INTRODUCTION

Are you a "right-brained" or a "left-brained" person? Chances are you've heard, or even used, these terms to describe others. The idea is that the "right brain" dominates the thinking of people who are particularly artistic or imaginative, and that the "left brain" dominates the thinking of people who are inclined toward math or logic. Although this notion is quite popular, it is nothing but a misconception perpetuated by the media. Research has consistently shown that people are neither left-brain nor right-brain dominant.

As with all popular misconceptions about science, this falsehood had to start somewhere. In this case, it probably began with the scientifically valid concept of **lateralization**. This means that different parts of the brain have different functions, and that the left and right hemispheres of the brain, in particular, have their own specializations.

The idea that brain areas have distinct functions has been observed for a very long time—at least going back to Galen of Pergamon, a Greek physician and surgeon in the Roman Empire who administered to gladiators. Galen noticed that the gladiators were most likely to suffer language impairments when they were injured on the left side of their skulls. Observations such as these led to the conclusion that our brains exhibit lateralization.

In general, the left hemisphere of the brain is dominant for language, and the right hemisphere is dominant for global spatial information. The two hemispheres are connected by a large fiber of axons called the **corpus callosum**. By traveling through the corpus callosum, nerve impulses these terms to describe others. The idea is that the "right brain" dominates the thinking of people who are particularly artistic or imaginative, and that the "left brain" dominates the thinking of people who are inclined toward math or logic. Although this notion is quite popular, it is nothing but a misconception perpetuated by the media. Research has consistently shown that people are neither left-brain nor right-brain dominant.

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In general, the left hemisphere of the brain is dominant for language, and the right hemisphere is dominant for global spatial information. The two hemispheres are connected by a large fiber of axons called the **corpus callosum**. By traveling through the corpus callosum, nerve impulses can travel from the left part of the brain to the right, and vice versa.

Severe epilepsy usually responds to drug treatment, but when it doesn't, doctors sometimes sever the corpus callosum to prevent severe attacks of epilepsy from spreading across the brain, from one side to the other. These "split-brain patients" can, for the most part, lead relatively normal lives. However, a classic experiment run by Michael Gazzaniga and his colleagues, revealed that the split-brain operation does change how these patients process information. You'll be simulating this experiment in the Experience section of this ZAPS lab.

Instructions

In the experimental setup devised by Gazzaniga and his colleagues, and recreated in this ZAPS lab, a split-brain patient sits in front of two side-by-side screens. A collection of objects is placed behind the screens and out of the patient's view. A word describing one of the objects is briefly flashed on one of the two screens. The patient is then asked to reach under the screens to fetch the identified object with the left or right hand.

You'll play the role of the experimenter here and get to decide what the patient's task will be in a series of experimental trials. For each trial, you will use buttons to choose:

1. the object you'd like the patient to fetch ("Words to show")
2. which side of the screen you'd like the name of the object to flash ("Show word on which screen")
3. which hand you'd like the patient to use when fetching the object from behind the screen ("Instruct patient to use which hand")

Once you've selected your variables, click "Run Trial" to see whether the patient is able to fetch the correct object, or how he or she otherwise responds. Your results will be recorded, and after you've run at least 12 trials, word on which screen")

3. which hand you'd like the patient to use when fetching the object from behind the screen ("Instruct patient to use which hand")

Once you've selected your variables, click "Run Trial" to see whether the patient is able to fetch the correct object, or how he or she otherwise responds. Your results will be recorded, and after you've run at least 12 trials, you can move on to the Your Data section of the ZAPS lab and interpret your results. Be sure to try a variety of combinations of objects, screen sides, and hands.

Pay attention to which side of the patient's visual field you are flashing the word to, which hemisphere should get the information, and which hand should thus be able to retrieve the correct object.

Trial #	Object	Visual Field	Hand	Object Retrieved	Verbal Response
1	keys	Right	Right	Yes	I saw the word keys. Here they are.
2	cup	Left	Right	No	I don't know what word I saw, and I didn't know which object to take.
3	apple	Right	Right	Yes	I saw the word apple. Here it is.
4	cup	Right	Right	Yes	I saw the word cup. Here it is.
5	keys	Right	Right	Yes	I saw the word keys. Here they are.
6	keys	Right	Right	Yes	I saw the word keys. Here they are.
7	apple	Left	Right	No	I don't know what word I saw, and I didn't know which object to take.
8	apple	Right	Right	Yes	I saw the word apple. Here it is.
9	apple	Right	Right	Yes	I saw the word apple. Here it is.
10	cup	Right	Right	Yes	I saw the word cup. Here it is.
11	keys	Left	Left	Yes	I don't know what word I saw. Why did I take this object?
12	cup	Left	Left	Yes	I don't know what word I saw. Why did I take this object?
13	cup	Left	Left	Yes	I don't know what word I saw. Why did I take this object?

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