Scientifically validated'⁴ to give you the general idea.

1. *Your boss assigns you a handful of projects, due in a couple of weeks. How do you go about completing them?*
 - a. *I list them in order of importance and work on each, one by one, until completion.*
 - b. *I organize them in order of importance and switch between projects when I get bored.*
 - c. *I jump from one project to another until they get done - eventually.*

Filling in the 12-question test entirely randomly produced the following summary (based on the fact that the answers produced 67% right-brain dominance):

When it comes to who calls the shots in your head, it appears as though your right hemisphere takes charge. You're intuitive and spontaneous, preferring to take a much more "hands-on" approach to life. There are times when you may be a little scatter-brained and disorganized, but it's not like you do it on purpose - with so much out there to explore and so many things to do, it can sometimes be hard to keep track of everything! Not one to care or worry about the little details, it's the "big picture" in life that matters most to you. When it comes to following rules or making decisions, you don't really have to go through the whole thinking process; you prefer to rely on your gut rather than logic. This may not make sense to some people, but you've probably always been the type of person who's willing to go out on a limb, basing your decisions and actions on nothing but a hunch. You are often drawn to the abstract and mysterious, and enjoy figuring things out on your own. Being a visually oriented person, you are likely much more adept at expressing yourself through actions or designs rather than words. All in all, your right-brain nature creates an insatiable desire in you to explore and understand why things are the way they are and what they could be. You refuse to be a passive observer, and will jump on every opportunity you can to mix things up and create a design of what life is meant to be: an endless and exciting adventure.

It reads rather like an astrological description of someone and it's about as scientifically valid as one.

Is there any truth in the theory?

Unfortunately not. Unfortunately, that is, for those in the profession who delight in pigeonholing learners. There is no scientific evidence at all that the brain works in this simplistic unsophisticated way. There is, it bears repeating, good scientific evidence that different areas of the brain are involved in different behaviours but that is not at all the same as the assertion that one side or the other is dominant.

Here are some verdicts from people who really are experts:

Brain imaging shows, though, that creative thought activates a widespread network, favoring neither hemisphere⁵

... we demonstrate that left and right-lateralized networks are homogeneously stronger among a constellation of hubs in the left and right hemispheres, but that such connections do not result in a subject-specific global brain lateralization difference that favors one network over the other (i.e. left-brained or right-brained). Rather, lateralized brain networks appear to show local correlation across subjects with only weak changes from childhood into early adulthood and very small if any differences with gender.⁶

I know of no convincing scientific evidence that the right hemisphere has any particular specialization for a number of abstract functions often attributed to it, including "intuition" and "creativity".⁷

.. there is no direct scientific evidence supporting the idea that different thinking styles lie within each hemisphere. Indeed, deriving different hemispheric thinking styles from functional asymmetries is quite a bold venture, which oversimplifies and misinterprets scientific findings.

If one considers the right hemispheric creative and emotional thinking style, there is no scientific evidence that supports a correlation between creativity and the activity of the right hemisphere, let alone evidence for a correlation between the degree of creativity and the use of the right hemisphere. Similarly, a recent analysis of 65 neuroimaging studies on emotion found no scientific support for the hypothesis of an overall right hemispheric lateralisation of emotional function. There is no direct scientific evidence that supports an analytical, logical thinking style for the left hemisphere, which predetermines the left hemisphere for mathematical tasks, or reading and writing.⁸

To sum up briefly:

*"It is certainly the case that some people have more methodical, logical cognitive styles, and others more uninhibited, spontaneous styles. This has nothing to do **on any level** with the different functions of the [brain's] left and right hemisphere."⁹*

and

The brain is indeed divided into two hemispheres and there is specialization of particular functions, such as language, in one hemisphere or the other, but it is not true that we have a dominant hemisphere or that this affects how we learn.¹⁰

So what is the problem? This is just a bit of harmless pop-psychology, isn't it?

If that were all, the problem would not exist. Unfortunately, people have taken things a step further. Here's an example from a teacher trainer writing about an alternative, mind-mapping approach to lesson planning (which is actually a rather interesting idea but that is not the point):

Right-brain dominant and visual teachers will immediately identify with information presented in this form more easily¹¹

Note the conflation now of right-brain dominance and 'visual teachers' and how easily such things slip into psychobabble.

It is, of course, not only in the realm of language teaching that naïve theories about brain function are influential. Here's a note about management theory:

The simplistic dichotomies of the function of the brain discussed here bear "about as much relation to the known facts about hemisphere functioning as astrology does to astronomy"

Harnad & Steklis, 1976, p. 320). Since this is the case, attempts to improve performance, training, employee selection, and the like based on such nonexistent dichotomies will, at best, be unproductive. At worst, such efforts will result in considerable time and money being expended in the pursuit of wild geese.¹²

The application of the myth in the classroom

Here are some snippets from the wealth of right-brain-left-brain nonsense in the field of ELT:

*Total Physical Response is an ELT method specifically directed at Right Brain Learning.*¹³

*Right brain / left brain dominance test for your students*¹⁴

*With an understanding of these split-brain-related aspects we can then prepare a palette of activities that aid in the use and development of both brain hemispheres fostering more balanced overall intellectual development.*¹⁵

If you have a left brain preference you could try...

- writing out information by hand*
- turning the information into lists*
- using headings to break information into categories*

If you have a right brain preference you could try...

- using shape and colour to highlight information*
- drawing a diagram to show how information links up*
- singing the information you have to learn!*¹⁶

And here's a neat little piece of psychology in a students' book:

Left Brained or Right Brained?

Did you know that what you're good at doing might have something to do with the side of your brain you use most? You see, the brain is divided into two hemispheres (sides), the left hemisphere and the right hemisphere. Each hemisphere takes care of different things, but the two exchange information between them. Some scientists believe that each side of the brain controls different abilities, and that each person has one side that's stronger. That stronger side may help determine, in some ways, what we like to do, what we're good at, and what we're interested in.

Left-brained people are logical. They're good at analyzing details. They enjoy doing things like solving math problems and playing chess. Right-brained people are creative and imaginative. They're good at activities like painting and acting. But there are also scientists who say that, although there may be some truth in this theory, things aren't so simple. They add that the brain works in a very complicated way, and we don't know everything about it yet.

Which side of your brain is stronger?

If you would like to find out which side of your brain is stronger, take this short quiz. Choose (A) or (B) to answer each question.

- 1 Do you prefer going to (A) math lessons or (B) art lessons?
- 2 Do you like (A) planning everything or (B) not planning at all?
- 3 Do you like (A) a lot of instructions or (B) not many instructions?
- 4 Do you remember things more easily (A) with words or (B) with pictures?
- 5 When you meet people, do you remember (A) their name or (B) their face?
- 6 When you read a story, do you look for (A) details or (B) the big picture?

How did you score? If you have more As, the left side of your brain may be stronger. If you have more Bs, the right side is probably stronger. Now think about the kinds of activities you like to do. Do they match your brain type?

There are plenty more examples where these came from.

Pigeonholing learners



The point being made is that advising teachers to prepare and deliver lessons based on such shaky foundations is deeply unhelpful, probably a waste of time and quite likely counterproductive. Worse, once you start to label learners in this way, don't be surprised if they start to act this way. Telling a learner that she/he is dominantly right-brained and therefore can't be expected to analyse

grammar carefully but needs to rely on hunches is a sure way of making sure the learner switches off in your grammar lessons.

The reverse applies, too, and telling a learner that she/he is predominantly left-brained so can't be expected to go for a holistic understanding of a text may well result in the encouragement of poor reading strategies.

For teachers, of course, the issue is about time, preparation and the choice of materials and tasks. If the right-brain-left-brain myth has been swallowed, then a good deal of time will be wasted endeavouring to ensure that materials and tasks appeal to both types of hemisphere dominance and a good deal of classroom time which might otherwise be devoted to teaching and learning is essentially misdirected.

References and sources:

¹ Corballis, M, School of Psychology, University of Auckland, Auckland, New Zealand in PLOS Biology | www.plosbiology.org 1 January 2014 | Volume 12 | Issue 1 | e1001767

² By Robert Sperry and Michael Gazzaniga

³ Murphy's Uncertainty Principle states that "You can know something has gone wrong only when you make an odd number of mistakes" (Block, A, 2003, Murphy's Law, New York: Berkley Publishing Group)

⁴ <http://testyourself.psychtests.com/testid/3178>

⁵ Corballis, M, School of Psychology, University of Auckland, Auckland, New Zealand in PLOS Biology | www.plosbiology.org 1 January 2014 | Volume 12 | Issue 1 | e1001767

⁶ Nielsen, JA., Zielinski BA., Ferguson MA., Lainhart JE., Anderson JS. An Evaluation of the Left-Brain vs. Right-Brain Hypothesis with Resting State Functional Connectivity Magnetic Resonance Imaging, in <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0071275>

⁷ Hampson, E, Left Brain, Right Brain: Fact and Fiction, Organization for Quality Education

⁸ Neuromyth 6, The Centre for Educational Research and Innovation, OECD, available at <http://www.oecd.org/edu/cei/neuromyth6.htm>

⁹ Jeffrey Anderson, a brain researcher at the University of Utah, on <http://www.bbc.com/news/blogs-trending-35640368> [emphasis added]

¹⁰ Lethaby, C and Harries, P, Learning styles and teacher training: are we perpetuating neuromyths? ELT Journal Volume 70/1 January 2016, Oxford: Oxford University Press

¹¹ Foord, D, Lesson Planning Right from the Heart, English Teaching professional, Issue 93 July 2014

¹² Hines, T, Left Brain/Right Brain Mythology and Implications for Management and Training, The Academy of Management Review, Vol. 12, No. 4 (Oct., 1987), pp. 600-606

¹³ <http://www.eslprintables.com/forum/topic.asp?id=6469>, Lesson plans for right and left brain students

¹⁴ <http://www.merveoflaz.net/right-brain-left-brain-dominance-test-for-your-students.html>

¹⁵ <http://www.eslteachersboard.com/cgi-bin/lessons/index.pl?read=4525>

¹⁶ <http://www.bbc.co.uk/worldservice/learningenglish/events/learningtips.shtml>

¹⁷ http://product.pearsonelt.com/bigenglishplus/assets/sampleunits/bep_ame_l5_sb_unit1.pdf