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Scientific Foundations

“There is only one good, knowledge, and one evil, ignorance.”

—Socrates (469–399 BCE), Greek philosopher

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Learning Objectives

After reading this chapter, you should be able to:

- Explain the role of the scientific method in studying personality
- Summarize the major influences of the sciences, social sciences, and the humanities on the study of personality
- Identify ways to apply scientific knowledge about personality to self, to others, and to the world

What would you prefer to receive as a gift: a 2012, preowned car right now or a brand new car in 2 years? Consider another choice: a \$500 prize today or a \$3,000 one the year after your graduation? Are you a person who usually waits? Or do you habitually follow your immediate impulses?

The phenomenon known as impulse gratification (IG) has been studied for centuries, as we shall see this in the chapter. Modern scientists study IG as well. In the famous **marshmallow experiments** at Stanford, researchers asked individual children if they wanted to eat a marshmallow now or wait 15 minutes and then eat two. Some children waited; others ate the marshmallow immediately. Many years later, those who waited, on average, had better grades and higher SAT scores, made more money, had a lower body mass index, showed greater psychological well-being, were less likely to misuse drugs, and had fewer behavioral problems, such as drug abuse (Mischel, Ebbesen, & Raskoff, 1972). Another study showed that inmates with low IG control were more likely than others to commit new crimes and return to prison (Malouf, Stuewing, & Tangney, 2012). In Sweden, children with lower IG control were 32% more likely to be convicted of a crime as adults than the group with higher IG control (Akerlund, Gronqvist, & Lindhal, 2014). These and many other studies show that the ability to control one's own impulses is an important individual feature correlated with a host of other individual qualities and behaviors.

How does impulse gratification develop in life? Is it rooted in our biology? Studies show differences between individuals with high and low levels of IG control.

Impulse control is associated with the brain's prefrontal cortex, which is responsible for logic and patience, and the ventral striatum, which regulates reward mechanisms (Casey et al., 2011). Yet impulse control is not determined by biology alone. Nature

Marshmallow experiments

The psychologist Walter Mischel, a Stanford University professor, conducted the marshmallow experiments, a series of studies of delayed gratification in children.

perhaps sets only the general course for our individual features—not the final destiny. Research shows, for example, that economic and educational problems significantly affect IG: People who face poverty and economic uncertainty and people who are less educated tend to be more impulsive than the educated and those who grow up facing certainty (Chiraag & Griskevicius, 2014; Mischel, 2014; Perez-Arce, 2011).

We may be born with certain predispositions for stronger willpower and impulse control, but our lives and experiences contribute as well. We learn from our own victories and mistakes. We absorb from good and bad experiences of others. Our lives are often a lasting discovery of the worth of waiting.

Science and the Scientific Method

Personality psychology draws on various types of knowledge (see Chapter 1). Scientific knowledge is the focus of our attention throughout the book. This knowledge is accumulated through research, systematic empirical observation, and evaluation of facts. Personality psychology is a scientific discipline rooted in the **scientific method**, which uses careful research procedures designed to provide reliable and verifiable evidence (Gergen, 2001). This method is about critically checking, rather than simply believing or uncritically accepting, knowledge (Shermer, 2015).

In the process of their research, scientists created various methods to gather facts and theories to explain personality. What is the difference between a scientific theory and just an assumption about personality? A theory should be considered scientific if and only if it is falsifiable—it is testable to prove if it is correct or wrong (Popper, 1992). In personality psychology, many theories are falsifiable (that is, testable), as we shall see throughout the book, and some are not. We will study some of them, though, because they may become testable in the future. If personality psychology is based on the scientific method, in which scientific fields does it obtain its facts? We now turn to a brief description of the three major sources of knowledge: basic science, social science, and humanities.

In very general terms, **natural science** is concerned with the description, prediction, and understanding of natural phenomena. Natural science has two key branches: physical science and biological science (often called life science), which focuses on living organisms, including human beings. Biological science includes many branches of biology involving anatomy, physiology, evolutionary sciences, genetics, and neuroscience. Personality psychology constantly receives new empirical data from life sciences. Which

Scientific method

The scientific method uses careful research procedures designed to provide reliable and verifiable evidence.

Natural science

Natural science is concerned with the description, prediction, and understanding of natural phenomena.

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studies are most valuable for psychologists? Let's mention several of them.

For example, genetics is the field of biology involving multidisciplinary studies of heredity through genetic transmission and genetic variations. The term *genetics* has its roots in the ancient Greek word "origin." Indeed, genetics seeks out the origins of the bodily structures, physiological processes, and behavioral and cognitive functions of living organisms, including human beings. The impact of genetics on contemporary personality psychology is significant. We will discuss the research into genetics on many pages in this book.

Another field of life sciences that contributes to personality psychology is **neuroscience**, which is a scientific study of the nervous system. This is a vast field examining the molecular, structural, functional, medical, evolutionary, and many other aspects of the nervous system's work. **Cognitive neuroscience** has a special importance for personality psychology. It examines the brain mechanisms that support the individual's mental functions and subsequent behaviors. This field also includes neurochemistry, which examines how various neurochemicals, such as neurotransmitters, influence the network of neural operations. As a general rule, cognitive neuroscience treats psychological processes—such as thinking and emotions as well as human behavior—as the "products" of the brain's physiology.

Personality psychology also receives significant feedback from **evolutionary science**, which explains how large populations of organisms—plants, animals, and human beings—evolve over time. Evolutionary science, by definition, is interested in evolutionary changes. In very broad terms, evolution is transformation of the heritable traits of species and humans over successive generations. Evolutionary science contributes to personality psychology by providing assumptions about the roots of particular personality traits, especially those that are common in large populations and social groups, such as men and women or the young and the middle-aged.

From the opening vignette, you should remember that impulse gratification has something to do with poverty: The lack of resources and insecurity make individuals more impatient in their decisions. Studies show that poor children as a group are prone to opt for immediate rewards compared with other kids (Mischel, 2014). Being in school makes young people value their futures more and develop patience (Perez-Arce, 2011). Asian immigrants in North America tend to emphasize impulse control more than other families do—the fact that may partly explain the educational and professional success of Asian Americans as an immigrant group compared with others (Baumeister & Tierney, 2012). These were examples from studies conducted by social scientists. **Social science** is concerned with society and the relationships among individuals within it. This discipline includes anthropology, economics,



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Photo 2.1

A researcher examines a CT scan. Do you mostly rely on scientific knowledge to make decisions? Think of situations wherein you relied on popular beliefs instead. Can you describe these situations?

Neuroscience The scientific study of the nervous system is called neuroscience.

Cognitive neuroscience The study of cognitive neuroscience examines the brain mechanisms that support the individual's mental functions and subsequent behaviors.

Evolutionary science The study of evolutionary science explains how large populations of organisms—plants, animals, and human beings—evolve over time.

Social science The study of social science is concerned with society and the relationships among individuals within it.



Read more about religion in the context of personality psychology (including Buddhism, Hinduism, Judaism, Christianity, and Islam) on the companion website.

Question

Read and identify a few common features that these religions share in their reference to the individual's personality.

Behavioral economics

The study of the effects of individual factors on personal economic decisions is behavioral economics.

Sociology Sociology is the study of society and the social action of humans.

Humanities In general terms, the field of humanities studies human culture.

Culture A large group of people share a culture, or a set of beliefs, behaviors, and symbols that is usually communicated from one generation to the next.

Philosophy

Philosophy is the study of the most general and basic problems of nature, human existence, mind, and society.

political science, and sociology, among others. The goal of anthropology, for instance, is to provide scientific knowledge about human beings. Anthropologists as a group can be interested in such dissimilar topics as the biological roots of the human race, the common grammars of languages, or gender biases in religious rituals (Nanda & Warms, 2010). Yet as a vast field, anthropology provides an uninterrupted stream of knowledge to personality psychology about the universal and culture-specific roots of human beliefs, customs, rituals, and practices.

Economics analyzes and describes the production, distribution, and consumption of resources. Personality psychologists are especially interested in **behavioral economics**, which studies the effects of individual factors on individual economic decisions. These factors include reasoning, mistakes of judgment, habit, group pressure, and so on. These are our daily choices, for example, when we are buying an app for our phone, declining a wedding invitation, or choosing a room-

mate. Economists and personality psychologists share common interests: They study how people make typical decisions and their individual differences in patterns of behavior. The cooperation between psychology and economics has been very productive. For instance, the 2002 Nobel Prize in economics went to psychologist Daniel Kahneman for his research on biases of individual decision-making. We will turn to his research later in this chapter.

Sociology is the study of society and the social action of humans. This field is generally concerned with associations, groups, organizations, communities, and institutions, both large and small. Sociologists study social development, organization, and change. Personality psychologists obtain news facts and new applications from sociology. For example, psychologists learn from urban sociology about the impact of big-city communities on the adolescent lifestyle; from sociology of gender about the patterns of career choices of boys and girls; or from environmental sociology about how religious beliefs affect individual conservation efforts. These are just a few examples.

Personality psychology also relies on the humanities. In very broad terms, the **humanities** study human culture. **Culture** is a set of beliefs, behaviors, and symbols shared by a large group of people and usually communicated from one generation to the next. Sociology and anthropology are also interested in culture, but the humanities tend to use methods that are primarily critical and have a significant historical and creative element. The humanities study ancient and modern languages, literature, philosophy, religion, and visual and performing arts such as literature, music, and theater. We will discuss the impact of the humanities to the study of personality.

In Greek, **philosophy** means “love of wisdom.” Philosophy is the study of the most general and basic problems of nature, human existence, mind, and society. Philosophy is based on rational argument in contrast to faith, belief, or trust, which doesn't have to be

rational. Philosophers come from many areas and subdisciplines. Beliefs, practices, and prescriptions relevant to the supernatural and the relationships between the individual and the supernatural are commonly called **religion** (Smith, 1982). Religion is different from philosophy. When philosophy relies mostly on science and logic, religion turns to faith. When philosophy embraces critical reason, religion turns to prescriptions and trusts in tradition. As you should remember from Chapter 1, religious knowledge commonly appears in the form of human values usually supported by custom. Religion does not necessarily reject science—it actually embraces it. However, it requires putting faith before science when there is a contradiction between the two. We should keep in mind that for centuries religion's influence on science, social sciences, and the humanities was significant.

The expression of human imagination through creativity is called **art**. It typically includes, among many other forms, visual arts such as painting and sculpture and performing arts such as music, theater, film, and dance. Artists can be scientists, yet most of them aren't. They do not intend to convey scientific knowledge through their artistic designs. Artists create something that is supposed to be beautiful or carry emotional power and requires an act of judgment from the listener or viewer (Kandel, 2012).

Personality psychology is rooted in the **humanist tradition** (or humanism) in science, which emphasizes the subjective side of the individual—the sense of freedom, beauty, creativity, and moral responsibility. Humanism encourages self-understanding and improvement, openness, and sharing of skills and experience (Dilthey, 1910/2002). A typical humanist is a person of virtues, knowledge, and passion. Humanism is also based on science and tends to be secular.

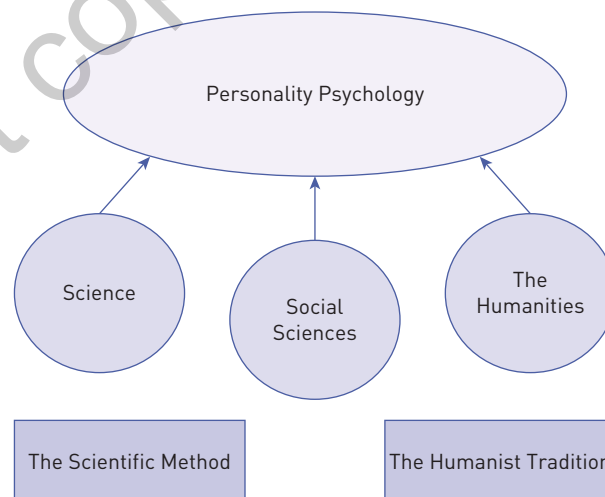
Art gives personality psychologists a treasure trove of materials to enrich their scientific outlook of human beings, their behavior, and their inner world. *Ramayana*,

Religion The beliefs, practices, and prescriptions relevant to the supernatural and the relationships between the individual and the supernatural make up religion.

Art Art is the expression of human imagination through creativity.

Humanist tradition Also called humanism, the humanist tradition in science emphasizes the subjective side of the individual—the sense of freedom, beauty, creativity, and moral responsibility.

FIGURE 2.1 • The Scientific Traditions in the Study of Personality



the ancient Indian epic, and *Dream of the Red Chamber*, an 18th-century Chinese classic, provide great accounts of the complexities of human behavior and individual choices. Writers such as Shakespeare in England and Tolstoy in Russia have created a long line of literary characters that millions of people continue examining today. Scores of artistic sources that originated in the Middle East, Iran, and central Asia also deal with the individual's personality. Creations of Firdawsi, Umar Hayyam, and Nizami teach us about passion and romantic love, anger, jealousy, pride, and generosity of people living centuries ago.

Science, social sciences, and the humanities interact when we study personality. Without science, personality psychology would certainly lose the power of the scientific method. Without social sciences, personality psychology would overlook the importance of social factors in shaping who we are as people. The humanities provide personality psychology with moral strength and encourage care about the individual (see **Figure 2.1**).

We are now turning to major contributions to personality psychology from life sciences, social sciences, and the humanities. These disciplines' intellectual legacy is diverse and vast. What did they bring to our understanding of personality? How can we apply this knowledge?

CHECK AND APPLY YOUR KNOWLEDGE

1. What is cognitive neuroscience? How does it contribute to the study of personality?
2. Explain behavioral economics and why it is important for the study of personality.
3. Compare the scientific tradition and the humanistic method to study personality. Consider two assertions:
 - A. Social sciences, for example, provide evidence about the impact of education on reducing violence and crime.
 - B. The French novelist Victor Hugo (1802–1885) wrote, “He who opens a school door, closes a prison.” Do scientists and poets often convey similar ideas? What are the differences in their approaches to facts?
4. When scientists appeal to reason, artists inspire imagination. Think about and suggest the cases in which science appeals to imagination and art refers to reason.

Genetics Genetics is the study of heredity through genetic transmission and genetic variations.

Inheritance Inheritance refers to how certain traits in living organisms were handed down from parents to offspring.

Influences on the Study of Personality

Genetics

Genetics is the study of heredity through genetic transmission and genetic variations. For centuries, scientists tried to understand **inheritance**, or how certain traits in living organisms were handed down from parents to offspring. Many researchers looked

for the most elementary bodily “units” responsible for inheritance of such traits. Charles Darwin (1809–1882), for example, believed that acquired characteristics are inherited. He attributed this to gemmules, some identifiable particles in the body. To test his hypothesis, he transfused blood from different breeds of rabbits to examine the resulting characteristics of the offspring. In the 20th century, science turned to molecular biology to explain hereditary transition processes and patterns. These days, the union of genetics with molecular biology has created a powerful new science that provides personality psychology with a constant stream of new facts. What do we learn specifically from genetics research about heredity and its role in the individual’s personality?



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Photo 2.2 Have you met any identical twins? If yes, how different or similar did their behavior appear to you?

Some Personality Features Are Inherited

When we discuss heredity, we usually talk genetic transmissions and genes. What is a gene? In a simple way, a **gene** is a segment or portion of the DNA (a complex molecule) that contains codes or “instructions” as biological information about how to build new protein structures. Genetics offers several important facts and assumptions to personality psychology, thus helping better explain the development and behavioral manifestations of certain personality features—including traits, skills, emotional patterns, and so on.

The following summative arguments can help us better understand the impact of hereditary factors on personality.

- An individual’s personality features, including traits, subsequent behaviors, and psychological experiences, are often influenced by genetic factors. Genetic information activates particular physiological “mechanisms” in the individual’s body, thus affecting his or her physical development, as well as a wide range of behavioral, cognitive, and emotional features. The consistency of our behaviors and inner experiences has something to do with our genetic makeup.
- Genetic factors can explain many variations in personality traits and behaviors, including the similarities and differences among individuals. At the same time, we should accept that some personality features have a stronger genetic component compared to others.
- The individual’s personality features, however, develop in a complex and constant interaction between genetic and environmental factors. Genes do not directly create or “build” individual traits or features. Genes are responsible only for “building materials,” which, in the process of active interaction with the environment, influence the development of certain behaviors, thought patterns, and other personality features.

Gene A gene is a segment or portion of the DNA (a complex molecule) that contains codes or “instructions” as biological information about how to build new protein structures.

Research spreading over several decades in various countries shows the significant role of hereditary factors in the individual's life, behavior, and specific traits. Consider a few examples for starters. Our genes significantly affect our life expectancy. If your grandparents are alive and they are in their 80s, your parents and you are very likely to live as long and possibly even longer. Genetic factors have something to do with our susceptibility to many illnesses, such as certain cancers, heart diseases, or diabetes (Dubal et al., 2014). Genetic factors also affect our predisposition to serious psychological disorders, such as schizophrenia, bipolar disorder, and depression (Paul, 2014). A child's early measures of activity, emotionality, and sociability (these are major components of temperament and foundations of our personality) have a significant hereditary component (Buss & Plomin, 1984; Silva & Stanton, 1996). Genes influence a person's cognitive abilities as well as play a very important role in triggering intellectual disabilities (American Psychiatric Association, 2013). Our musical skills are rooted in genetic factors, too. Recent research (Mosing et al., 2014) shows that practicing music without the right genes to back up that practice could be unproductive. While it is true that Mozart and Lady Gaga spent long hours in training (in Salzburg and in New York, respectively) before they became famous, they also most likely had the right "musical genes."

Genetic factors also contribute to physiological variations among large groups. For example, ethnic groups living in Tibet developed a genetic variant that allows them to live at high altitudes, where most other people suffer because of the lack of oxygen (Wade, 2015). In North America, Europe, Japan, and other countries that have no significant shortages of food, people's height is determined mostly by their heredity (Bilger, 2004). Genetic factors also affect the stability of individual traits during the process of development (Hopwood et al., 2011). In other words, some of us are predisposed to have stable personality traits; others should expect their traits to change during their life-spans (the stability and change of personality traits is the focus of Chapter 10). However, our genetic "building blocks," or predispositions for developing stable psychological features of our personalities, should always be considered in the context of environmental conditions within which we develop and live.

Genes and the Environment Interact

Thirty years ago, personality studies borrowing from genetics focused on specific genes that correlate to specific personality traits (Davies, 2014). Today's understanding of the genetic transmission is more complex. Genes provide numerous options for varying cells to be expressed, but the environment determines which of these are activated. A fine illustration comes from the studies of twins: Despite sharing similar genetic backgrounds, their actual physical features (such as fingerprints) are extremely diverse. Identical twins—even those raised in the same environment—are not perfect replicas of each other; their experiences make them very distinctive from each other.

Studies of animals also provide ideas about the behavior of humans. Genetically identical mice, for example, are different in terms of the amount of activity in which they engage—some are explorers and some are not. In a study using microchips, scientists measured the amount of active and exploratory behavior in mice. Over the

course of 3 months, the brains of the most explorative mice were building more new neurons in the hippocampus (a process called *neurogenesis*), which is the center for learning and memory, than the animals that were more passive. So even though these mice were genetically identical, their brains became different due to the differences in their experiences (Bergmann & Frisé, 2013).

Research shows that some genetic factors under certain environmental conditions result in particularly advantageous traits that help individuals in their lives. Genetic factors are also responsible for aggressiveness, inhibition, or propensity for anxiety. In certain conditions and in some individuals, these features develop into persistent psychological problems and disorders (Krueger & Markon, 2006). To reiterate, people's genetic predispositions for developing psychological features should always be considered in the framework of environmental conditions (Davies, 2014; Wade, 2015). For example, some people are genetically predisposed to be more socially sensitive, caring, and compassionate than others, but their environment contributes to the degree of sensitivity. Sensitivity is positively correlated with religiosity: People who tend to be sensitive also tend to be religious. Religiosity is also connected in surveys with the sense of happiness. However, people feel happier when they find opportunities for social connectedness and affiliation with others (Sasaki, Kim, & Xu, 2011). It is not enough to have certain inherited conditions for being happy. There must be a social environment that influences the individual's ability to be happy or unhappy.

Neuroscience

Recall that neuroscience is the scientific study of the nervous system. At least three disciplines within neuroscience contribute to personality psychology: electrophysiology, clinical pathology, and brain imaging studies. In university- and hospital-based laboratories, researchers use increasingly sophisticated methods and experimental devices to learn more about the mechanisms of neurophysiological processes and the brain's chemistry. The brain has about 86 billion neurons, 16 billion of which are in the cerebral cortex, the seat of many functions affecting an individual's personality (Jabr, 2015).

Clinical studies of brain pathology provide valuable knowledge about the brain's normal functioning as well as its dysfunctions. One of the many efficient methods involves studies of lesions in people who suffered brain damage that examine if or how their personality traits were affected by the trauma. For years, scientists using the **clinical-pathological method** compared clinical observations of a patient's abnormal symptoms with the reliable data about brain pathology, most likely obtained during an autopsy on the deceased patient's brain (Taves, 1999). Ideally, this method helps to establish cause-and-effect relationships between pathology of certain areas of the brain and various psychological functions and dysfunctions (Seitelberger, 1997). In reality, such cause-and-effect relationships are extremely complicated.

The rapidly developing methods of brain imaging added to the clinical-pathological method and provided cognitive neuroscientists with remarkable new facts. For example, by examining the location of neural activation generated by a behavioral or cognitive task, researchers learn more about the role of brain processes in thinking,

Clinical-pathological method Using the clinical-pathological method, clinical observations of a patient's abnormal symptoms are compared with reliable data of brain pathology, most likely obtained during an autopsy.

emoting, and decision-making. Electroencephalography (EEG) was introduced around the 1930s (Berger, 1994) and has been used ever since. This method allows scientists to study the dynamic aspects of brain activity under changing functional conditions. Computerized tomography used since the 1970s helps to identify the precise location of a brain lesion while the patient is alive, and for the past 20 years, magnetic resonance imaging (MRI) and functional neuroimaging have allowed us to see direct changing psychological conditions. The recent advances in EEG help study the neural dynamics associated with mental events at the millisecond level (Solms & Turnbull, 2011). Although almost 90% of neuroimaging studies were performed in Western countries (Chiao & Cheon, 2010), this situation is changing recently to include more culturally diverse subjects.

These are several summative and key assumptions of neuroscience relevant to personality psychology:

- Identifiable brain structures are contributing to particular behavioral, cognitive, emotional functions of the individual and his or her personality traits. Specific neurophysiological mechanisms in the brain are associated with particular behavioral, cognitive, emotional functions of the individual. These physiological mechanisms can explain differences in personality features.
- The relations between neurophysiological functions and behavioral responses are not that simplistic. Specific personality features can have something to do with different brain mechanisms; similarly, different features could be associated with similar physiological mechanisms. Brain centers do not operate independently, and their functions are continually influenced by the activities in other parts of the brain.
- To better understand the individual's personality using research in neurophysiology, we should always understand human physiology in its constant interaction with the environment (both social and physical).

Brain Activities Are Associated With Specific Behaviors

Consider a few examples. The functioning of a brain's frontal lobes has been associated with the individual's style of planning, the style of responses to reward and punishment, tendencies to procrastinate, and a wide range of executive functions related to decision-making (Carver & Harmon-Jones, 2009). Studies involving brain tomography showed a significant reduction in the development of the frontal lobes, compared with the control group, in individuals convicted of serious violent crimes such as murder (Raine, 2014). The frontal lobes contribute to individual self-control, including the ability to control anger and other emotions that contribute to violence. Studies show that some cultural differences (among other factors) in individual behavior also may have something to do with the functioning of frontal lobes (Chiao & Cheon, 2010).

The size and functioning of the **amygdala**, the almond-shaped part of the brain crucial for processing emotions, is also apparently correlated with the individual's violent traits (Raine, 2014). The hypothalamus function has something to do with our style of attachment and bonding as well as our predisposition to lying

Amygdala The amygdala is the almond-shaped part of the brain crucial for processing emotions.

(Shalvi & De Dreu, 2014). **Neurotransmitters**, or endogenous chemicals that enable neurotransmission between two cells, are associated with a variety of behavioral and psychological functions, including propensity to depression, anxiety, and even social delinquency (Raine, 2014; Rang, 2003).

Cognitive neuroscientists proposed various models of the brain process, largely comparing it to the way computers process data. In a nutshell, the brain receives information from the senses, encodes it, stores it, and then exercises decision-making and response selection. But how and where does all this information travel within the brain? Cognitive neuroscience comes to help and uses the model of neural networks to explain these dynamics. What are these neural network models? The brain neurons can be presented as “nodes.” A node is like a communication device of some sort that is connected to other nodes and attached to a larger network. Such a node is able to send, receive, block, and forward information through various communication channels. In terms of the brain’s operations, cognitive neuroscientists examine mental functions from the standpoint of the nodes functioning in networks (Glynn, 2009).

Neurotransmitters
Neurotransmitters are endogenous chemicals that enable neurotransmission between two cells. They are associated with a variety of behavioral and psychological functions, including propensity to depression, anxiety, and even social delinquency.

The Nervous System Interacts With the Environment

Psychologists have to be careful, however, and critically review the data they obtain from neuroscientists. An experimental fact that, for instance, one portion of the brain is more active than several adjacent areas during a certain mental operation could be interpreted in many ways. Leading physiologists of the past conveyed to future generations of scientists that the higher-level mental processes, such as making an important decision, or psychological traits such as openness to experience cannot be reduced to physiological processes, even the most complicated ones (Sperry, 1961). A mental function is more than a combination of billions of neurons firing. To understand psychology, one has to understand the complexity of multilevel interactions of physiological processes and mechanisms by which they interact. Most importantly, these physiological processes and mechanisms take place within specific environments, both physical and social. This interaction has created human beings.

Certain animals have very large brains. Billions of neurons in such brains support very sophisticated functions. But just the size of the brain does not make a living organism competitive with a human being in terms of intellectual and personality features. Of course, humans have the most cortical neurons of any species on Earth. Although it makes up only 2% of body weight, the human brain consumes about 20% of the body’s total energy at rest. In contrast, the chimpanzee brain needs only half that (Jabr, 2015). In addition to the brain functions, human bodies also have certain advantages that are likely to distinguish human beings from other species. Dolphins have demonstrated elements of self-awareness. They can cooperate, plan ahead, and use simple elements of a language. However, dolphins don’t have hands or can’t build tools, like humans. Apes can mimic human behavior, perform complex operations, and understand words from human language. Yet their vocal tracts lack the ability to produce speech, which humans can do. Continuing the same logic, some parrots and crows have the vocal anatomy to imitate human speech, but their brains are not large enough or wired in the right way to master complex language and reasoning (Jabr, 2015).

What makes human beings who they are is a sophisticated combination of biological, physical, and environmental conditions in the context of human evolution. About 1.8 million years ago, human brains became larger. Humans started walking upright. They had transformed themselves from tree-climbing apes who needed to spend a lot of time searching for food to upright, meat-consuming hunters who could roam large distances. Learning to cook with fire, searching out new water sources, making tools, and using vocal cords to make sounds and develop language were several among many accomplishments made by our ancestors (Finlayson, 2014).

Evolutionary Science

Personality psychology receives significant feedback from evolutionary science. Evolution, in very general terms, is transformation in the heritable traits of species over successive generations. Evolutionary science generally explains how large populations of organisms—plants, animals, and human beings—evolve over time. **Evolutionary psychology** combines the knowledge of evolutionary science and psychology and explores the ways in which complex evolutionary factors affect human behavior, experience, and personality features (Confer et al., 2010). Particular adaptive mechanisms of thinking and acting allowed humans to survive and adjust to challenging environmental conditions. These mechanisms have been transmitted—most likely genetically—from one generation to the next. It was a long process: Human beings were evolving during hundreds of thousands of years as a result of competition and natural selection.

Several summative assumptions of evolutionary psychology are most suitable for the study of personality:

- The individual's personality features can be explained as useful, adaptive functions of the individual interacting with the physical and social environment.
- Natural selection principles can explain similarities and differences in personality traits between different groups of people. Principles of natural selection are not necessarily useful in explaining individual differences between two individuals.
- To better understand how evolutionary factors influence the individual's personality, it is crucial to consider them in close interaction with other factors, including individual genetic variations, physiological mechanisms' underlying behavior, and specific social conditions within which an individual lives.

Evolutionary Factors

Today's evolutionary psychologists explain a diverse array of individual features, including curiosity and shyness, openness to new experiences, friendship and aggression, propensities to lie or suspiciousness of strangers, and many other behaviors—all by evolutionary mechanisms. Human beings struggle for resources and safety. They are supposed to approach with caution new, untested things in their lives. They are supposed to support and protect the members of their families and friends. The main

Evolutionary psychology The study of evolutionary psychology combines the knowledge of evolutionary science and psychology and explores the ways in which complex evolutionary factors affect human behavior, experience, and personality features.

assumption of evolutionary psychology is that most elements of human behavior should have a biological, evolutionary meaning. People survive because the things they do make sense. Infants, for instance, show a very early tendency to be wary of certain animals and plants. It should make good evolutionary sense to be afraid of plants when we are young and ignorant about which are useful and which are harmful (Wertz & Wynn, 2014). Other behaviors and habits, such as drug use or overeating, are harmful to evolution. Individuals who practice such behaviors are likely to die prematurely, reducing their chances of having offspring.

The “logic” of the evolutionary theory can be further illustrated with several examples. Let’s discuss, for instance, the similarities and differences between men and women. Throughout history, especially during the early stages of human civilization, the **alpha males**, which are the strongest and most aggressive, were able to reproduce better than other, weaker males. Therefore, to survive, men in the past had to develop habits of aggressive and dominant behaviors to compete against one another. Thus, strong, dominant men created a particular culture to benefit the most competitive and the most aggressive. In history, this culture certainly benefited strong men. Today, men continue to dominate the upper echelons of business and politics. Yet men also suffer because of this evolutionary male-dominant culture: Far more men than women die in on-the-job accidents, are detained for crime, and are killed on the battlefield. For these and other reasons, men’s life expectancy is lower than women’s: It is between five and seven years, depending on several factors (Baumeister, 2010).

Furthermore, as evolutionary scientists suggest, men’s desire for a variety of partners and women’s desire for one committed partner also play a significant role in the evolution of human behavior. Evolutionary “strategies” for men and women are different in some ways. Men seek variety and try to multiply the number of their

Alpha males Alpha males are the strongest and most aggressive males and are able to reproduce better than other, weaker males.

SELF-REFLECTION

Studies show that people tend to attribute positive personality characteristics, such as kindness or high intelligence, to physically attractive individuals. Mothers tend to unintentionally treat attractive children more favorably than unattractive ones. As evolutionary psychologists maintain, a friendly face is seen as attractive and beautiful because friendliness is an important evolutionary feature (Elia, 2013).

Questions

Just for the sake of this exercise, contemplate for a minute whether other people find you (a) very attractive, (b) somewhat attractive, or (c) not very attractive—based only on your “external” physical characteristics. How did these perceptions of your physical characteristics affect your view of self or your individual features? (We will revisit this issue in Chapter 8.) Discuss whether other people, in your experience, tend to associate a person’s physical characteristics, such as attractiveness, with his or her kindness.

offspring. Surveys show, for example, that men are more than twice as likely to continue dating a girlfriend who has cheated on them with another woman than one who has cheated with another man (Confer & Cloud, 2010). Women's evolutionary strategies are mostly oriented toward protecting resources, selecting reliable partners capable of protecting their offspring, and fighting to avoid violence and protect their children. Therefore, men's desire for a variety of partners and women's desire for one committed partner play a significant role in human behavior (Confer & Cloud, 2010).

Social Behavior

Evolutionary theories also attempt to explain stable patterns of social behavior. Humans can be seen as driven by two natural needs: The first is a need for assimilation and inclusion, a desire for belonging that motivates immersion in social groups; the second is a need for differentiation from others that operates in opposition to the need for immersion (Brewer, 1991). The need for inclusion often becomes a cause of prejudice and intolerance (Brewer & Pierce, 2005).

Greed also can be a useful feature when it demonstrates that the individual can protect valuable resources (Miller, 2000). Yet evolutionary theories do not claim that human beings are supposed to be exclusively greedy and violent. On the contrary, people also learned during evolution about kindness and cooperation. How did this happen? The significant changes in our ancestors' environment associated with farming and expansion of communities created new evolutionary demands. People had to show lower levels of aggression, exhibit greater patience, especially vital for farmers, and display greater willingness to trust people from other groups. Then societal pressures made people develop skills required for craftsmanship, commerce, management, and so on (Cochran & Harpending, 2010). Altruism (selflessness) and kindness as individual features should be biologically useful because they serve as a demonstration to others that the person can share resources. An act of self-sacrifice or an act of forgiveness on behalf of the family or community was in many cases evolutionarily useful. Just like violence and greed, human kindness could be a "product" of natural selection as well.

Evolutionary theories remain speculative because we cannot go back in time and demonstrate how certain individual features (such as greed or kindness) emerged in humans. There are some studies, however, that help better explain how evolutionary factors worked. For example, fox farmers in Russia successfully bred foxes for 20 years to create a line of animals that would be nonaggressive and playful. The farmers also noticed these sociable and friendly foxes had rounder skulls and flatter faces with smaller noses and shorter muzzles compared with other, unfriendly and aggressive foxes. The features seen in specially bred foxes—including flat faces and smaller jaws, as well as a large space between the height of the cranium and face—tend to be the same features that humans find beautiful. In other words, friendly faces share common physical characteristics. Studies of people's behavior show that friendliness as a behavioral feature is correlated with physical appearance (Mehrabian & Bloom, 1997).

CHECK AND APPLY YOUR KNOWLEDGE

1. Explain this statement: *Genes and environment interact*. Describe yourself and some of your physical and behavioral features, as an example, to illustrate this statement.
2. Have you heard phrases such as “the gene for the diabetes” or “the gene for thinness” or “the gene for alcoholism”? We know there are significant genetic factors involved in certain illnesses and behaviors, but we should be very careful not to oversimplify the findings. Search the web using all three words together—*gene*, *aggression*, and *found*. You will probably find several links to articles about the genetic foundation of human aggression. Pick one article. What is its conclusion? Most likely, if this is a peer-reviewed publication, it will point to an interaction of biological and social factors that affect human aggression. If the article is posted for entertainment purposes, it will likely try to persuade us that “the gene for aggression has been found.” Sensationalism is good for headlines but not necessarily for personality psychology.
3. Explain the clinical–pathological method.
4. Identify a function of the brain’s (a) frontal lobes and (b) the amygdala that is related to an individual’s behavior.
5. At least three particularly crucial evolutionary adaptations took place and dramatically affected our ancestors’ development: bipedalism (moving by means of two rear limbs or legs), which freed up human hands for tool making; fire building and hunting; and the development of a vocal tract that allowed humans to speak and communicate. Discuss how these three adaptations could have helped our ancestors to build and improve their IG (impulse gratification) control.
6. Define *evolutionary psychology*.
7. Explain who the alpha males were and their assumed role in human evolution.
8. Why can altruism and kindness be viewed as evolutionary “products”?

What knowledge does personality psychology gain from social sciences and the humanities? Here, we will start with some important highlights and discussions of such contributions.

Social Sciences

Both natural and social sciences provide significant evidence about the dual impact of natural and social factors on an individual’s functioning (Pickard, 2011). Individuals are not just passive “recipients” but rather active participants in the process of interaction with the natural and social environments. We learn that individuals are dynamic beings who interact with their natural environment and are constantly transforming themselves in this process (Bronfenbrenner, 1979; Harkness, 1992).

Yet understanding the mechanisms of the mind–body and nature–nurture interactions has been and remains one of the most significant scientific challenges (Gergen, 2001).

Studying the individual in social contexts, social scientists acknowledge that the individual is an integral part of society. People create their social environment and depend on it. Personality psychologists put forward three key summative assumptions:

- The quantity and quality of resources available to the individual and the quality of surrounding physical and social conditions all affect the individual's personality.
- Specific interactions of the individual with the environment (both physical and social) affect the individual's specific traits, which develop as a result of these interactions.
- Individual differences and group differences can be explained, to a significant degree, by the variations in their social environments.

Abundance or scarcity of resources profoundly affects human behavior and an individual's personality features. Research shows that poverty, for instance, is distinctly linked to a shorter life span and poorer health (Wairaven, 2013). The poor tend to live in more harmful environments and are more likely to be exposed to diseases and other risks than those who are not poor. Malnutrition in childhood, particularly during the first year of life, childhood infections, and exposure to accidents and injuries all make chronic and sometimes disabling diseases more likely in adult life, causing substantial changes in individual activities. Poverty affects the way people make decisions, form habits, and see themselves and others (Banerjee & Duflo, 2011). This research will be addressed throughout the text.

Climate and environmental tendencies both have a tremendous impact on the individual. Harsher climates involve a wide variety of risks and challenges, including food shortages, strict diets, and health problems. People living in harsh climates persistently face greater risks compared with people living in mild climates and thus develop traits to tackle their regular problems (Van de Vliert, 2006). Consistent levels of pathogens (infectious agents such as microbes) could partly explain the individual's propensity to interconnectedness and collectivism. How? Groups facing high prevalence of local pathogens (to which they develop resistance) tend to protect themselves from strangers (who possibly carry new germs). Therefore, such groups develop behavioral norms to be more inward-oriented, protective, and collectivist (Cashdan & Steele, 2013). Moreover, in areas with pathogen prevalence, both men and women place greater value on a potential mate's physical attractiveness (Gangestad, Haselton, & Buss, 2006). Parasites tend to degrade physical appearance. Therefore, a person's looks may quickly suggest this person's health status.

Social scientists suggest that particular personality features develop in certain historic conditions. The American sociologist Fredrick Turner (1920) argued that while facing the challenges of the frontier, Americans developed their frontier spirit and individualistic features because they were mainly conquerors and builders. Similar speculative assumptions were common in social sciences in the past. More recent research, however, produces some intriguing conclusions. Japanese scholars (Kitayama, Ishii,

Imada, Takemura, & Ramaswamy, 2006) found that people in Hokkaido, the northern island of Japan with a history of frontier spirit, showed a greater degree of individualism than did mainland Japanese who don't have such a history. Another study turned to agricultural practices, such as rice and wheat growing. Both required significant cooperation among farmers; however, farmers who grew rice (before mechanization of agriculture) had to expend twice as many hours doing so as those who grew wheat. Therefore, rice-growing societies such as India, Malaysia, and Japan had to develop very "cooperative" labor practices and collectivist traits compared with Europeans, who mostly grew wheat (Talhelm et al., 2014). Wheat-growing societies also required cooperation and mutual help, yet to a smaller degree. These societies have developed less collectivist behavior and outlook in their members.

The Economics Dimension

Economists make their contribution to personality psychology because they study and explain the connections between economic factors and the individual's personality and behavior. Consider several illustrations.

Do you think wealthy individuals are different from poor ones in terms of their personality features? Would you say the thinking patterns and everyday habits of the super-rich are different from those in the middle class? Economist Karl Marx (1818–1883) and later his followers suggested that there are "higher" and "lower" classes based on their access to resources, and ultimately, power. How does a person's social class affect her or his behavioral and psychological features, according to Marx? Social classes pursue their fundamental class interests: The *haves* (the wealthy) want to keep the resources and power in their hands, and the *have-nots* (the poor) want to redistribute power and resources equally. Thus, social classes create their own values, customs, and even individual habits that serve their class interests. One of the most important ideas for personality psychology to examine is that individuals tend to develop **class consciousness**, a set of core beliefs and perceptions about their life and the world around them based on their social (class) position in the society. In practical terms, people born to luxury and privilege or those who are surrounded by poverty and injustice are expected to develop key personality features relevant to their socioeconomic status.

Class consciousness

Members of social classes possess a set of core beliefs and perceptions about their life and the world around them based on their position in society.

What specific personality features are developed, and how can researchers prove that individuals have different personalities because they belong to different classes? Sociologists and psychologists have tried to answer these questions for many years. Studies in the former Soviet Union showed that people in egalitarian societies such as the Soviet Union (where private property was outlawed so that people were economically and socially equal) tend to be more collectivist, honest, altruistic, generous, and optimistic than people living in more capitalist countries, where they tend to be more greedy, individualistic, and pessimistic. However, the results of such studies are questionable because they haven't been properly peer reviewed by independent scholars. Also many researchers who conducted such studies received incentives, and they were required by the government to demonstrate in their research the superior features of people living in communist countries (Shiraev, 2013). These criticisms

should not diminish the importance of the economic dimension of academic research into personality. Access to resources (money, housing, education, and employment) affects many aspects of individual behavior and beliefs. Studies show that social and economic inequality, as well as discrimination of one group against others, can affect a host of psychological features (Fowers & Richardson, 1996; Jenkins, 1995).

Social Science and Typology

Social status

A social status is a position within the society and can be a measure of an individual's access to resources and power.

Stereotyping

Stereotyping is a generalization of others' behaviors and traits based on their social status or membership in a particular gender, age, ethnic, or professional group.

Social scientists also study individual types based on their **social status**, or position within the society. Social status can be a measure of an individual's access to resources and power. Sociologists most often put people in categories according to their income, education, gender, age, and occupation and then try to see similarities and differences in their behavior, opinions, and personality features. Studies show that an individual's perceived social status affects other people's perception of this individual. People tend to perceive and respond differently to a low-status person compared to a high-status person (Fiske, 2010). Social scientists also study **stereotyping**, a generalization of others' behaviors and traits based on their social status or membership in a particular gender, age, ethnic, or professional group. This book provides many examples of stereotyping and provides suggestions for ways to reduce it.

CHECK AND APPLY YOUR KNOWLEDGE

1. Name the two key summative assumptions (related to the study of personality) of social sciences.
2. Explain the phenomenon known as the "frontier spirit" in America and Japan.
3. What is class consciousness? How does it relate to the study of personality?

The Humanities

Philosophy

Philosophy, with history that spreads across centuries and millennia, is rooted in a global intellectual tradition. Across regions and times, philosophers emphasized the importance of education, honesty, friendship, cooperation, hard work, and the ability to persevere in difficult circumstances. "How should we live?" asked Aristotle (384–322 BCE), who lived in ancient Greece. He, like many other philosophers, believed that the individual should develop the capacity for virtue—a stable set of character traits to think, feel, and act in the right way (Pickard, 2011; Warburton, 2012). Moderation in desires and actions was valued by many European, Indian, and Chinese philosophers hundreds of years ago and thousands of miles apart from one another. Many philosophers search for the essence of moral behavior, which is often referred to as the "golden rule": Act according to your rational will but assume that

your action, to be considered moral, should become a universal law for others to follow. In other words, treat others as you would like others to treat you (Gensler, 2013; Kant, 1785/1956).

Philosophers endorsed **enlightenment**, which is the view of validating knowledge and education based on science and reason rather than on religious dogmas. Philosophy celebrates the educated individual. The propensity to learn and reason is the essence of humans. Ancient Indian philosophers compared education with personal liberation from fear and despair. Chinese thinkers, such as Confucius (c. 551–479 BCE), emphasized the importance of education for an individual to become an efficient member of society. Philosophers expressed different ideas about how the individual should learn. Yet they emphasized the necessity for the learned to apply their knowledge in the right, ethical way. The ability to think critically was also desired (Collins, 1990).

Philosophers initiated the discussion about the interaction between the natural tendencies, or inborn factors, and the quality of the learning process. Philosophers commonly associated the lack of education with the inability to live a productive, fulfilled, and happy life. Many philosophers agreed with social scientists that a deliberate, planned intervention in many areas of society should be beneficial to human growth and improvement (Nugent, 2009).

Many philosophers wrote about various personality types and produced some interesting and detailed descriptions of such types. At least two clusters of their assumptions are important in the context of personality psychology. In vertical hierarchical typologies, philosophers placed the types in a particular ranked order to indicate the strength, purity, skills, or other features of the individual, such as social status (like in social sciences). For example, the Greek philosopher Plato (427–347 BCE) believed in different quality of the souls. Using his classification, philosophers and public officials are likely to possess the highest-quality rational souls. Warriors have strong affective souls. Slaves should have dominant desirous souls. In horizontal typologies, the types appear as somewhat loose clusters assembled by the philosopher's creative imagination. For example, English philosopher David Hume (1711–1776) described four personality types: The Epicurean type displays elegance and seeks pleasure; the Stoic is a person of action and virtue; the Platonist type regards philosophical devotion; and the Skeptic is the critical thinker (Hume, 1777/1987).

Personality Psychology Learns From Studying Religion

For a psychologist, religious values are a rich source of knowledge about the individual's inner world, behavior, and personality. Religious knowledge is both descriptive and prescriptive. It describes various individual features and explains the individual's inner world and behavior. It also prescribes the rules and directions of thinking and action.

First, religious beliefs reflect the **transcendental** (spiritual, nonphysical) side of human experience. Religious beliefs contain the idea that something larger and more important than human beings should exist and govern our behavior (Park, 2005). Good and bad things can happen to us beyond our control. Research shows many individuals share the view that several aspects of our lives are out of our control or that our control is insignificant. We return to these studies and the phenomenon called locus of control in Chapter 6.

Enlightenment
Enlightenment is the view of validating knowledge and education based on science and reason rather than on religious dogmas.

Transcendental
Transcendental refers to the spiritual, nonphysical side of human experience.

Second, religious beliefs offer individuals a distinct possibility of extending life beyond the time of their physical existence. This can happen because, according to religious teachings, we have a soul. Across religions, the soul is perceived as immortal, indivisible, active, and existing independently of the body (Collins, 1990; Fernandez, Castano, & Singh, 2010).

Third, religious teachings often embrace mysticism—a belief in the existence of realities beyond rational reflection or scientific scrutiny, but accessible by feelings. Mysticism is reflected in many teachings, including the Sufi tradition in Islam, the Kabbalah tradition in Judaism, and in the Christian tradition in general (Shiraev & Levy, 2013).

Fourth, religions teach that happiness is possible. Individuals can achieve this stage through their own efforts. For example, Buddhism and Hinduism teach about nirvana, or a state of profound peace of mind and perfect enlightenment (Collins, 1990). We shall return to these views when we discuss the humanistic views in personality psychology.

Finally, religious teachings tend to prescribe particular behaviors and urge the development of certain desirable personality traits, such as kindness, humility, and self-control. Behaviors such as learning, sharing, and helping others are also strongly encouraged. Religion postulates behavioral taboos—actions and behaviors individuals should eliminate or repress, which often cannot be negotiated or traded (Saroglou, 2011). For example, anger, impulsivity, and jealousy are rejected across cultures. People should not consider wealth and power as the main goals of their lives. Religious knowledge contains detailed descriptions of desirable and undesirable individual types. Some religious teachings provided a clear dichotomy: They separated divine beings (such as saints) from profane beings (such as demons). In other religions, such as Hinduism, the divisions appear more complex because good and evil are usually viewed as intertwined.

In prescribing particular behaviors, religious teachings introduce two interconnected types of action. One requires our individual effort and engagement of others. The other path is inaction and even disengagement based on self-limitations. These paths (for example, in Christianity or Buddhism) are not mutually exclusive. They both can lead toward moral behavior and happiness (see [Table 2.1](#)).

TABLE 2.1 ● Religious Prescriptions of Engagement and Disengagement

| Prescriptions | Action and Engagement | Inaction and Disengagement |
|-----------------------------------|---|---|
| Positive prescriptions and values | <ul style="list-style-type: none"> • Become an activist; volunteer. • Engage others. • Make a difference. | <ul style="list-style-type: none"> • Do not impose your views. • Grow inside through self-discipline, knowledge, and mediation. |
| Negative prescriptions and taboos | <ul style="list-style-type: none"> • Abstain from substances. • Abstain from sex before marriage. • Confront evil temptations. | <ul style="list-style-type: none"> • Reject wealth, greed, and material success. • Pursue a simple life; embrace asceticism. |

Sources: Ellens, 2011; Graham and Haidt, 2010.

What does personality psychology gain from the study of religion? Just for starters, psychologists are interested in how religious values affect individual traits and other features, such as self-esteem. Psychologists working in drug rehabilitation programs can also learn how religious beliefs affect temperance and other forms of impulse control. Most important, religious teachings encourage self-improvement that certainly interests psychology theorists and practitioners (Dahlsgaard, Peterson, & Seligman, 2005). In summary, religious beliefs and prescriptions suggested valuable information about inner features such as self-cognition, self-growth, the nature of good and evil behavior, and overt features such as moral behavior.

The Arts

How does what is artistically created help our study of personality psychology?

Ancient philosophers and writers discussed the propensity of some people to postpone the gratification of their immediate needs for the sake of future returns. The Greek author Homer, about 3,000 years ago in approximately 800 BCE, immortalized Odysseus, the famed traveler, who overcame the temptation of the lure of the beautiful yet deadly Sirens. In today's terms, Odysseus had strong IG control. Poets and novelists masterfully described patience and endurance. Chinese authors 2,000 years ago and European playwrights of the 17th and 18th centuries praised restraint and moderation as most appropriate personality features and denounced impulsivity and immediate gratification of desires. Being a good person was almost always meant to be self-controlling.

Describing

In the 1951 book *Catcher in the Rye* by J. D. Salinger, we learn about the identity struggles, alienation, depression, and personal growth of the novel's main character, Holden Caulfield, through him. A stream of his experiences creates in our memory an image of a unique individual personality. Art, at its simplest, is a form of communication. Artists express their visions of human beings—their looks, postures, and actions—and then convey them to their audiences. Artists also attempt to portray, reflect, and even creatively explain the inner worlds of others—their thoughts, desires, insecurities, and emotions. Artists depict specific and recognizable individuals as well as create images of certain individual types. Some artists try to be as close to reality as possible, while others turn to imagination.

Artists (such as actors, directors, and writers) also convey to us their thoughts, beliefs, emotions, mood, and intentions. An artist's creation is often a window into his or her mind and personality. By studying their creative works, we learn about artists' personality traits as well. For example, in the classic film *Forrest Gump* (1994), we learn from the character played by Tom Hanks about the extraordinary power of kindness and forgiveness. In another example, the contemporary Norwegian author Karl Ove Knausgård, who began his six-book series *My Struggle* in 2009, masterfully reflects on the most complex and profound inner battles of the individual living in the 21st century.

Encouraging New Reflections

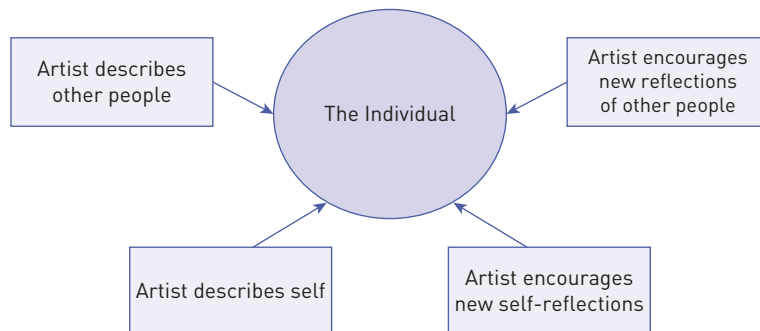
Artists also give the reader or viewer an emotional impulse to look around, ask questions about their lives, revisit the dilemmas they face, and think about the moral choices they make. Their work can encourage us to think critically and analyze other people's behavior, scrutinize their choices, and even speculate about their future actions. A stroke of a brush or a poetic verse makes us think about others and search for some yet unknown features of human experience and behavior. Art can also serve as a source of entertainment and relaxation by stimulating a particular emotion or mood.

Images and words can also bring about individual action by encouraging us to look inside our own minds and think about the meaning of our own lives, the decisions we make, the differences and similarities among humans, or the nature of good and evil within us. Art provides a means to express the imagination and bring about inner changes. People do not necessarily copy the behavior and thought of literary characters. The changes may be subtle but produce new perspectives on self and the world (Fairhall, 2012). And as we change our views, habits, and personality features, those individual changes may bring social action, which brings about social change (see **Figure 2.2**).

Affecting an Individual's Personality

How can we understand the impact of art on an individual's personality? Several influences should be considered. The first one is socialization, which can be direct and indirect (as is noted earlier in the chapter). Studies show that reading books and stories, sharing these stories, and thinking about them are all important elements of socialization and growth (Thorne & Nam, 2009). When parents read stories to children, the latter learn about the characters and their personality features. This knowledge may affect individual behavior and personality traits: After watching a film or reading a book, we often self-reflect and understand more about ourselves. Then a behavioral change is possible. A person may start thinking and acting differently; as his or her habits change, so do several personality features.

FIGURE 2.2 ● Art's Impact on the Individual's Personality



There is also evidence that suggests literary works had an impact on scientists who have contributed to personality psychology. To illustrate, literary creations of ancient Greeks and Romans influenced scores of social scientists and psychologists of modern times. Tragedies by Sophocles gave inspiration to Freud in conceptualizing his Oedipus complex. Epicurus's ideas about friendship were highly regarded by the philosopher Nietzsche (Dumont, 2010). Nietzsche also credited the influence of Dostoyevsky, whose impact on today's views of personality is significant. Petrarch influenced Renaissance humanist philosophers for at least a couple of centuries. Psychologist Lev Vygotsky was deeply inspired by Shakespeare's *Hamlet*. Other examples will follow in later chapters.

CHECK AND APPLY YOUR KNOWLEDGE

1. Explain the transcendental side of human experience.
2. How would you explain nirvana?
3. Does religion affect your behavior directly? Discuss a few examples illustrating the impact of your religious beliefs on your daily habits and behavior.
4. How does art impact an individual's personality?
5. Which literary or film character has had at least some impact on your ideas or behavior? The impact does not have to be direct and overwhelming. It can be limited and subtle.

How Do We Apply Knowledge?

Sciences, social sciences, and the humanities celebrate knowledge over ignorance, care over indifference, and moral values over indecency. The process of learning, as the Greek philosopher Aristotle believed, should essentially give us the capacity for virtue, a stable set of character traits to think, feel, and act in the right way (Pickard, 2011). Scientific knowledge provides personality psychologists with a vast arsenal of theories and facts to search for virtues in us and other people and apply them to various areas of life.

Applying Knowledge to Self

Know Yourself

Do you know yourself? No, this question is not about your complex inner world. We will examine the inner world of the self later in the book. For now, just describe your basic physical and social features. How well do you know them? Use **Table 2.2** to answer a few simple questions. To answer them with a measure of accuracy, we probably have to turn to measurements (to check weight, for example), pause for a

TABLE 2.2 ● **Knowing Your Own Individual Features**

| Individual Features | Assessments |
|--|---|
| Physical features: Describe your height, weight, body shape, and so on. | Are you satisfied with your physical features? Mostly satisfied Not sure Mostly dissatisfied |
| Health: Describe if you have health issues or concerns today. | Are you satisfied with your health? Mostly satisfied Not sure Mostly dissatisfied |
| Social status: Describe your income, living conditions, and education today. | Are you satisfied with your social status? Mostly satisfied Not sure Mostly dissatisfied |
| Personal relationships: Describe your friends, relatives, and people with whom you are close today. | Are you satisfied with your personal relationships? Mostly satisfied Not sure Mostly dissatisfied |
| Daily habits: Describe the things you do regularly—your daily routines. | Are you satisfied with your daily habits? Mostly satisfied Not sure Mostly dissatisfied |

second and think (Do I really have health concerns?), and even contemplate for some time when the question asks about your personal satisfaction with your individual features.

These simple questions about some of the most obvious individual characteristics are not as superficial as they may seem. They can encourage us to pay more attention to our health, habits, or lifestyle. For instance, have you seen a doctor lately to judge with confidence about your health? Did you discuss lately your educational or work plans with someone? Whom did you discuss them with? Who are your friends now? Are most of your habits healthy and helpful? The study of personality psychology ought to start with simple self-evaluation of the facts about you.

Improve Yourself

Behavioral economists suggest that to be successful as an individual, you have to make most reasonable decisions by (a) maximizing your gains and (b) minimizing your losses (Levitt & Dubner, 2005). Psychologists propose effective techniques to improve the effectiveness of our decisions. However, these improvements require knowledge, critical thinking, and hard work. And, of course, you have to make a decision first: Do you want to improve yourself? Do you want to be a better person? Start with a simple step: Keep a daily journal to list all of the things for which



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Photo 2.3 Do you exercise regularly? If you do, how does being active affect your individual traits? If you do not exercise, does this inactivity reflect your personality?

you are grateful. Research shows people who keep such a journal report significantly increased feelings of happiness and increased healthy behavior, which are interconnected (Emmons & McCullough, 2003). Contemplating and sketching a plan should be helpful (see **Table 2.3**).

We can change our minds and bodies and make more effective decisions if we commit to an effort to achieve this. Take **yoga**, for example, a system of beliefs and practices to facilitate the transformation of body and consciousness (Flood, 2012). It is rooted in various religious traditions, especially in Hinduism and Buddhism. Yoga is used these days in the West as well as globally as a comprehensive exercise program, focusing simultaneously on body and mind (Sutherland, 2014). Research shows that learning and practicing yoga helps individuals in addressing their emotional problems, such as depressed mood and excessive anxiety (Streeter et al., 2010). Yoga is a source of positive changes in behavior and thinking, staying focused, avoiding excessive stress, and learning about your own body and mind (Deshpande, Nagendra, & Nagarathna 2009). Yoga also teaches us to be ethical, honest, and nonviolent (Broad, 2012). It is important to practice concentration and self-discipline. An important role in self-improvement, attributed to meditation, is a broad range of principles and techniques of self-reflection, concentration, and contemplation. We will return to this subject in Chapter 9 and Chapter 13.

Yoga Yoga is a system of beliefs and practices to facilitate the transformation of body and consciousness.

Strive for Happiness

Some scientists and philosophers (we will learn more about them in Chapter 10) predicted a major crisis in the middle of every person's life—a crisis at which we all

TABLE 2.3 ● Changing Own Individual Features

| Individual Features | Areas of Change |
|--|--|
| Physical features: Describe your height, weight, body shape, and so on. | Do you want to change your physical features? In which way? How soon? |
| Health: Describe if you have health issues or concerns today. | Do you want to change your health status? In which way? How soon? |
| Social status: Describe your income, living conditions, and education today. | Do you want to change your social status? In which way? How soon? |
| Personal relationships: Describe your friends, relatives, and people with whom you are close today. | Do you want to change your personal relationships? In which way? How soon? |
| Daily habits: Describe the things you do regularly—your daily routines. | Do you want to change your daily habits? In which way? How soon? |

seriously question our lives and accomplishments (Camus, 1951/1992). Contemporary sciences and the humanities tell us that such “inevitable” crises are uncommon. Moreover, they are avoidable. The Dutch professor Ruut Veenhoven (2008) showed that happiness is largely built on three factors: positive emotion (the pleasant life), engagement (the engaged life), and meaning (the meaningful life). These three factors are very much under our control. Psychological research shows that our own educated individual efforts are significant factors of happiness (Lyubomirsky, 2007). Notice the word *educated* here: Our self-improvement should start with self-knowledge first. Remember the famous assertion from the Greek philosopher Socrates: *There is only one good, knowledge, and one evil, ignorance.*

Practicing psychologists use a therapeutic procedure called **positive psychotherapy**. It is based on the scientific premise that the human mind is capable of changing itself through behavior. The right state of mind affects behavior; the behavior then produces changes within the mind (Seligman, Rashid, & Parks, 2006). To some people, their meaningful life is associated with their work. To others, meaningful life is their family. Yet to others, the meaning is in their faith. Cross-cultural studies show that religiosity is positively correlated with life satisfaction (Sabatier, Mayer, Friedlmeier, Libiewska, & Trommsdorff, 2011). The key is to acknowledge that human beings can have many ways to achieve happiness, and they have the right to choose their personal way. Scientists offer many visions of the role that the individual should play in the search for and building of happiness. Some suggested an active engagement in daily affairs. Other teachings discouraged this (Bhikkhu, 2002).

Applying Knowledge to Others

Help People Understand the Sources of Their Problems

Philosophers for centuries emphasized the moral side of human behavior. It was assumed that if people knew the good, they would always do the good. Moreover, people go astray because they do not really know how to act correctly. Many contemporary

Positive psychotherapy
Positive psychotherapy is a therapeutic procedure based on the scientific premise that the human mind is capable of changing itself through behavior.

therapeutic techniques support these assumptions. Psychologists help other persons recognize the causes of their behavior, the sources of their pleasure and suffering. Based on this knowledge, professionals help people reevaluate their lives and make a change, if necessary. Modern techniques of cognitive–behavior therapy provide the insight into the causes of suffering (Farmer & Chapman, 2007).

Social sciences often view people as members of certain groups or types. We can further learn from sociologists and economists that there are group differences among various social, national, ethnic, age, and gender groups in terms of certain aspects of their preferences, beliefs, and so on. Yet these disciplines also help us see and celebrate the individual beyond these social categories. It is imperative therefore that we avoid biases of **categorization**, which entails a variety of mental shortcuts, or heuristics, that tend to reduce complex and time-consuming tasks of describing and analyzing to seemingly more simple, manageable, practical, and efficient labeling strategies (Tversky & Kahneman, 1974). We all have a repertoire of such shortcuts that we tend to use automatically, without necessarily considering their accuracy or validity in each situation.

Tversky and Kahneman (1973, 1982) identified a number of such shortcuts, the most basic of which they termed the *representativeness heuristic*. Essentially, this involves judging the likelihood that something belongs to (i.e., represents) a particular category. One of the most common uses of the representativeness heuristic involves judging whether a person belongs to a specific group based on how similar he or she is to the “typical” member of that group. In this way, we may conclude, for example, that Ted (A) is a Latino because he looks like your prototype of a Latino person (B). Or that Jane (A) is a gay because she behaves like your stereotype of a gay (B). In like manner, we use the representativeness heuristic for identifying almost everything about individuals.

How would you interpret, for instance, the results of a study showing that people living in nations with dominantly Protestant cultural histories had more pro-market economic attitudes than people from other, non-Protestant, countries (Hayward & Kemmelmeier, 2011)? Would you assume that your fellow student from Denmark (mostly Protestant country) should have different views of free trade compared with another fellow student from Ireland (mostly Catholic country)? The results of such studies present general data about the samples representing large communities but tell us little about specific individuals. As you can readily see, this simple act is fundamental to all subsequent inferences and behaviors: Before any other cognitive task can be addressed, we first must answer this: *What is it?*

Social scientists warn about the categorization error. They teach us about the impressive variability of social and religious groups and identification. These groups and communities may be small or large in size, old or new in history, exclusive or inclusive in membership, strict or weak in affiliation, horizontal or vertical in structure, and even real or virtual (Saroglou, 2011).

Applying Knowledge to the World

Progressivism is a general way of thinking and a social movement based on the deep belief that human beings and their society can be improved through social reform, education, and opportunity available to all people. An increasing number of

Categorization

The process of categorization entails a variety of mental shortcuts, or heuristics, that tend to reduce complex and time-consuming tasks of describing and analyzing to seemingly more simple, manageable, practical, and efficient labeling strategies.

Progressivism

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psychologists historically embraced progressive values (Shirayev, 2013). For psychology professionals, progressivism means an opportunity to apply scientific knowledge to social issues. Progressivism also emphasizes the importance of applied psychological knowledge in three areas: (1) health care, (2) education, and (3) social services. There is nothing wrong with seeing yourself as a social reformer who is interested in pursuing the expansion of your professional role in social life and the increased role of psychology as an applied field. Yet to become reformers, we need to gain knowledge first.

CHECK AND APPLY YOUR KNOWLEDGE

1. What is yoga, and what can it do for self-improvement?
2. Explain positive psychotherapy.
3. What is social categorization? Give examples.
4. Read about the similarities and differences concerning religion while considering how different and how similar religions and their followers are.

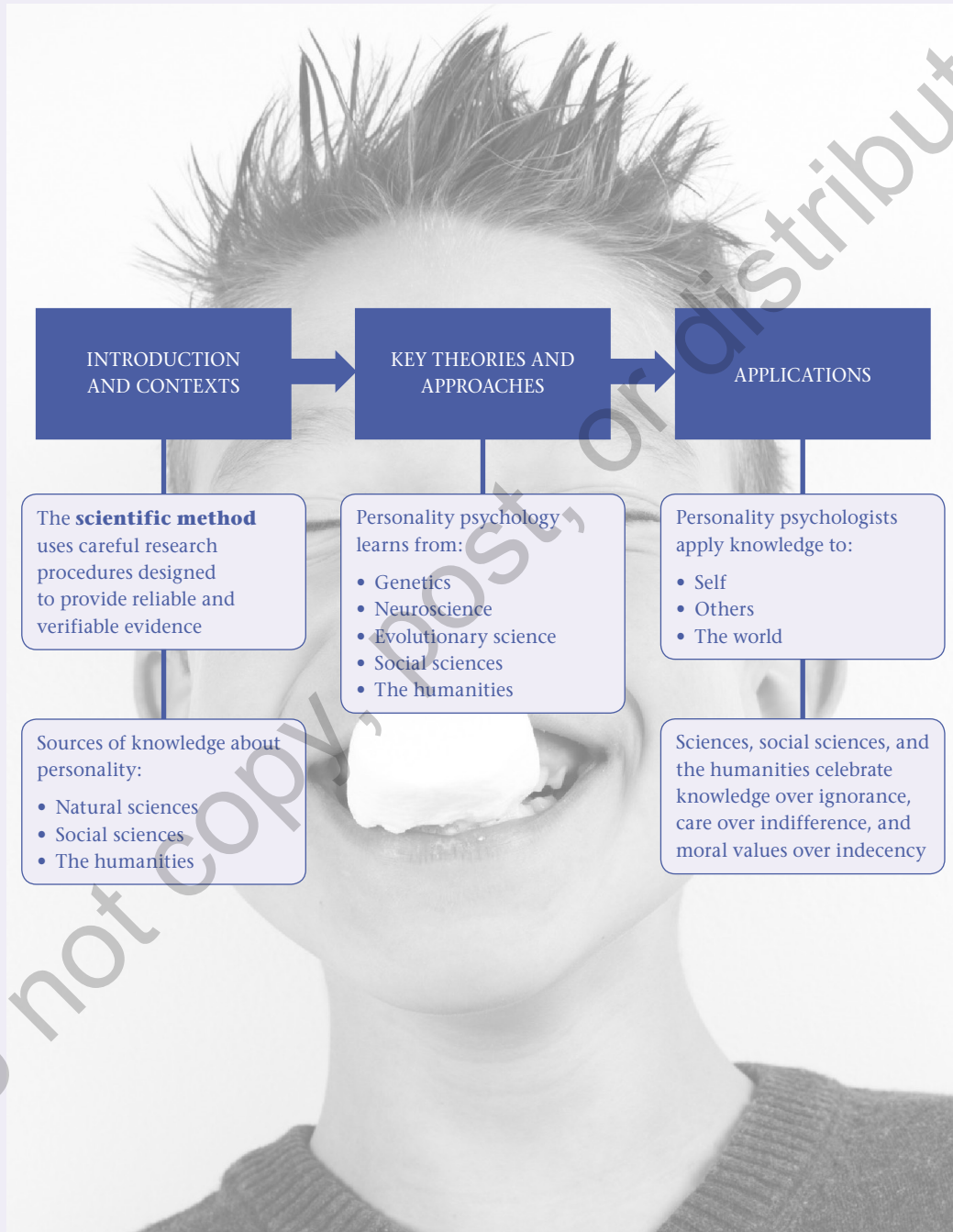
Similarities. Religiosity describes the degree or depth of one's cognitive, emotional, and behavioral dedication to a religion. There are levels or dimensions of religiosity, which involves believing, emotionally bonding with religious knowledge, behaving, and belonging (Saroglu, 2011). Religious teachings may have a relatively similar impact on individuals regardless of their specific religions. Religious rituals and the experience of related emotions seem rather universal across cultures (Saroglou, 2014). Religious teachings may have a different impact on individuals simply because these individuals are already different when they turn to their religions.

Differences. The very specific forms, predictors, and outcomes of religion and personal religiosity should vary as a function of many factors referring to specific geographic region, climate zone, ethnicity, history, politics, and so on. Consider a simple example: Religious groups endorse a great variety of beliefs and rituals regarding food. Jews and Muslims don't eat pork, and Hindus don't eat beef. Catholics don't eat meat on Fridays during Lent. Consider (and research if necessary) other important differences—such as food, clothing, and rituals—among different religions.

Questions

Studies show that different religious teachings tend to inspire similar individual features in us, including honesty, goodwill, modesty, and kindness. In other words, if two people belong to different religions yet they are equally bright, kind, and generous, then what is the difference between their religious beliefs, in your view? Does their actual everyday behavior make it relatively unimportant what they eat and how they pray? Or does their diet or their style of praying matter in our understanding of them?

Visual Review



Summary

- Personality psychology is a scientific discipline rooted in the scientific method, which uses carefully designed research procedures to provide reliable and verifiable evidence. Personality psychology is rooted in science, social sciences, and the humanities.
- Personality psychology learns from genetics. An individual's personality features, including traits, subsequent behaviors, and psychological experiences, should be influenced by genetic factors. Genetic information activates particular physiological "mechanisms" in the individual's body that affect his or her physical development as well as a wide range of behavioral, cognitive, and emotional features. Genetic and environmental factors interact.
- Neuroscience is another important source of knowledge for personality psychology. Identifiable brain structures contribute to particular behavioral, cognitive, and emotional functions of the individual and her or his personality traits. Specific neurophysiological mechanisms in the brain are associated with particular behavioral, cognitive, and emotional functions of the individual. These physiological mechanisms can explain differences in personality features. Physiological and environmental factors interact.
- Personality psychology learns from evolutionary science. The individual's personality features can be explained as useful, adaptive functions of the individual interacting with the physical and social environment. Natural selection principles can explain similarities and differences in personality traits between different groups of people.
- Social sciences contribute to personality psychology. The quantity and quality of resources available to the individual and the quality of surrounding physical and social conditions all affect the individual's personality. Specific interactions of the individual with the environment (both physical and social) affect the individual's specific traits, which develop as a result of these interactions.
- Social science—including anthropology, economics, political science, and sociology—studies concerns with society and the relationships among individuals within it. The humanities, including philosophy, religion, and art, examine human culture.
- Human beings cannot be understood apart from social bonds and interpersonal relationships, yet they are part of nature as well. Individuals are not just passive "recipients" but rather active participants in the process of interaction with their natural environments. Scarcity, availability, and quality of resources, specific natural factors, and the types of interactions between humans and their environment all affect an individual's behavior, experience, and traits.
- Economists make their contribution to personality psychology by explaining several ways to link economic factors and the individual's personality and behavior. Economic features and individual behavior are interconnected.
- Philosophy is the study of the most general and basic problems of nature, human existence, mind, and society. Philosophy is based on rational argument in contrast to faith. Across regions and times, philosophers emphasized ethical imperatives, the importance of education, honesty, friendship, cooperation, hard work, and the ability to persevere in difficult circumstances. Philosophers endorse enlightenment by validating knowledge and

education based on science and reason rather than on dogmas.

- Religion relates to beliefs, practices, and prescriptions relevant to the supernatural and the relationships between the individual and the supernatural. Religious beliefs reflect the transcendental side of human experience, its spiritual or nonphysical realm, and they offer believers the distinct possibility of extending their lives beyond the time of their physical existence. Religious knowledge contains detailed descriptions of desirable and undesirable individual types.
- The expression of human imagination through creativity is art. The acts of artistic creation and reflection are important processes in understanding personality. Artists describe themselves and other people, and encourage us to reflect on others as well as make new self-reflections. Art affects individuals via socialization processes, and psychologists' knowledge can be transformed and inspired by art.
- In the application fields, social sciences and the humanities—for the most part—celebrate knowledge over ignorance, care over indifference, and moral values over indecency. We are encouraged to know more about ourselves, understand our actions, and improve from within. Personal enlightenment should lead us toward a better understanding of others and the world around us. This will lead to an educated action.

Key Terms

| | | |
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| alpha males 49 | evolutionary psychology 48 | philosophy 40 |
| amygdala 46 | evolutionary science 39 | positive psychotherapy 62 |
| art 41 | gene 43 | progressivism 63 |
| behavioral economics 40 | genetics 42 | religion 41 |
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Evaluating What You Know

Define *scientific method*.

Explain the role of sciences in personality psychology.

Explain the role of social sciences in personality psychology.

Explain the role of the humanities in personality psychology.

Give examples of the three areas of application related to self, others, and the world.

A Bridge to the Next Chapter

Year after year, decade after decade, psychologists, like prospectors or gold seekers, tried different theories, concepts, methods, and approaches to advance their knowledge of personality. Offering their findings for critical peer review or other forms of professional evaluation, psychologists “filter” and accumulate the best, most successful, and effective methods of investigation of personality. First travel, then paper publications, and now online articles make this knowledge available to more people globally. Besides psychology, other disciplines now provide reliable and relevant facts. Yet how do psychology and other disciplines supply these facts? How do they obtain them? The next chapter turns to studying the methodology of personality psychology.

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