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RIGHT AND LEFT BRAIN

The brain is divided physically into a left and right half is not a new discovery. The Egyptians knew that the left side of the brain controlled and received sensations from the right side of the body and vice versa.

It is only in the last two dozen years, however, that the true implication of the left/right split has gradually become apparent, through the work of a number of researchers. The most famous are probably Dr. Roger Sperry and Dr. Robert Ornstein of the California Institute of Technology. Their work has won them a Nobel prize.

Sperry and Ornstein noted that the left and the right hemispheres are connected by an incredibly complex network of up to 300 million nerve fibres called the Corpus callosum. They were also able to show that the two halves of the brain tend to have different functions.

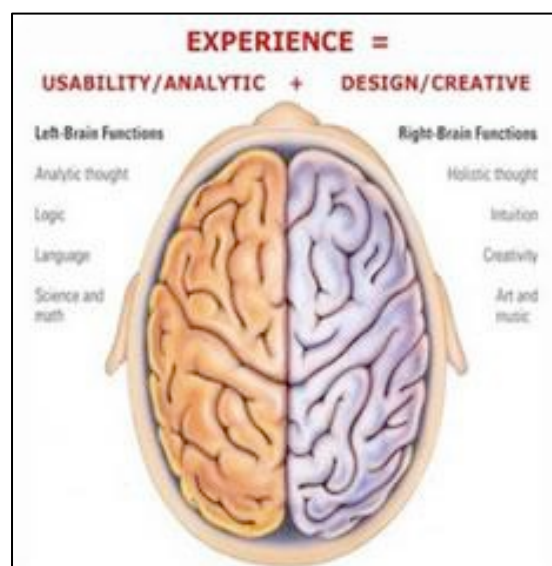
They (and other researchers) indicate that the left brain primarily appears to deal with language and mathematical processes and logical thought, sequences, analysis and what we generally label academic pursuits. The right brain principally deals with music, and visual impressions, pictures, spatial patterns, and colour recognition. They also ascribe to the right brain the ability to deal with certain kinds of conceptual thought – intangible 'ideas' such as love, loyalty, beauty.

The specialization of the two halves of the brain can result in some bizarre behaviour. Patients who, for medical reasons, have had their Corpus callosum severed, have effectively two semi-independent brains: two minds in one head.

If a ball is shown to the left visual field of such a person, i.e. registered to their right brain hemisphere, the speaking half of the brain, which is in the other; (left) brain will claim to have seen nothing. If, however, the patient is asked to feel in a bag of assorted shapes he will correctly pull out a ball. If he is asked what he has done he will say 'nothing'. The ball has only been seen with the right

brain, and felt with the right brain. The speech centre, which is located in the left brain, has registered nothing.

Even more delicate experiments have been performed on surgically split-brained patients. The word SINBAD was projected to such a patient while his eyes were focused on the precise spot between N and B. The first 3 letters went to his right brain, the last three to his left hemisphere. When asked to say what he had seen, he replied BAD. When asked to point with his left hand to what he had seen he pointed to the word SIN.



The specialisation of the two brains has also been demonstrated by measuring the electrical activity of the brain during various activities.

When the brain is relaxed in a state of rest, it tends predominantly to show an alpha brain wave rhythm – i.e. 8-12 Hz waves. Ornstein found that a subject tackling a mathematical problem showed an increase in alpha in the right hemisphere. This indicated that the right side was relaxing whilst the left was active and, therefore, in a beta brain wave pattern. In contrast, when a subject was matching coloured patterns, the left showed alpha (i.e. was

resting) and the right showed beta (i.e. was active).

The brain scans, show the varying levels of electrical brain activity in a subject listening to music, words and singing. The first activity (music) involved the right brain. The second (listening to words only) involved the left brain, but singing (words and music together) involved the whole brain.

The left brain is now thought to be the half that specialises in serial, sequential thought, i.e. analysing information in sequence in a "logical" step by step approach. The left rationalises. The right brain seems to take in several bits of information "at a glance" and process them into one overall thought. The right synthesises.

When you meet someone it seems to be the right brain that takes all the elements at once and synthesises the pattern into a whole to recognise the person instantaneously. If you were using your left brain only you would probably scan first the hair, then the forehead, then the eyes, nose, mouth and chin in sequence to "build up" a picture. The right brain, however, recognises the pattern immediately.

It is the left brain that is dominant in, for example, mathematical calculations. It is the right brain that processes non-verbal signals.

We have come as a society to stress, and value more highly, the functions of the left brain. The analytical thinking of the physicist is usually valued higher (in money terms) than the artistic and intuitive ability of the musician or artist. Most schools relegate right brain dominant activities to two or three periods a week. Yet those schools who have tried increasing the proportion of arts subjects, have found that levels of all scholastic performance improved. Because, although the two halves of the brain may indeed be specialised, they are far from being isolated. Each compliments and improves the performance of the other.

Education that emphasises only analytical thinking is literally "single minded". As one psychologist put it »Such people's brains are being systematically damaged. In many ways they are being de-educated.«

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