Essay on split brain research

Sociology, Communication

- What is a " split brain"?

Split brain is the layman’s term for the brain’s two hemispheres connected by the corpus callosum, which consists of a nerve fiber bundle. Each brain hemisphere functions independently yet in coordinated manners. The right hemisphere controls recognition of visual imagery, music, and related ones whereas the left hemisphere functions dominantly in areas such as language, logic, and mathematics (Nobelprize. org, 2013). In some exceptional circumstances and for research purposes, scientists severe the corpus callosum (known as corpus callosotomy) of a person when it is the last option that could be resorted to (such as in case of brain tumor, terrible seizure) (Blakeslee, 1996). Although a person’s brain may still work fine on a daily basis, the two hemispheres cannot properly communicate with each other when the corpus callosum is cut. Bodily parts would perform the same task in opposite ways (e. g., right hand unzipping a pant and the left hand zipping it). Nearly six decades of split brain research have unraveled many important findings such that a person who is left-brained is analytic, logical, rational, and so on while a right-brained individual is musically inclined, imaginative, creative, etc. (Zaidel, 2013).

- How did Michael Gazzaniga discover the specialized functions of the brain's left and right hemispheres? Explain the rationale of the split-brain experiment.

Among the pioneers in the field of split brain research is Michael Gazzaniga, a neuroscientist (University of California, n. d.). He corroborated with colleagues at Caltech and tested the independent functioning of split-brained patient’s cerebral hemispheres. They found out that a severed corpus

callosum would block the inter-hemispheric transfer of various forms of information (e. g., sensory, perceptual, motor, etc.) in ways never before thought of. The rationale of the split-brain experiment is that the left and right hemispheres function differently and interactively with each other. Because the two hemispheres functions separately, since they are normally linked together by the corpus callosum, they communicate with each other in coordinated ways (School of Professional Hypnosis , 2008). The left hemisphere controls the performance of verbal tasks (e. g., speaking) whereas the right hemisphere dominates nonverbal activities (e. g., face recognition). Moreover, the left hemisphere receives sensory inputs from the right side of the body, and vice versa. Nonetheless, the two hemispheres work together when comprehending inputs to perform various simple tasks. To date, further studies are conducted and previous ones' recommended in their research results that much remain to be investigated concerning the more comprehensive specialized understanding of brain functioning.

- For what specific abilities do the right & left hemispheres of the brain seem to be specialized?

The right and left cerebral hemispheres seem to be specialized in specific abilities. The right hemisphere is for linear thinking mode whereas the left brain is for holistic thinking mode. The brain is organized in such a way that the right hemisphere is responsible for the following neural abilities that include the acquisition of language, writing abilities, scientific skills, logical intelligence, mathematical proficiency, and so on. On the other hand, the left hemisphere controls affective expression and spatial awareness, not to mention creativity, imagination, music ability, etc. Other than those

mentioned already, the right hemisphere is also involved in specific activities such as controlling the left-hand, “ perceiving” of pictures, understanding stories, configuring patterns, and related ones. On the contrary, the left hemisphere concerns the control of the right-hand, reasoning ability, skills in science, comprehending details, rationalizing, ordering, and related ones. Further, the right part of the brain is involved in tactile analysis, left-auditory “ sensing,” and spatial and visual analysis. The left hemisphere, on the other hand, has the speech control mechanism, right auditory sensing, and general interpretative center (that is, language and mathematical calculations). In summary, the right hemisphere seems to function in accumulating knowledge while the left hemisphere lends support to creative thoughts.

References

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