

CASE STUDY

1

**Early Investigations
into Psychological
Oddities**

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

Introduction

Early psychologists recognized the need for the scientific study of every facet of human behavior. Although they did not have the research tools and the technology of modern psychology, they did attempt to apply the scientific method rigorously to their research.

In the late 1800s the psychological community became embroiled in a debate about psychic phenomena. The Society of Psychical Research was formed in 1882 for the specific purpose of bringing science and psychic phenomena together. The society had two purposes: "... first, to carry on systematic experimentation with hypnotic subjects, mediums, clairvoyants, and others; and, secondly, to collect evidence concerning apparitions, haunted houses, and similar phenomena which are incidentally reported, but which, from their fugitive character, admit of no deliberate control." The society wanted to either debunk these mystical phenomena or find a scientific explanation for their existence.

Hypothesis

William James, a leading psychologist at the time, explained the difficulty of the task facing the Society of Psychical Research when he wrote: "In psychology, physiology, and medicine, wherever a debate between the mystics and the scientifics has been once for all decided, it is the mystics who have usually proved to be right about the *facts*, while the scientifics had the better of it in respect to the theories."

Method

The society faced a difficult task. First, many people who practiced psychic phenomena had no interest in being subjected to rigorous scientific study; they did not see the need. They were also suspicious of intellectuals whose only goal seemed to be to discredit them. The society, led

by Professor Henry Sidgwick, tried to reassure these people. Sidgwick was widely regarded for his impartiality and his unwillingness to draw hasty conclusions. Other members of the society also had reputations for fairness and for honestly seeking answers to seemingly unexplainable phenomenon.

The society's second challenge was to find the financial resources to adequately fund its research. James urged the society to continue even with meager resources. He challenged them to continue to gather facts by conducting extensive interviews with the participants and witnesses in every reported case of psychic phenomenon. He believed that by carefully documenting these cases, the society would eventually have enough evidence to form some type of theory. James expressed his concern as follows: "Its [the Society of Psychical Research] sustainers, therefore, should accustom themselves to the idea that its first duty is simply to exist from year to year and perform this recording function well, though no conclusive results of any sort emerge at first."

For two years, the society focused primarily on thought transference, or telepathy. They studied 30 people who claimed to have the power to identify an object thought of by another person. Although one of the cases, involving two sisters, was found to be a hoax, many other cases could not be explained by random chance or by the deceitful action of the participants.

Another area of research for the society was the phenomenon of hypnotic suggestion. The researchers observed various subjects under hypnotic trances or performing actions as a result of posthypnotic suggestion. Edmund Gurney performed one set of experiments that involved the automatic writing of subjects as a result of posthypnotic suggestion.

"For example, a subject during a trance is told that he will poke the fire in six minutes after waking. On being waked he has no memory of

the order, but while he is engaged in conversation his hand is placed on a planchette, [a device that when lightly touched is believed to produce automatic writing] which immediately writes the sentence, 'P., you will poke the fire in six minutes.' Experiments like this, which were repeated in great variety, seem to prove that below the upper consciousness the hypnotic consciousness persists, engrossed with the suggestion and able to express itself through the involuntarily moving hand."

Gurney became the most tireless worker for the society. He also researched witchcraft, apparitions, and mental telepathy. His study of witchcraft involved reviewing the accounts of hundreds of witch trials. He found that there was "no first-hand evidence recorded in the trials except the confessions of the victims themselves; and these, of course, are presumptively due to either torture or hallucination."

His exploration of apparitions and mental telepathy involved collecting about 700 cases of reported experiences. In these experiences, one person would get a mental image of a person in distress. He found many of these cases to be honest reports and concluded that "the mind of the person undergoing the calamity was at that moment able to impress the mind of the percipient [sic] with an hallucination." Further research into this phenomenon in both England and the United States led the society to find that such experiences happen too frequently to be

explained by mere chance. In fact, they calculated that such occurrences happen 440 times more often than can be attributed to chance.

Conclusions

The Society of Psychical Research failed to impress many in the scientific community with its findings. Much of their research is considered crude by modern standards. Their efforts, however, do indicate that they did apply the scientific method consistently. James responded to critics of the society by saying "... most of the would-be critics of the Proceedings have been contented to oppose to [sic] the phenomena recorded the simple presumption that in some way or other the reports *must* be fallacious [false], ..." He criticized scientists who dismiss things that are not easily explained and categorized simply because they do not fit into the way they think things should be.

The Society of Psychical Research produced a great body of evidence, but developed no concrete theories. The exploration into unexplained phenomena continues to the present. Of all the phenomena explored, only hypnosis has been brought into the mainstream of psychological research and practice. The other areas researched by the society remain in the realm of parapsychology.

Source: James, W. (1897/1956). *The Will to Believe and Other Essays in Popular Philosophy*. New York: Dover Publications, Inc., 299-327.

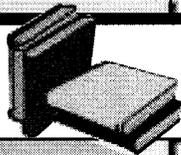
Understanding the Case Study

Directions: Answer the following questions in the space provided.

1. What was the purpose of the Society of Psychical Research?

2. What two reasons are cited for the difficulty of the society's research task?

READING



2

Falsifiability

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

Psychology, like other sciences, is advanced when psychologists propose new theories. The theories are tested by various research methods. The results of the tests may support or refute the theory. A theory that is supported by one study will be examined and tested by other researchers. These additional studies may provide additional confirmation of the theory or may find flaws in the original theory. Testable theories, then, are stated in such a way that they can be proved false.

In 1793 a severe epidemic of yellow fever struck Philadelphia. One of the leading doctors in the city at the time was Benjamin Rush, a signer of the Declaration of Independence. During the outbreak Rush was one of the few physicians who were available to treat literally thousands of yellow fever cases. Rush adhered to a theory of medicine that dictated that illnesses accompanied by fever should be treated by vigorous bloodletting. He administered this treatment to many patients, including himself when he came down with the illness. Critics charged that his treatments were more dangerous than the disease. However, following the epidemic, Rush became even more confident of the effectiveness of his treatment, even though several of his patients had died. Why? . . .

Theories and the Falsifiability Criterion

Benjamin Rush fell into a fatal trap when assessing the outcome of his treatment. His method of evaluating the evidence made it impossible to conclude that his treatment did not work. If the recovery of a patient meant confirmation of his treatment (and hence his theory of medicine), then it only seems fair that the death of a patient should have meant disconfirmation. Instead, he rationalized away these disconfirmations. By interpreting the evidence as he did, Rush violated one of the most important rules regarding the construction and testing of theories in science: he made it impossible to falsify his theory.

Scientific theories must always be stated in such a way that the predictions derived from them can potentially be shown to be false. Thus the methods of evaluating new evidence relevant to a particular theory must always include the possibility that the data will falsify the theory. This principle is often termed the *falsifiability criterion*. . . .

The falsifiability criterion states that, for a theory to be useful, the predictions drawn from it must be

specific. The theory must go out on a limb, so to speak, because in telling us what should happen, the theory must also imply that certain things will not happen. If these latter things do happen, then we have a clear signal that something is wrong with the theory: it may need to be modified, or we may need to look for an entirely new theory. Either way, we shall end up with a theory that is nearer to the truth. In contrast, if a theory does not rule out any possible observations, then the theory can never be changed, and we are frozen into our current way of thinking, with no possibility of progress. Thus a successful theory is not one that accounts for every possible happening because such a theory robs itself of any predictive power.

The Theory of Knocking Rhythms

A hypothetical example will show how the falsifiability criterion works. A student knocks at my door. A colleague in my office with me has a theory that makes predictions about the rhythms that different types of people use to knock. Before I open the door, my colleague predicts that the person behind it is a female. I open the door and, indeed, the student is a female. Later I tell my colleague that I am impressed, but only mildly so because he had a 50 percent chance of being correct even without his "theory of knocking rhythms." He says he can do better. Another knock comes. My colleague tells me it is a male under 22 years old. I open the door to find a male student whom I know to be just out of high school. I comment that I am somewhat impressed since our university has a considerable number of students over the age of 22. Yet I still maintain that, of course, young males are quite common on campus. Thinking me hard to please, my colleague proposes one last test. After the next knock, my colleague predicts, "Female, 30 years old, 5 feet 2 inches tall, carrying a book and a purse in the left hand and knocking with the right." After opening the door and confirming the prediction completely, I have quite a different response. I say that, assuming my colleague

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did not play a trick and arrange for these people to appear at my door, I am now in fact extremely impressed.

Why the difference in my reactions? Why do my friend's three predictions yield three different responses, ranging from "So what?" to "Wow"? The answer has to do with the specificity and precision of the predictions. The more specific predictions made a greater impact when they were confirmed. Notice, however, that the specificity varied directly with the falsifiability. The more specific and precise the prediction was, the more potential observations there were that could have falsified it. For example, there are a lot of people who are not 30-year-old females who are 5 feet 2 inches tall.

Good theories, then, make predictions that expose themselves to falsification. Bad theories do not put themselves in jeopardy in this way. They make predictions that are so general that they are almost bound to be true (for example, the next person to knock on my door will be less than 100 years old) or are phrased in such a way that they are completely protected from falsification. . . .

Not All Confirmations Are Equal

The principle of falsifiability has important implications for the way we view the confirmation of a theory. Many people think that a good scientific theory is one that has been repeatedly confirmed. They assume that

the amount of confirming evidence is critical in the evaluation of a theory. But falsifiability implies that the number of times a theory has been confirmed is not the critical element. The reason is that, as our example of the "theory of knocking rhythms" illustrated, not all confirmations are equal. Confirmations are more or less impressive depending on the extent to which the prediction exposes itself to potential disconfirmation. One confirmation of a highly specific, potentially falsifiable prediction (for instance, a female, 30 years old, 5 feet 2 inches tall, carrying a book and a purse in the left hand knocking with the right) has a greater impact than the confirmation of 20 different predictions that are all virtually unfalsifiable (for instance, a person less than 100 years old).

Thus we must look not only at the quantity of the confirming evidence, but also at the quality of the confirming instances. Using the falsifiability criterion as a tool to evaluate evidence will help the research consumer resist the allure of the nonscientific, all-explaining theory that inevitably hinders the search for a deeper understanding of the nature of the world and the people who inhabit it. Indeed, such theoretical dead ends are often tempting precisely because they can never be falsified. They are islands of stability in the shifting ocean of the modern world.

Source: Stanovich, K.E. (1996). *How to Think Straight About Psychology*. New York: HarperCollins, 21-8.

 **Understanding the Reading**

Directions: Answer the following questions in the space provided.

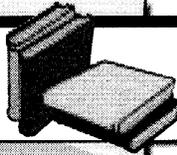
1. Why did Benjamin Rush believe his treatment worked?

2. What is the falsifiability criterion?

3. What types of predictions can be made using good theories?

4. What is the most important characteristic of confirming evidence?

READING



4

Teenagers in Crisis

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

Many adults believe that it is more difficult to be a teenager today than when they were growing up. Although not all researchers agree, there is some evidence to suggest that American society is changing so rapidly that it is forcing its adolescents toward adulthood without the necessary time and training for a smooth transition from childhood to adulthood. The consequences to the adolescent and to society may be felt for several decades.

There is no place for teenagers in American society today—not in our homes, not in our schools, and not in society at large. This was not always the case: barely a decade ago, teenagers had a clearly defined position in the social structure. They were the “next generation,” the “future leaders” of America. Their intellectual, social, and moral development was considered important and therefore it was protected and nurtured. The teenager’s occasional foibles [minor flaws] and excesses were excused as an expression of youthful spirit, a necessary Mardi Gras before assuming adult responsibility and decorum. Teenagers thus received the time needed to adapt to the remarkable transformations their bodies, minds, and emotions were undergoing. Society recognized that the transition from childhood to adulthood was difficult and that young people needed time, support, and guidance in this endeavor.

In today’s rapidly changing society, teenagers have lost their once privileged position. Instead, they have had a premature adulthood thrust upon them. Teenagers now are expected to confront life and its challenges with the maturity once expected only of the middle-aged, without any time for preparation. Many adults are too busy retooling and retraining their own job skills to devote any time to preparing the next generation of workers. And some parents are so involved in reordering their own lives, managing a career, marriage, parenting, and leisure, that they have no time to give their teenagers; other parents simply cannot train a teenager for an adulthood they themselves have yet to attain fully. The media and merchandisers, too, no longer abide by the unwritten rule that teenagers are a privileged group who require special protection and nurturing. They now see teenagers as fair game for all the arts of persuasion and sexual innuendo once directed only to adult audiences and consumers. High schools, which were once the setting for a unique teenage culture and language, have become miniatures of the adult community. Theft, violence, sex, and

substance abuse are now as common in the high schools as they are in the streets.

The imposition of premature adulthood upon today’s teenagers affects them in two different but closely related ways. First, because teenagers need a protected period of time within which to construct a personal identity, the absence of that period impairs the formation of that all-important self-definition. Having a personal identity amounts to having an abiding sense of self that brings together, and gives meaning to, the teenager’s past while at the same time giving him or her guidance and direction for the future. A secure sense of self, of personal identity, allows the young person to deal with both inner and outer demands with consistency and efficiency. This sense of self is thus one of the teenager’s most important defenses against stress. By impairing his or her ability to construct a secure personal identity, today’s society leaves the teenager more vulnerable and less competent to meet the challenges that are inevitable in life.

The second effect of premature adulthood is inordinate stress: teenagers today are subject to more stress than were teenagers in previous generations. This stress is of three types. First, teenagers are confronted with many more freedoms today than were available to past generations. Second, they are experiencing losses, to their basic sense of security and expectations for the future, that earlier generations did not encounter. And third, they must cope with the frustration of trying to prepare for their life’s work in school settings that hinder rather than facilitate this goal. Any one of these new stresses would put a heavy burden on a young person; taken together, they make a formidable demand on the teenager’s ability to adapt to new demands and new situations.

Contemporary American society has thus struck teenagers a double blow. It has rendered them more vulnerable to stress while at the same time exposing them to new and more powerful stresses than were ever faced by previous generations of adolescents. It

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is not surprising, then, to find the number of stress-related problems among teenagers has more than tripled in the last decade and a half.

Source: Elkind, D. (1984). *All grown up and no place to go: Teenagers in Crisis*. Reading, MA: Addison-Wesley. pp. 3-8.

Understanding the Reading

Directions: Answer the following questions in the space provided.

1. When teenagers were considered future leaders, how did society treat them?

2. What changes does the author believe have occurred in society to make teens lose their place?

3. According to the author, how have high schools changed?

4. What two effects on teens does the author cite as a result of society's push toward premature adulthood?

Thinking Critically

Directions: Answer the following questions in the space provided.

5. Do you agree with the author's point of view about society's treatment of teens? Explain your reasoning.

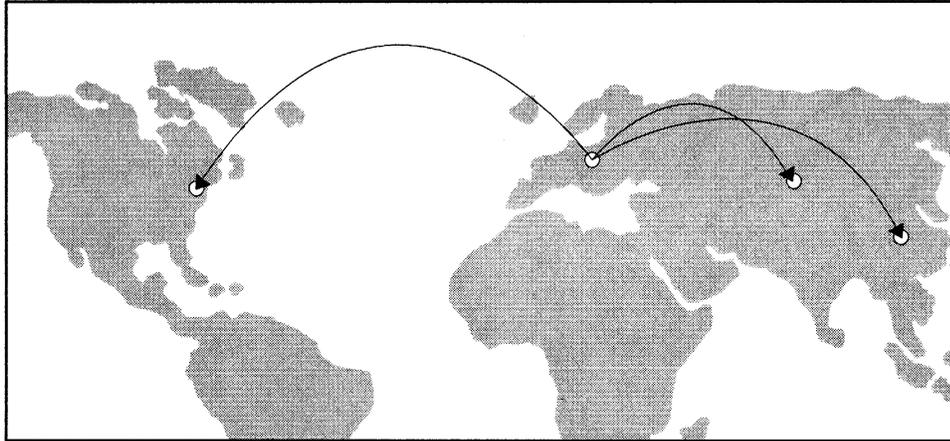
6. Compose a letter to your congressional representative expressing your views on allowing advertisers to use sex or violence to sell products to teens.

CASE STUDY

5

Generativity Among Refugees and Survivors

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



In 1939, eight million Jews lived in Europe. By the end of World War II in 1945, six million of these Jews had been killed. We know this systematic genocide as the Holocaust. Those who remained at the end of the war could be divided into two groups: refugees and survivors. Refugees fled their homelands for safe havens like the United States, China, and the Soviet Union. Refugee families remained together and suffered relatively few casualties during the war. Survivors were those who lived through the terror of the concentration camps. Many survivors left the camps totally alone in the world, the only surviving member of their families. All had experienced severe deprivation and a multitude of horrors.

Recent studies have compared generativity among refugees and survivors. Four specific generativity behaviors were examined:

1. Biological generativity, which ensures survival through bearing children.
2. Parental generativity, which creates a stable family unit to nurture children.
3. Technical generativity, which passes on skills from one generation to the next.
4. Cultural generativity, which introduces the next generation to the celebrations,

rites, and cultural achievements of past generations.

The participants in the study ranged in age from 63 to 75. They had been adolescents or young adults at the time of the war. The study participants completed two surveys used to assess generativity. Each was also interviewed at length to gather additional data.

Biological Generativity

Although both refugee and survivor groups exhibited strong biological generativity, the survivor group's desire was stronger. The entire survivor group viewed the need for children as a way to continue the family line. Especially strong among the survivor group was the need to have biological children. Adoption was not seen as an option. Refugees also desired children, but were much more open to adoption if reproduction was not possible.

Parental Generativity

Significant differences in parental generativity were apparent between the two groups. The refugee group expressed both material and emo-

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tional components to raising children. Typical nurturing behaviors found in the population at large characterize the refugee group. The survivor group focused primarily on providing materially for their children. Since all had experienced extreme loss and deprivation, they desired to provide materially for their children so that they would never have to suffer. The emotional distance noted in the survivors also appears to result from their experiences in the camps. With such a tragic and painful past, emotional connections, even with their own children, proved difficult. Typical nurturing behaviors were often a missing component in the homes of survivors. Should they speak of the past to their children? All expressed reluctance, but most eventually shared at least a portion of their stories with their children.

Technical Generativity

Technical generativity was not prevalent in either group. Few participants had completed high school or had any formal professional training. Therefore, they had no technical skills to pass on to their children. Although most participants were economically secure, their achievements resulted from hard work rather than a good education. Both groups valued education highly and made provisions for their children to receive good quality educations. Both groups especially valued higher education, even though they had been denied the right to it.

Cultural Generativity

The war and the Holocaust virtually destroyed the culture into which the refugees and survivors had been born. During the two decades after the war, both groups showed limited interest in their cultural heritage. As the survivors aged, however, they expressed more interest in passing on Jewish heritage and traditions. For many, the holidays and celebrations of Jewish life gained significance.

One strong component of cultural generativity that appeared in the survivor group was Zionism. Zionism is an ancient concept, but in

the twentieth century it has focused primarily on the establishment and protection of a Jewish homeland. Largely as a result of the Holocaust, the state of Israel was created in 1948 to give the Jews a homeland. Both refugees and survivors have been strong supporters of Zionism. Survivors speak with pride of the one positive effect of the Holocaust. They have contributed generously to the state, although none of the study participants lived in Israel.

For survivors, another consistent cultural theme was that the Holocaust be remembered so that it is never repeated. As the survivors have aged, they have recognized the need to have the events of the Holocaust and their suffering remembered, not only by their families, but also by humanity. This larger cultural context has become a rallying point as the survivors approach the end of their lives.

Conclusions

Disruptions early in life affect one's future drive toward generativity. Refugees lived through the upheaval, but did not experience the terror of the concentration camps. For many of them, guilt was a significant element of their existence. Although their culture was destroyed by the war, they still felt guilty for not having suffered like the concentration camp survivors. They seemed less able than the survivors to make new cultural connections and find significant purpose in life beyond raising their families.

Survivors could not escape their past. It colored every part of their future. They showed stronger generative behaviors largely as a means of defining their past. Except for nurturing skills needed for strong parental generativity, they showed more generative behaviors than the refugees. The interviews with survivors demonstrate that they have used generative behaviors to build a future out of the horrors of the past. Their cry of "Never Again" has become a reminder to all societies of the horrors of the Holocaust.

Source: McAdams, D. & de St. Aubin, E. (1998). *Generativity and Adult Development*. Washington, DC: American Psychological Association.

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Understanding the Case Study

Directions: Answer the following questions in the space provided.

1. What two groups were used for the study?

2. Which generative behavior was least evident among both groups?

3. What was the primary difference between the two groups in parental generativity?

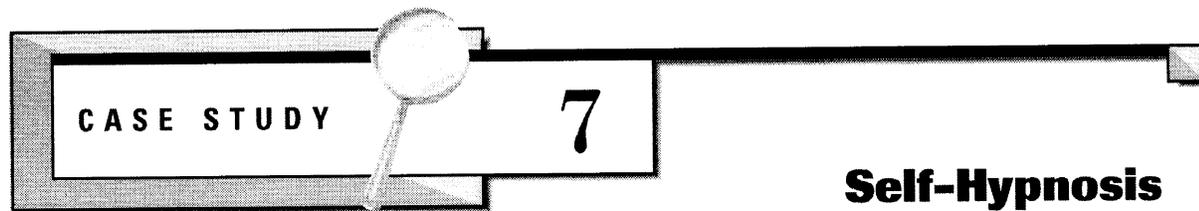
4. What was the strongest part of cultural generativity for the survivor group?

Thinking Critically

Directions: Answer the following questions in the space provided.

5. Would you expect veterans of World War II to share any of the same generative characteristics with the survivors? Why or why not?

6. Although survivors felt strongly that the Holocaust be remembered so that it would not be repeated, they were reluctant to share their experiences with their children. In fact, several of the adult children of study participants asked the researchers for a copy of their parents' interview so that they could learn more about their parents' Holocaust experience. Explain this apparent contradiction.



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

Background

What happens when traditional medicine fails to provide relief from chronic pain? Chronic pain is long-term pain from a known or unknown source that cannot be relieved through surgery or physical therapy. Millions of Americans suffer from chronic pain at some period in their lives. Traditional medicine has treated such pain with medications and selected exercises. Statistics show that 40 percent of the people who are prescribed medication for chronic pain will abuse their medication. Society, including those in the medical profession, is exploring alternative treatments that may prove as effective, and perhaps more effective, than traditional medical treatments.

Case Report

A woman in her late 40s was injured in a car accident. Her most serious injury was a compression fracture of her spine. The fracture and accompanying muscle spasms resulted in severe and continuous pain. No type of surgery could relieve her pain, so doctors gave her a series of pain medications, nerve blocks, and anesthetics. These procedures managed the pain, but had unpleasant side effects.

Two years later, the woman was in another car accident. This time, in addition to cuts and bruises, she fractured her breastbone, one rib, and a foot. After this accident, her pain worsened and she had difficulty completing simple tasks such as combing her hair and dressing herself. She was unable to work. She also experienced additional health problems in the next several months.

The pain, frustration over her limitations, and uncertainty about the future left her depressed. Over the next six months, she visited several doctors at several clinics seeking help. Doctors prescribed 13 different medications at various times to either manage her pain or affect her mood. The drugs included Darvocet, a pow-

erful pain reliever, and Valium, a drug commonly prescribed to treat anxiety. None of these drugs proved helpful; the many side effects actually made the problems worse.

When she entered the Behavioral Medicine Clinic, she walked with a cane, had limited movement in her head and neck, and continued to be depressed. Since she had received little relief from traditional medical treatments, she had begun to study the principles of self-hypnosis from library books. She slowly learned how to manage her pain through a self-induced state of hypnosis. While seated, she would close her eyes and visualize her pain as a lake. She became progressively more relaxed by continuing to use mental imagery to reduce the size of the lake. She used these techniques to make the pain more manageable and to deal with her anxiety over the exercises physical therapists asked her to do. The doctors at the Behavioral Medicine Clinic encouraged her to continue with the self-hypnosis on a daily basis, to be as physically active as possible, and to try to live without pain medications.

Within seven months, she:

- was nearly free of all pain
- was not taking any pain medications
- had increased her physical activity and was walking without the cane
- had returned to work part-time
- was no longer suffering from depression

Conclusions

Cases such as the one described here are helping to shift the focus of the medical community toward a biopsychosocial approach to the treatment of pain. This approach combines traditional medical treatments with psychological and social approaches to treatment. The most common alternative treatments are group therapy, relaxation therapy, biofeedback, guided imagery, and hypnosis.

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The National Institutes of Health support these alternative treatments, especially relaxation therapy and hypnosis, for chronic pain sufferers. Several studies over the past 30 years indicate that hypnosis is especially effective at controlling both acute and chronic pain and at relieving the accompanying depression.

Self-hypnosis is the technique preferred by many physicians and psychologists. It allows the

patient more control and responsibility. It also lessens the chance that the physician or psychologist will be seen as a manipulator.

Source: Mickelson, C., Brende, J., & Gonzalez, J. (1999). What if your patient prefers an alternative pain control method: Self-hypnosis in the control of pain. *Southern Medical Journal*, 92 (5), 521-23.

Understanding the Case Study

Directions: Answer the following questions in the space provided.

1. What is chronic pain?

2. Why did the woman in the case study learn self-hypnosis?

3. What imagery did she use for her pain?

4. How did she use this image to reduce her pain level?

5. What types of treatment are combined in the biopsychosocial approach to pain management?

Thinking Critically

Directions: Answer the following questions on a separate sheet of paper.

6. Why do you think self-hypnosis relieved pain when all the other treatments failed in this instance?
7. If given the option of hypnosis or self-hypnosis to manage pain, which would you prefer? Why?

CASE STUDY**8****Perfect Pitch**

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

Background

About 1 in 2,000 people have perfect pitch. People with perfect pitch can hear a single note and name it or can sing the exact tone of a note each time without hearing any other tone for a reference. People with perfect pitch know that fluorescent lights hum in B-flat and toilets flush in E-flat. Although more musicians have perfect pitch than the general population, it is still a relatively rare talent. Musicians who do not have perfect pitch develop a keen sense of relative pitch. That is, they can sing a note if given another note as a reference.

**Hypothesis**

Perfect pitch is an inherited trait that must be nurtured and developed in order to survive.

Method and Results

Researchers have developed two theories about the influence of heredity. First, researchers at the University of Southern California at San Diego theorized that all infants are born with perfect pitch. They reached this conclusion by studying a sample of native Vietnamese and Chinese speakers. Both of these languages are tonal languages; that is, the same word may have several meanings depending on the tone used when the word is spoken. (Note: Tonal languages are not based on the sounds of an alphabet. There is no relationship between the way a word is written and the way the word is spoken. For example, all Chinese writing uses the same characters, but the two Chinese dialects, Mandarin and Cantonese, are so different that speakers of each language cannot understand one another.) Researchers found that all the people in their sample had perfect pitch. They concluded that perfect pitch is innate, and when nurtured will survive.

The second theory proposed that perfect pitch is an inherited trait; that is some, people inherit perfect pitch while others do not. Although the trait may be inherited, it must be

nurtured in order to develop. Researchers at the University of California at San Francisco have proposed this theory. They sampled people from all walks of life using 40 pure tones. The participants wrote down the note that corresponded to the tone. In order to be classified as having perfect pitch, participants had to get 38 or more notes correct. Once researchers identified people with perfect pitch, they asked for a blood sample and asked if other family members share this trait.

Using neurobiology, researchers hoped to identify the specific gene and DNA sequence responsible for perfect pitch. To date, most genetic research has been targeted at identifying hereditary factors for certain diseases. Researchers believe that it is time to use the knowledge gained to identify other traits, such as perfect pitch.

Researchers have already identified that perfect pitch does seem to run in families. About 48 percent of the participants with perfect pitch reported that they had one or more family members with the same talent. One of the scientists involved in the research, Shai Shaham, has perfect pitch. This is an ability he shares with his father, sister, and younger brother.

The researchers are particularly interested in one ethnic group that has a high incidence of

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perfect pitch—the Ashkenazi Jews of Eastern Europe. For several centuries this relatively small group married primarily within their ethnic group. As a result their gene pool is considered homogeneous. Ashkenazi Jews who have or had perfect pitch are the late pianist Vladimir Horowitz, Metropolitan Opera's artistic director James Levine, and the San Francisco Symphony's music director, Michael Tilson Thomas. By concentrating on one ethnic group, researchers hoped to quickly narrow the search for the tell-tale DNA.

Researchers also asked participants a second question: Did you study music as a young child? The findings indicated that early music training is essential to maintaining one's perfect pitch ability. Most participants who have perfect pitch began music lessons by the age of 6. Researchers found that only 2 percent of those with perfect pitch began music training after the age of 12. These findings led researchers to conclude that the ability to perceive pitch perfectly is inherit-

ed, but the ability must be nurtured through exposure to music and music education.

Conclusions

Researchers still do not fully understand how we perceive the world. As science and technology develop, they hope to be able to clearly identify which perceptual traits and abilities are inherited and which are learned. The most conclusive research to date indicates that perfect pitch does have an inherited component. The sample of tonal language speakers was too small to conclude that perfect pitch is an innate ability.

Even if perfect pitch is inherited, it seems apparent that the ability must be nurtured and developed. Most educators would not recommend forcing children to take music lessons at a very young age, but they do recommend exposing children to music, especially classical music.

Sources: Dickinson, A. (1999). Little musicians. *Time*, 154 (24), 114; Krieger, L. (1997). Perfect pitch: Nature or nurture. *San Francisco Examiner*, A15.

Understanding the Case Study

Directions: Answer the following questions on a separate sheet of paper.

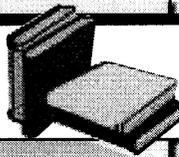
1. What is perfect pitch?
2. What was the researchers' hypothesis?
3. Who did the researchers in San Diego use as participants? Why were these participants used?
4. What did the researchers find with the sample of people who spoke a tonal language?
5. What did the researchers at the University of San Francisco use to test for perfect pitch?
6. What did the San Francisco researchers conclude about nature versus nurture as it relates to perfect pitch?

Thinking Critically

Directions: Answer the following questions on a separate sheet of paper.

7. Do you think that all speakers of tonal languages have perfect pitch? How would you test your hypothesis?
8. What other perceptual abilities may have an inherited and a learned component?

READING



8

Weightlessness and Perception

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

In the second half of the 20th century space travel became a reality. Until the first space travelers braved the unknown, scientists and doctors could only speculate on how the human body would react to weightlessness. Some of their speculations proved true, such as space motion sickness that is commonly experienced by space travelers at the beginning of a flight. Others proved false. One thing has become quite clear—the body can adapt to weightlessness and then readjust to gravity. Researchers are attempting to use what has been learned in space to treat people on Earth with problems such as balance disorders.

... As most doctors can attest, it is difficult to predict what will happen when a brand-new challenge is presented to the human body. Time and again, space travel has revealed its marvelous and sometimes subtle adaptive ability. But only in the past few years have scientists begun to understand the body's responses to weightlessness, as the data—the cumulative experience of nearly 700 people spending a total of 58 person-years in space—have grown in quantity and quality. Pursuit of this knowledge is improving health care not only for those who journey into space but also for those of us stuck on the ground. The unexpected outcome of space medicine has been an enhanced understanding of how the human body works right here on Earth.

Feeling Gravity's Pull

Although many factors affect human health during spaceflight, weightlessness is the dominant and single most important one. The direct and indirect effects of weightlessness precipitate a cascade of interrelated responses that begin in three different types of tissue: gravity receptors, fluids and weight-bearing structures. Ultimately, the whole body, from bones to brain, reacts.

When space travelers grasp the wall of their spacecraft and pull and push their bodies back and forth, they say it feels as though they are stationary and the spacecraft is moving. The reason is embedded in our dependence on gravity for perceptual information.

The continuous and pervasive nature of gravity removes it from our daily consciousness. But even though we are only reminded of gravity's invisible hand from time to time by, say, varicose veins or an occasional lightheadedness on standing up, our bodies never forget. Whether we realize it or not, we have evolved a large number of silent, automatic reactions to cope with the constant stress of living in a downward-pulling world. Only when we decrease or increase the

effective force of gravity on our bodies do we consciously perceive it. Otherwise our perception is indirect.

Our senses provide accurate information about the location of our center of mass and the relative positions of our body parts. This capability integrates signals from our eyes and ears with other information from the vestibular organs in our inner ear, from our muscles and joints, and from our senses of touch and pressure. Many of these signals are dependent on the size and direction of the constant terrestrial gravitational force.

The vestibular apparatus in the inner ear has two distinct components: the semicircular canals (three mutually perpendicular, fluid-filled tubes that contain hair cells connected to nerve fibers), which are sensitive to angular acceleration of the head; and the otolith organs (two sacs filled with calcium carbonate crystals embedded in a gel), which respond to linear acceleration. Because movement of the crystals in the otoliths generates the signal of acceleration to the brain and because the laws of physics relate that acceleration to a net force, gravity is always implicit in the signal. Thus, the otoliths have been referred to as gravity receptors. They are not the only ones. Mechanical receptors in the muscles, tendons and joints—as well as pressure receptors in the skin, particularly on the bottom of the feet—respond to the weight of limb segments and other body parts.

Removing gravity transforms these signals. The otoliths no longer perceive a downward bias to head movements. The limbs no longer have weight, so muscles are no longer required to contract and relax in the usual way to maintain posture and bring about movement. Touch and pressure receptors in the feet and ankles no longer signal the direction of down. These and other changes contribute to visual-orientation illusions and feelings of self-inversion, such as the feeling that the body or the spacecraft spontaneously reori-

(continued)

ents. In 1961 cosmonaut Gherman Titov reported vivid sensations of being upside down early in a space-flight of only one day. Last year shuttle payload specialist Byron K. Lichtenberg, commenting on his earlier flight experiences, said, "When the main engines cut off, I immediately felt as though we had flipped 180 degrees." Such illusions can recur even after some time in space.

The lack of other critical sensory cues also confuses the brain. Although orbital flight is a perpetual free fall—the only difference from skydiving is that the spacecraft's forward velocity carries it around the curve of the planet—space travelers say they do not feel as if they are falling. The perception of falling probably depends on visual and airflow cues along with information from the direct gravity receptors. . . .

The aggregate of signal changes produces, in half or more of space travelers, a motion sickness that features many of the symptoms of terrestrial motion sickness: headache, impaired concentration, loss of appetite, stomach awareness, vomiting. Space motion sickness usually does not last beyond the first three days or so of weightlessness, but something similar has been reported by cosmonauts at the end of long flights.

At one time, scientists attributed space motion sickness to the unusual pattern of vestibular activity, which conflicts with the brain's expectations. Now it is clear that this explanation was simplistic. The sickness results from the convergence of a variety of factors, including the alteration of the patterns and levels of motor activity necessary to control the head itself. A similar motion sickness can also be elicited by computer systems designed to create virtual environments, through which one can navigate without the forces and sensory patterns present during real motion [Gibbs, W. W. (1994, December). Virtual reality check, *Scientific American*.]

Over time, the brain adapts to the new signals, and for some space travelers, "down" becomes simply where the feet are. The adaptation probably involves physiological changes in both receptors and nerve-cell patterns. Similar changes occur on the ground during our growth and maturation and during periods of major body-weight changes. The way we control our balance and avoid falls is an important and poorly understood part of physiology. Because otherwise healthy people returning from space initially have difficulty maintaining their balance but recover this sense rapidly, post-flight studies may allow doctors to help those non-space travelers who suffer a loss of balance on Earth.

Bernard Cohen of the Mount Sinai School of Medicine and Gilles Clement of the National Center for Scientific Research in Paris undertook just such a study after the Neurolab shuttle mission, which ended on May 3, [1998]. To connect this work with patients

suffering from balance disorders, Barry W. Peterson of Northwestern University and a team of researchers, supported by the National Aeronautics and Space Administration and the National Institutes of Health, are creating the first whole-body computer model of human posture and balance control. . . .

Down to Earth

When space travelers return to the world of weight, complementary changes occur. If the effects of weightlessness are completely reversible, everything should return to its normal condition at some time after the flight. We now know that most systems in the body do work reversibly, at least over the intervals for which we have data. We do not yet know whether this is a general rule.

Space travelers certainly feel gravitationally challenged during and just after their descent. As one person said after nine days in space: "It's quite a shock. The first time I pushed myself up, I felt like I was lifting three times my weight." Returning space travelers report experiencing a variety of illusions—for example, during head motion it is their surroundings that seem to be moving—and they wobble while trying to stand straight, whether their eyes are open or closed.

Most of the body's systems return to normal within a few days or weeks of landing, with the possible exception of the musculoskeletal system. So far nothing indicates that humans cannot live and work in space for long periods and return to Earth to lead normal lives. This is clearly good news for denizens of the upcoming International Space Station and for any future interplanetary missions. In fact, the station, assembly of which should begin late this year or early next year, will provide researchers with a new opportunity to investigate the effects of space travel on humans. On its completion in five years, the station will have 46,000 cubic feet of work space (nearly five times more than the Mir or Skylab stations) and will include sophisticated laboratory equipment for the next generation of medical studies. Recognizing the need for a comprehensive attack on all the potential human risks of long-duration space travel, NASA has selected and funded a special research body, the National Space Biomedical Research Institute, to assist in defining and responding to those risks.

Many of the "normal" changes that take place in healthy people during or just after spaceflight are outwardly similar to "abnormal" events occurring in ill people on Earth. For example, most space travelers cannot stand quietly for 10 minutes just after landing without feeling faint. This so-called orthostatic intolerance is also experienced by patients who have stayed in bed for a long time and by some elderly people.

Source: White, R.J. (1998). Weightlessness and the human body. *Scientific American*, 279 (3), 58–63.

(continued)

Understanding the Reading

Directions: Answer the following questions in the space provided.

1. What is the primary effect on the human body during spaceflight?

2. What structures of the inner ear are sensitive to side to side movement of the head?

3. What structures of the inner ear are sensitive to forward motion of the head?

4. What is the difference in perception between skydiving and spaceflight?

5. What Earth-based activity may create motion sickness similar to that experienced during spaceflight?

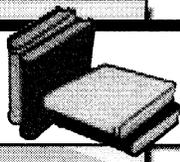
6. What immediate effect of gravity do space travelers experience when they return to Earth?

Thinking Critically

Directions: Answer the following questions on a separate sheet of paper.

7. Imagine that a recent editorial published in the leading newspaper in your community stated "We have only limited funds. Research dollars should be spent helping people here on Earth, not sending people into outer space." Write a rebuttal of this statement.
8. What would a typical day be like if you could not distinguish which way was up and which was down?

READING



9

Different Outlooks

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

Cognitive learning theorists have identified that optimists and pessimists process information differently. Many studies have shown that optimists are healthier, get better jobs, advance more quickly in their careers, are better athletes, and may live longer. Optimists are less likely to succumb to helplessness, even when encountering numerous bad events beyond their control.

Learned helplessness is the giving-up reaction, the quitting response that follows from the belief that whatever you do doesn't matter. *Explanatory style* is the manner in which you habitually explain to yourself why events happen. It is the great modulator of learned helplessness. An optimistic explanatory style stops helplessness, whereas a pessimistic explanatory style spreads helplessness. Your way of explaining events to yourself determines how helpless you can become, or how energized, when you encounter the everyday setbacks as well as momentous defeats. . . .

How do *you* think about the causes of the misfortunes, small and large, that befall you? Some people, the ones who give up easily, habitually say of their misfortune: "It's me, it's going to last forever, it's going to undermine everything I do." Others, those who resist giving in to misfortune, say: "It was just circumstances, it's going away quickly anyway, and, besides, there's much more in life."

Your habitual way of explaining bad events, your explanatory style, is more than just the words you mouth when you fail. It is a habit of thought, learned in childhood and adolescence. Your explanatory style stems directly from your view of your place in the world—whether you think you are valuable and deserving, or worthless and hopeless. It is the hallmark of whether you are an optimist or a pessimist.

There are three crucial dimensions to your explanatory style: permanence, pervasiveness, and personalization.

Permanence

People who give up easily believe the causes of bad events that happen to them are permanent: the bad events will persist, will always be there to affect their lives. People who resist helplessness believe the causes of bad events are temporary.

PERMANENT (*Pessimistic*)

"I'm all washed up."

"Diets never work."

"You will always nag."

TEMPORARY (*Optimistic*)

"I'm exhausted."

"Diets don't work when you eat out."

"You nag when I don't clean my room."

. . . If you think about bad things in *always's* and *never's* and abiding traits, you have a permanent, pessimistic style. If you think in *sometimes's* and *lately's*, if you use qualifiers and blame bad events on transient conditions, you have an optimistic style. . . .

The *optimistic style of explaining good events is just the opposite of the optimistic style of explaining bad events*. People who believe good events have permanent causes are more optimistic than people who believe they have temporary causes.

TEMPORARY (*Pessimistic*)

"It's my lucky day."

"I try hard."

"My rival got tired."

PERMANENT (*Optimistic*)

"I'm always lucky."

"I'm talented."

"My rival is no good."

Optimistic people explain good events to themselves in terms of permanent causes: traits, abilities, *always's*. Pessimists name transient causes: moods, effort, *sometimes's*. . . .

People who believe good events have permanent causes try even harder after they succeed. People who see temporary reasons for good events may give up even when they succeed, believing success was a fluke.

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Pervasiveness: Specific vs. Universal

Permanence is about time. Pervasiveness is about space. . . .

It comes down to this: people who make universal explanations for their failures give up on everything when a failure strikes in one area. People who make specific explanations may become hopeless in that one part of their lives yet march stalwartly on in the others.

Here are some universal and some specific explanations of bad events:

UNIVERSAL (*Pessimistic*)

"All teachers are unfair."

"I'm repulsive."

"Books are useless."

SPECIFIC (*Optimistic*)

"Professor Seligman is unfair."

"I'm repulsive to him."

"This book is useless."

. . . Now for the converse. The *optimistic explanatory style for good events is opposite that for bad events*. The optimist believes that events have specific causes, while good events will enhance everything he does; the pessimist believes that bad events have universal causes and that good events are caused by specific factors. . . .

SPECIFIC (*Pessimistic*)

"I'm smart at math."

"My broker knows oil stocks."

"I was charming to her."

UNIVERSAL (*Optimistic*)

"I'm smart."

"My broker knows Wall Street."

"I was charming."

Personalization: Internal vs. External

When bad things happen, we can blame ourselves (internalize) or we can blame other people or circumstances (externalize). People who blame themselves when they fail have no self-esteem as a consequence. They think they are worthless, talentless, and unlovable. People who blame external events do not lose self-esteem when bad events strike. On the whole, they like

themselves better than people who blame themselves do.

Low self-esteem usually comes from internal style for bad events.

INTERNAL (*Low self-esteem*)

"I'm stupid."

"I have no talent at poker."

"I'm insecure."

EXTERNAL (*High self-esteem*)

"You're stupid."

"I have no luck at poker."

"I grew up in poverty."

. . . Of the three dimensions of explanatory style, personalization is the easiest to understand. After all, one of the first things a child learns to say is "He did it, not me!" Personalization is also the easiest dimension to overrate. It controls only how you *feel* about yourself, but pervasiveness and permanence—the more important dimensions—control what you *do*: how long you are helpless and across how many situations.

Personalization is the only dimension simple to fake. If I tell you to talk about your troubles in an external way now, you will be able to do it—even if you are a chronic internalizer. You can chatter along, pretending to blame your troubles on others. However, if you are a pessimist and I tell you to talk about your troubles as having temporary and specific causes, you will not be able to do it. . . .

The *optimistic style of explaining good events is the opposite of that used for bad events. It's internal rather than external*. People who believe they cause good things tend to like themselves better than people who believe good things come from other people or circumstances.

EXTERNAL (*Low self-esteem*)

"A stroke of luck. . ."

"My teammates' skill. . ."

INTERNAL (*High self-esteem*)

"I can take advantage of luck."

"My skill. . ."

Source: Seligman, M.E.P. (1991). *Learned Optimism*. New York: Alfred A. Knopf, 15–16, 43–50.

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 **Understanding the Reading**

Directions: Answer the following questions in the space provided.

1. What are the two explanatory styles?

2. When do you develop your explanatory style?

3. What are the three dimensions of the explanatory style?

4. Which of the dimensions controls what you do?

 **Thinking Critically**

Directions: Answer the following questions in the space provided.

5. List three good events and three bad events that have occurred in your life in the past month. Describe your reactions to the events. Classify each description using the three dimensions listed in the reading. From these results, do you tend to be an optimist or a pessimist?

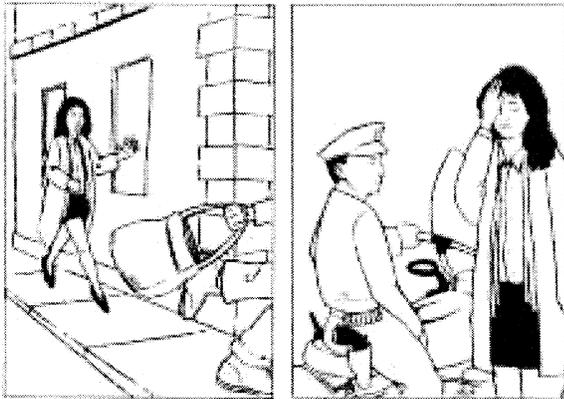
6. Does being an optimist mean that you always blame others for your troubles? Explain your reasoning.

CASE STUDY

10

**Eyewitness
Testimony**

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



Background

Hypnosis has been used with traumatized crime victims to help them reconstruct crime scenes. Defense attorneys, however, have questioned both the techniques used and the results of the hypnosis. Some studies suggest that hypnosis can be used, either inadvertently or deliberately, to alter memory. Other studies have concluded that little memory enhancement occurs through hypnosis. As a result of these studies and defense attorney objections, some states limit the admissibility of evidence discovered through hypnosis. Psychologists, therefore, have researched other ways to enhance the memory of eyewitnesses without using hypnosis. Funded by a grant from the National Institute of Justice, two researchers, Ronald Fisher and R. Edward Geiselman, developed a nonhypnotic interview process that helps the eyewitnesses reconstruct the events.

Using crime scene training tapes designed to train police officers, the researchers developed the Cognitive Interview. The interview is based on four principles:

1. **Event-Interview Similarity** Based on the theory that we remember things better when placed in a similar situation, the Cognitive Interview seeks to reconstruct as accurately

as possible the external, emotional, and cognitive conditions that existed at the time of the event. Even small details, such as weather, are not ignored.

2. **Focused Retrieval** Every effort is made during the interview process to keep the witness focused on the events. The interviewer prevents outside distractions and interruptions.
3. **Extensive Retrieval** Although the process seems tedious to many eyewitnesses, the Cognitive Interview encourages the witness to repeatedly attempt to retrieve the event's details. Research has shown that the more attempts someone makes to remember particular details, the more likely he or she is to successfully retrieve the details from memory.
4. **Witness-Compatible Questioning** Individuals organize and store memories differently. The Cognitive Interview, therefore, is not a set series of questions. The interviewer must determine the general way in which an individual witness stores memories and tailor the questions to help the witness reconstruct the event in as much detail as possible.

The interview itself is divided into several phases. At first the interviewer asks the witness to recount the event in as much detail as possible. Although a record is made of the account, the interviewer uses this phase to plan for the more detailed interview to follow. The interviewer seeks to understand the way in which the witness stores and processes memories. In the second phase, the interviewer guides the witness through a detailed reconstruction of the events using the information learned during the first phase. Finally, the interviewer uses various mental representations to learn more details about the events. For example, if a witness cannot remember a name, he or she will be asked to recall any information about the name, such as number of syllables, first letter, or ethnicity.

(continued)

Often these bits of information will help the witness remember additional details.

Hypothesis

The Cognitive Interview yields more information from eyewitnesses of real-life crimes than the standard police interview.

Method

Sixteen robbery detectives from the Metro-Dade Police Department were included in the study. Initially, the police officers were asked to tape-record selected interviews with eyewitnesses to robberies. The criteria for recording the interviews was as follows:

“(a) Each case was to be serious enough so that ample time and resources were available, if necessary, to conduct a thorough interview; (b) at least one victim or witness had a decent chance to observe the suspect or suspects and the event; and (c) each interviewed victim or witness had to be reasonably fluent in English and cooperative.”

During the initial phase, the 16 detectives conducted 88 interviews. These were used as the pretraining interviews.

Next, the detectives were divided into two groups. One group was trained in the Cognitive Interview technique. The other group was not trained and became the control group. After training, the Cognitive Interview group practiced the technique and received feedback from the trainers.

The post-training phase consisted of 24 interviews using the Cognitive Interview tech-

nique and 23 interviews from the untrained group. These interviews were analyzed for the number of relevant facts discovered. Statements of opinion or unrelated facts were ignored.

Results

Two types of results were analyzed:

1. Interviews before and after training from the same detective were assessed.
2. Interviews from the trained group were compared to interviews from the untrained group.

Detectives who were trained in the Cognitive Interview process obtained on average 47 percent more useful information after training compared to their pretraining interviews. In fact, for one detective the amount of useful information obtained increased 115 percent.

When comparison was made between the trained and untrained group, the trained group obtained 63 percent more information than the untrained group.

Conclusions

Training in the Cognitive Interview process, which uses psychologists' knowledge of how memories are stored, can significantly increase the amount of information obtained from eyewitnesses. The Cognitive Interview process can replace hypnosis and other speculative forms of memory enhancement as a means of obtaining accurate, detailed eyewitness accounts.

Source: Fisher, R., Geiselman, R., & Amador, M. (1989). Field test of the cognitive interview: Enhancing the recollection of actual victims and witnesses of crime. *Journal of Applied Psychology, 74* (5), 722-27.

Understanding the Case Study

Directions: Answer the following questions in the space provided.

1. Why has hypnosis been questioned as a means of helping eyewitnesses remember crime scene events?

(continued)

2. What are the four principles of the Cognitive Interview?

3. What people made up the control group in this study?

4. Describe the two ways in which the data from the study were analyzed.

 **Thinking Critically**

Directions: Answer the following questions in the space provided.

5. In the Cognitive Interview, the interviewer seeks to reconstruct the external, emotional, and cognitive conditions surrounding the event. Why are each of these important in remembering events?

6. The Cognitive Interview process yields more facts about events than standard police interview techniques. Further research has examined whether recall using the Cognitive Interview technique results in more incorrect facts. What would you expect the findings to be?

CASE STUDY

16

Panic Disorder

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

Case History

Jane had been a shy child who disliked being far away from her mother. She experienced a great deal of separation anxiety, especially when she was young. Her father was an alcoholic, and when he was drinking, her parents would get into loud arguments. Her parents' fighting terrified her. When she was 17, her father was murdered by a mugger.

Jane married at 21 and had three children during the next nine years. She was content as a homemaker and took great pride in her immaculate housekeeping. She began experiencing panic attacks when she was 26. She would awaken in the middle of the night in terror. She would be sweating and her heart would be pounding. For some time, she did not tell anyone about the attacks, which always occurred at night. At first the attacks were infrequent, but as she became more frightened by what was happening to her, the frequency of the attacks increased.

She began to have attacks during the day, especially when she was outside the house and around other people. Her rapid pulse and shortness of breath would cause dizziness. She was afraid that she was dying. She grew increasingly isolated and stayed at home whenever possible. Even going to the grocery became a nearly impossible task. Her husband insisted that she seek treatment.

Diagnosis

Over the next 20 years, Jane saw 200 doctors. None were able to relieve her symptoms for any length of time. She was diagnosed with severe depression and given electric shock therapy. Although Jane was depressed, her problem was not depression. It was only a symptom of her real disorder. She was treated with a variety of antidepressants and anti-anxiety drugs. Other than Valium, none gave her any relief, and Valium only helped up to a point. The physicians treated her symptoms by removing her tonsils,

pulling her teeth, telling her that she had an inner ear imbalance, and a variety of other treatments that proved worthless. Jane often felt like she was going to die, and no one seemed to know how to provide an answer.

When Jane was 37, her husband died suddenly. The panic attacks also ceased. For several years, she threw herself into working as an office manager and raising her children. She seemed like a different person. At 42, she remarried. When her second husband began drinking, the panic attacks returned. She was hospitalized three times, but the doctors could not find any physical cause for her problem. They recommended therapy. Jane finally saw a therapist who correctly diagnosed her panic disorder.

The therapist knew that research indicates that separation anxiety and fear of being alone during childhood is one suspected cause of panic disorder later in life. The attacks usually begin during a person's late teens or early twenties. Additional research has concluded that shy children are more prone to anxiety in adulthood than outgoing children (Ritter, 1995). Alcoholism in the family is also suspected as a contributing factor. A Duke University study found "that adult children of alcoholics showed a significantly higher tendency toward panic disorder than the general population" (Wilson, 1993).

Initially, Jane's attacks began at night while she was asleep. Researchers have found that "nocturnal panic attacks occur during light sleep when the body is relaxed and heart rate and respiration have slowed. Some researchers think that a sensitive person might react to a change in her body, such as muscle twitches, during this period of relaxation" (Barlow & Cerny, 1988). Other researchers propose the "false-suffocation alarm" theory. This theory concludes that the person suffers from a breathing problem that sends a signal to the brain that the person is suffocating. The sensation is false, but the result is a panic attack (Talan, 1994).

Why did Jane's panic attacks cease for sever-

(continued)

al years? Researchers are not certain, but they have found that there is no noticeable pattern in the attacks. They may occur regularly for a time, suddenly cease, and just as suddenly reappear. In Jane's case, the need to support and raise her family after her first husband's death may have helped ease the attacks. Many sufferers of panic disorder find that throwing themselves into work does help the symptoms. Work, however, is not a cure; the attacks usually begin again. The immediate cause of Jane's recurrent attacks may have been her second husband's drinking. This may have reminded her too much of her childhood struggles with an alcoholic father.

Treatment

Once properly diagnosed, therapists currently recommend a combination of cognitive, behavior, and drug therapy to help a person recover. Medication is used only to control the symptoms while the person is working on recovery. Medication is not considered a long-term solution. Cognitive therapy helped Jane the

most. She came to realize that she had distorted ideas about herself and her environment. As she learned to change those ideas, her symptoms diminished. Jane learned to think logically about her fears and to understand that most of them were unwarranted. She came to understand that there was nothing physically wrong with her. She also accepted the fact that she would have panic attacks from time to time, but that they would not kill her. As she accepted the attacks, they occurred less frequently.

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Source: Weinstock, L., & Gilman, E. (1998). *Overcoming Panic Disorder*. Chicago, IL: Contemporary Books.

 **Understanding the Case Study**

Directions: Answer the following questions in the space provided.

1. When did Jane's panic attacks begin? When did the initial attacks occur?

2. What incorrect diagnoses did Jane receive?

3. What caused Jane's panic attacks to cease for a time?

4. What theories have been proposed for the causes of panic disorder?

5. How is panic disorder generally treated today?

 **Thinking Critically**

Directions: Answer the following questions on a separate sheet of paper.

6. Why do you think panic disorder is so difficult to diagnose?
7. Why do you think that Jane's need to work and raise her children alone eased her symptoms for a period of time?

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CASE STUDY

18

**Culture and
Conflict Resolution**

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

Background

Culture may be defined as an integrated pattern of beliefs, activities, and knowledge that one generation passes to the next. People within the culture share a common language, manner of acting, and beliefs that guide behavior. Although culture changes over time, these changes tend to be slow and subtle. A major cultural divide exists between individualistic cultures like the United States and collectivistic cultures such as the Chinese and the Kurds. In individualistic cultures, the individual's opinions, beliefs, and attitudes are given priority. In collectivistic cultures, the group's opinions, beliefs, and attitudes are given priority. Understanding differences in these cultures helps us live in a global world. When conflicts arise, each culture has different expectations about how to resolve them. This study examines the way in which conflicts are resolved and disputes are settled in the two types of culture.

Hypothesis

In individualistic cultures, conflicts are resolved using a formal legal process. The laws of the state take priority over tradition or moral values. Conflicts between family members, friends, or neighbors often end up in the formal legal system. When conflicts reach the legal system, members of the culture accept the state's rule of law. In collectivistic cultures, tradition and religion take priority over laws enacted by the state. Disputes, especially those among family members, friends, and neighbors are often resolved informally, rather than through the formal legal system.

Method

The study examined three cultures: one individualistic, Germany, and two collectivistic, Kurdish and Lebanese. The study was conducted in Germany. The Kurdish and Lebanese partici-

pants were seeking asylum in Germany. They were recent arrivals to Germany and had spent their adult lives to that point in either Turkey (Kurds) or Lebanon (Lebanese). They were asked to respond to the interviewers' questions based on their understanding of the legal systems of their homeland. The German participants were directed to respond based on their understanding of the German culture and legal system.

To verify the original assessment that the Germans had a more individualistic mind-set, while the Kurds and Lebanese had a more collectivistic mind-set, participants completed a 14-question survey used to measure individualism and collectivism.

The interviews were conducted in the native language of each participant. The interviewers all used the same questionnaire. It consisted of five vignettes involving typical conflict situations. Cultural experts reviewed the vignettes to ensure that the conflict situations in the vignettes were typical of what would be found in the cultures of the participants.

The first vignette was as follows: "Imagine that your cousin had bought a second-hand car from a stranger. Because the engine broke down after two days, the cousin wants an explanation from the seller; the seller claims not to know him and denies that he sold him a car. A heated argument turns into a physical fight in which the cousin is severely injured."

After reading the vignette, the interviewers asked a series of open-ended questions about the participants' views of legitimate authority, their willingness to accept government law over in-group resolution of conflicts, and their views on shame and guilt.

Results

The 14-question survey verified the researcher's assessment that German culture tends to be individualistic and the culture of the Kurds and Lebanese tends to be collectivistic.

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For purposes of analysis, the responses of the Kurds and Lebanese were combined and compared with the German responses.

Legitimate authority to resolve conflicts rests with the state in individualistic cultures. German participants were much more willing to resolve disputes in court than were the Lebanese and Kurdish participants. Participants from the collectivistic cultures gave more weight to tradition and religion as the legitimate authority in resolving conflict.

In addition, members of individualistic cultures preferred a formal process to resolve disputes and conflicts. When crimes were committed, the Germans recommended calling the police and involving the courts. Members of the collectivistic cultures preferred an informal process that involved self-regulation and a willingness of the offending party to apologize. Often family members of the parties in a conflict help resolve the dispute.

Conclusion

Members of collectivistic cultures are more willing to abide by the norms of tradition and religious or moral authority. They are less likely to involve the state, represented by police authority and the court system, in settling disputes, especially if those disputes involve people in their own group. For example, disputes among family members or neighbors do not generally find their way to court in collectivistic cultures. Instead they are resolved as a part of normal social relationships with a friend or family member serving as a mediator between the parties in conflict.

Members of individualistic cultures tend to rely more heavily on the state and the formal legal system to resolve conflicts. They prefer legal consistency and are willing to take disputes involving family members or friends through the formal legal process.

Source: Bierbrauer, G. (1994). Toward an understanding of legal culture: Variations in individualism and collectivism between Kurds, Lebanese, and Germans. *Law & Society Review, 28* (2), 243-64.

Understanding the Case Study

Directions: Answer the following questions in the space provided.

1. How are individuals and groups viewed differently in individualistic and collectivistic cultures?

2. What is the hypothesis of the study?

3. What method was used to conduct the study?

4. How did the researchers verify the accuracy of their assumption about the culture of each participant? Was their assumption accurate?

Thinking Critically

Directions: Answer the following questions on a separate sheet of paper.

5. Given the nature of each culture, explain why collectivistic cultures rely more heavily on tradition and religious and moral authority, while individualistic cultures rely more heavily on the authority of the state.
6. Write a vignette that could be used to assess collectivistic and individualistic viewpoints. Then discuss the vignette from each perspective.



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

Professional athletes are paid large sums of money to entertain us. We demand excellence in return for that money. What happens when a successful athlete suddenly loses his ability to perform, not because of a physical problem, but because of a psychological problem? Steve Blass did not find an answer to this problem. Today the advances in sports psychology may be able to supply other professional athletes the help they need to stay on top of their game.

It almost never fails. Any time a big league pitcher can't find home plate with his fastball, Steve Blass gets a telephone call. Any second now, he can expect Atlanta pitcher Mark Wohlers' agent to break in with an emergency call. "They say, 'We'd like you to talk to this guy,'" Blass says, "and I say, 'I'm the last guy you want to talk to him!'"

Blass is baseball's most enduring mental mystery. After pitching the Pittsburgh Pirates to the 1971 World Series title, and winning 19 games the next year, Blass lost control of his pitches in 1973 and was out of the game, at 32, in 1974. "To this day, I don't know what caused it," says Blass, now a Pirate broadcaster. "I never had a sore arm in my life." The malady remains commonly known in baseball circles as "Steve Blass Disease." Blass didn't have a team psychologist to turn to, although on his own he sought out everything short of shock therapy. "I went to a hypnotist and he said, 'You're a bad subject.'" Blass wishes he could have tapped into today's advances in sports psychology. "I think there would be more things for me to try," he says. There have been considerable strides made in helping athletes cope with the mental side of sports. Agent Leigh Steinberg says many of his famous clients use acupuncture, acupressure, meditation and yoga for stress relief. The Dodgers and Angels have sports psychologists on staff, although many players are still reluctant to take a seat on the couch. "No one wants to admit it's mental," Angel team psychologist Ken Ravizza says. "They say 'It's my arm, my mechanics, it's not my head.' It's the biggest barrier I have to overcome, the whole shrink image. I say, 'I'm not a shrink, I'm a stretch.' On the Angels, maybe one-fourth of the guys are really into it." Troy Percival and Tim Salmon are two Angels not reluctant to admit they work with Ravizza. Percival uses breathing techniques to stay calm on the mound. "The game goes from 100 to 1,000 mph," he says. "If you can't slow it down, the game's over."

Modern sports psychology was popularized in the late 1960s by Soviet and East German doctors in their work with Olympic athletes. Yet, 30 years later, Ravizza says only about half a dozen major league baseball teams employ psychologists. In the macho world of baseball, getting players to open up is about as easy as hitting Greg Maddux. "This is about being great, it's not that you're messed up," Ravizza tells players. Former Angel Damion Easley, now with Detroit, has been using hypnotherapist Pete Siegel since 1995, yet only recently admitted it publicly. Easley didn't even tell his teammates. Salmon says, "A lot of players say, 'Hey, wait a minute, I don't need my whole game analyzed.'" Easley finally "came out" because he credits Siegel for salvaging his career. "I feel it's my responsibility to help others," Easley said recently.

"And when I went through a tough time, this is how I got out." Ravizza is not familiar with Siegel's work, but says that, in general, players have to be careful in seeking counsel. "There is no magic dust," Ravizza says. "A hypnotist says, 'I'm going to change you overnight?' I'm sorry, I disagree. You might get a quick fix, but it's got to be developed over time. I see a lot of people selling witch oil." Salmon agrees. "People are always looking to jump on your coattails and be associated with success of a person," he says. "You can confuse players, overload players. Paralysis by analysis. I take a very simple approach." Some see today's modern players and wonder how they could possibly be stressed out. "In my day, you had to produce on the field, then had to work in the winter to put food on the table," former Dodger Ralph Branca says. "I'd say there was more pressure in my day." Many of today's players enjoy salaries that can secure them for life, free agency, guaranteed contracts and no-trade clauses. "There could be a lack of pressure," St. Louis Cardinal Manager Tony La Russa argues. "It's a tough time to be excellent, tougher now than ever before."

(continued)

You have to dig real deep inside yourself. A lot of the natural motivators are not there anymore, like survival, like conditions of employment. A lot of them don't worry, believe me." Yet, if stress on the modern athlete is different, Steinberg argues that it's very real. "Every single week, unhappy athletes call up," Steinberg says. Salmon also disagrees that today's athletes have less stress. "ESPN shows everything you do," Salmon says. "On every news channel there is some sarcastic sportscaster, part-time comedian. If you screw up, some guy makes a joke about it and all the guys in the locker room are watching. Scrutiny, that's probably different than in the past." Steinberg says increased media coverage and sports-talk radio have dramatically raised expectations for players and fans. "People with large amounts of money, power and success are not necessarily calm, placid and content," Steinberg says. "Unfortunately, if they don't deal with it well, it can be alcohol that ends up being the stress reliever." Steinberg says he doesn't believe any of his top clients, mostly NFL stars, see sports psychologists. Who needs a shrink when you can lean on your agent? It is Steinberg, in fact, who serves as his clients' primary care giver. Steinberg has found one method of therapy particularly effective. "You will find, while not

scientific, for many athletes it's the ability to sit on a chair at home, with no one talking to them, with a satellite dish, flipping from TV show to TV show," Steinberg says.

"That's probably the No. 1 method of vegging out." Ravizza thinks most fans underestimate what it means to be in the public spotlight. "One of the biggest fears of pro athletes is embarrassment," he says.

"When it comes to performance, that hasn't changed. They all stand naked before the gods, and the great ones thrive on that." Sports psychology could not solve the mystery of Steve Blass, although he left no base unturned in search of a cure. "I would put two film projectors in a room and put up the footage when I was throwing good and when I was throwing bad, and I didn't see any difference," he says. "I could warm up in the bullpen and be fine, but when I got a hitter up there, I just froze up." Blass' legacy? "Me and Lou Gehrig," he says. "The only two guys with diseases named after us."

Source: **Dufresne, C.** (1998, August 9). Skull sessions: Many forms of therapy are available to help today's stressed-out, struggling athlete cope with the mental side of the world of sports. *Los Angeles Times*. p. 12.

Understanding the Reading

Directions: Answer the following questions in the space provided.

1. What happened to Steve Blass that ended his professional baseball career?

2. How was modern sports psychology popularized?

3. What does Ken Ravizza, the Anaheim Angels team psychologist, caution about seeking counsel?

4. What is the difference between the stress felt by professional baseball players today compared to players in the 1950s and 1960s?

Thinking Critically

Directions: Answer the following questions on a separate sheet of paper.

5. If you were a sports psychologist and had a player who suddenly was unable to perform, what types of therapy or treatment would you recommend?
6. Assume you listen to a sports-talk radio program. The professional team in your city has just hired a sports psychologist. Many fans are calling in complaining about pampering million-dollar athletes. You think it is a good idea to have a sports psychologist available to players. When you call in to the show, what would you say?