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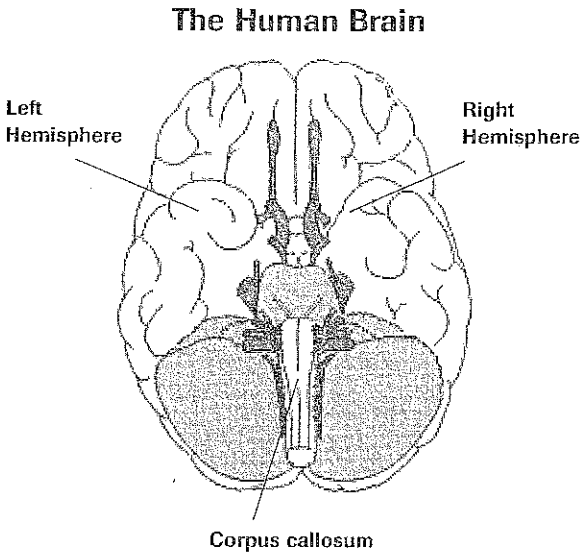
CASE STUDY 6

Dual-Brain Psychology

Directions: Read the following case study, then answer the questions that follow.

Neurologists, psychiatrists, and psychologists have demonstrated that different areas of the brain are responsible for different behaviors and control different sensory inputs. For example, studies have shown that the left hemisphere controls the right side of the body, and the right hemisphere controls the left side of the body. Scientists also attribute different abilities to the right and left hemispheres. The left hemisphere controls language and verbal reasoning, while the right hemisphere manages spatial understanding. Recent studies have sought to identify if emotions are processed differently by the two hemispheres. This area of study has been labeled "dual-brain psychology."



Existing Research

Psychiatrist Fredric Schiffer began his studies in dual-brain psychology by reviewing the research done with patients who had undergone commissurotomies, a surgical procedure that separates the brain's two hemispheres by severing the corpus callosum. This radical surgery has proven successful in relieving severe epileptic seizures. Dr. Eran Zaidel researched how the brain functions after this radical surgery. He used simple visual and motor tests to understand how the two halves of the brain work. He had a patient sit in front of a screen. Pictures were flashed to either the right or left side of the screen. Pictures that were flashed to the right side of the screen were processed by the left hemisphere and vice versa. Zaidel asked the patient to name the objects shown in the pictures. The patient could name the objects that were flashed on the right side of the screen, but could not name the objects flashed on the left side of the screen. This seemed to confirm that language is a left brain function and that the right brain is mute.

Zaidel took the study one step further. Even though the right hemisphere is mute, he wondered how the right brain processed the picture. He hypothesized that the right brain did recognize the object, but simply had no way to name it. He repeated the experiment. When an image was flashed on the left side of the screen, the patient was asked to use his right hand to select the object from a group of objects. Although the patient could not name the object, he always made the correct selection. Zaidel concluded that although the right brain is mute, it does process visual information correctly.

Other studies with commissurotomy patients have shown that, when divided, the two halves of the brain function independently enough to say that the patient has two minds.

Dual-Brain Psychology Research

Schiffer wondered what applications Zaidel's findings had on those whose brains were intact. Since information is processed differently by the two hemispheres, he hypothesized that emotions are also processed differently. To test his hypothesis, he modified two pairs of safety goggles. On one pair, he used white tape to completely cover the left lens and the left half of the right lens. This allowed vision through the right visual field only. Therefore, the information would be processed by the brain's left hemi-

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sphere. On the other pair, he completely covered the right lens and the right half of the left lens. This allowed vision through the left visual field, which would be processed by the brain's right hemisphere.

During psychotherapy sessions, he asked patients to select one pair of the goggles to wear. One of the first patients to test the goggles was an agoraphobic woman who feared all unfamiliar places. She needed to travel to a different city and was working with Dr. Schiffer to overcome her phobia. Schiffer had her select a pair of the goggles to wear as the session began. She chose the pair that had the left side completely covered, allowing her to see only from her right visual field. Schiffer asked her to imagine herself in the different city. What was her level of anxiety? Could she deal with it? Her response was that she would feel lost and very anxious. She did not believe that she could go through with the visit.

Schiffer had her put on the other pair of glasses that gave her vision only to the left visual field. After a 15-second period of adjustment, he asked her how she would feel in the different city. This time her responses were much more positive. She thought she could manage the visit and not be overcome with anxiety. She was much calmer when contemplating the trip than when she had been seeing through her right visual field. Subsequent trials indicated differences in about half the patients. Some sensed minor differences in emotions, while some indicated strong differences.

To further test the hypothesis that different hemispheres process emotions differently, Schiffer used the taped glasses with 70 participants. They were randomly assigned to one pair of glasses. After a 45-second period of adjustment, they were asked to rate their level of anxiety using a 5-point scale (0 for no anxiety to 4 for extreme anxiety). After participants gave their ratings, they were asked to switch to the other pair of glasses. Participants also rated their level of anxiety with the second pair.

Results

Of the 70 participants, 60 percent reported a one-point difference in anxiety level between the two pairs of glasses and 23 percent reported a two point or greater difference. Of the 70 participants, four had a four-point difference in their rating. These four participants exhibited high levels of anxiety. In fact, the only variable that showed significance was level of anxiety. Other possible variables, including gender, handedness, and age, did not significantly affect the results.

Conclusions

The brain's left and right hemispheres do process emotions differently. Treatments can be developed that allow patients to reduce their levels of anxiety by teaching them to use different hemispheres. In addition, the two hemispheres can learn to work together to create a healthy, whole person.

Source: Schiffer, F. (1998). *Of Two Minds: The Revolutionary Science of Dual-Brain Psychology.* New York: The Free Press.

Understanding the Case Study

Directions: Answer the following questions in the space provided.

1. What does the left hemisphere of the brain control?

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_____

2. What does the right hemisphere of the brain control?

_____

_____

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3. Describe the results of Zaidel's study on commissurotomy patients.

4. What was Schiffer's hypothesis about emotions?

Thinking Critically

Directions: Answer the following questions in the space provided.

5. Why would patients with high levels of anxiety show a greater difference in level of anxiety between the brain's two hemispheres?

6. Anxiety has many causes, including depression, phobias, bipolar disorders, and post-traumatic stress disorder. Describe further research that could be conducted to determine if different causes of anxiety are processed differently by the brain and, therefore, require different types of dual-brain therapy.