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SCIENTIFIC FOUNDATIONS TO STUDY PERSONALITY



LEARNING OBJECTIVES

After reading this chapter, you should be able to do the following:

- 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 2017, preowned electric car right now or a brand-new electric car in 2 years? Consider another choice: a \$500 prize today or a \$3,000 one the year after your graduation? Of course, your choice will be based on many factors. Yet in general, are you a person who usually waits to carefully select your choices? Or are you a person driven by your immediate calculations?

The phenomenon known as impulse gratification (IG) has been discussed for centuries, as we shall examine this in the chapter. Psychologists studied IG as well, and studied experimentally. 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 et al., 1972). Other researchers found a strong correlation between impulse control and achievement tests scores at age 15 (Watts et al., 2018). Another study showed that inmates with low IG control were more likely than others to commit new crimes and return to prison (Malouf et al., 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 et al., 2014). These and many other studies show that the ability to control one's own impulses can be an important individual feature related to a host of other factors, including individual qualities and behaviors.

How does impulse gratification develop in life? Are we born with it? Studies show that impulse control is associated with the functioning of the brain's prefrontal cortex, which is responsible for logic and patience, and the brain's ventral striatum (a cluster of neurons in the forebrain), which regulates reward mechanisms (Casey et al., 2011). Yet impulse control is not determined by biology alone. Nature 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 in their decisions than the educated and those who grow up facing certainty (Chiraag & Griskevicius, 2014; Mischel, 2014; Perez-Arce, 2011). Adults' reputation matters, too: If children trust adults who are around them, like parents or neighbors, and expect that the grownups' promises will be kept, the studied children display stronger impulse control (Ma et al., 2020).

We may be born with certain predispositions for stronger willpower and impulse control, but our life and experiences contribute as well. We learn from our own victories and mistakes. We absorb from successful and unsuccessful behaviors of others. We follow cultural customs. Our lives are often a lasting discovery of the worth of waiting. Such discoveries differ from person to person.



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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?

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 critical 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 and judging, rather than simply believing or uncritically accepting, knowledge (Shermer, 2015).

Scientists created various methods to gather facts and theories to explain personality. What is the difference between a scientific theory and just a series of logical assumptions about personality? A theory should be considered scientific 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. They may become testable in the future. In any case, 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 focus 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 of them are most valuable for psychologists? Let's mention and briefly preview several.

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. Behavior genetics studies how genetic differences among people contribute to differences in their psychology and behavior (Harden, 2021). We will discuss the research into behavioral 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. **Cognitive neuroscience** also 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.

Personality psychology also receives feedback from **evolutionary science**, which explains how large populations of organisms—plants, animals, and human beings—evolve over time. 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 personality traits and behaviors, especially those that are common in large populations and social groups, such as men and women or the young and the middle-aged, or people in general.

Social science is concerned with society and the relationships among individuals within it. This discipline includes anthropology, economics, political science, and sociology, among others. The goal of *anthropology*, for instance, is to provide scientific knowledge about human beings. Anthropologists are interested in such dissimilar topics as the biological roots of humans, the common grammars of languages, or gender biases in religious rituals (Nanda & Warms, 2009). 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.

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 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 age about the patterns of habits and attitudes of people of different age groups, or from environmental sociology about how religious or secular beliefs affect individual environmental conservation efforts. These were just a few examples.

Research in economics also contributes to our understanding of personality. Economics analyzes and describes the production, distribution, and consumption of resources. Personality psychologists are especially interested in research findings of **behavioral economics**, which studies the effects of individual factors on individual economics and other decisions. We will be turning to research in behavioral economics in most chapters of this book.

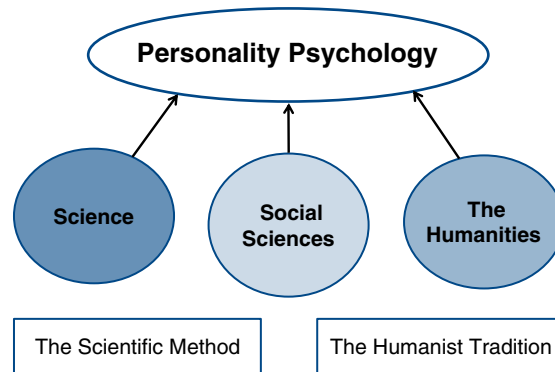
Personality psychology also relies on the humanities. In very broad terms, the **humanities** study human culture. **Culture** is a set of beliefs, behaviors, and symbols shared by a large group of people and usually communicated from one generation to the next. Sociology and anthropology are also interested 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. Later in this chapter, we will look at the impact of the humanities on the study of personality.

We shall not forget about philosophy either. In Greek, **philosophy** means “love of wisdom.” It 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 all do not have to be rational. Most of us, as human beings, think about the meaning of life. Philosophers try to provide answers.

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

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, theatre, 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). By studying art, we learn about history, culture, and of course, individual lives.

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 but respectful to religion. Art gives personality psychologists a treasure trove of materials to enrich their scientific outlook of human beings, their behavior, and their inner world. *Ramayana*, the ancient Indian epic, or *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

FIGURE 2.1 ■ The Scientific Traditions to Study Personality

Nizami teach us about passion and romantic love, anger, jealousy, pride, and generosity of people living centuries ago.

Science, social sciences, and 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 one another and the world around us (see Figure 2.1).

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 tend to convey ideas that essentially are the same? What are the differences in their approach 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.

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

CONTRIBUTIONS TO 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), one of the world’s most famous naturalists, for example, believed that acquired characteristics are inherited: If a person developed strong willpower in life, this person’s children are supposed to have strong willpower. Darwin thought that gemmules, some identifiable particles in the body, could transmit such individual characteristics. To test his hypothesis, he transfused blood from different breeds of rabbits (he could not conduct similar experiments on people) to examine the resulting characteristics of the offspring. To his disappointment, he did not confirm his hypothesis related to gemmules. Instead, the 20th century science began to use 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?



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 scientists discuss heredity, they usually talk genetic transmissions and genes. 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, the scientific study of genes and heredity, offers several important facts and assumptions about the biological factors affecting many personality features—including traits, skills, emotional patterns, personality disorders, 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 their 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 other 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 qualities.

Research spreading over several decades in various countries shows the 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 (Zwir et al., 2020). Genes influence a person's cognitive abilities as well as play a very important role in triggering intellectual disabilities (American Psychiatric Association, 2022). Our musical skills are rooted in genetic factors, too. Research shows that practicing music without the “right genes” to back up that practice could be unproductive (Mosing et al., 2014). While it is also 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 those “musical genes.” Researchers keep identifying genetic links to complex behavioral traits. Genetic factors are also responsible for aggressiveness, inhibition, or propensity for anxiety (Krueger & Markon, 2006). Patterns of coffee and tea consumption, chronic sleep disturbances, tendency for tiredness, and even whether an individual is a “morning” or “night” person—they all have a genetic component (Plomin, 2018).

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 function at high altitudes, where most other people suffer because of the lack of oxygen (Wade, 2015). In countries that have no chronic 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 span (the stability and change of personality traits is the focus of Chapter 9). 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 mostly on specific genes that correlate to specific personality traits (Davies, 2014). Today's understanding of 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 can make them very distinctive from each other as personalities (Harden, 2021).

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 active 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 & Frisén, 2013).

Research shows that some genetic factors under certain environmental conditions can result in particularly advantageous traits that help individuals in their lives. For example, parental choices to constantly engage a child at home, read books together, organize trivia, do puzzles, and visit museums might be conditioned by their temperamental features rooted in their genes, yet such activities produce important *educational* effects (Wertz et al., 2019). Certainly, some people are genetically predisposed to be more socially sensitive and anxious compared to others. Sensitivity is positively correlated with religiosity: People who tend to be emotionally sensitive also tend to be religious. Religiosity is also connected in surveys with the person's sense of happiness. However, people feel happier when they find opportunities for social connectedness and affiliation with others, which they often find in their temples, churches, and mosques (Sasaki et al., 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. To reiterate, people's genetic predispositions for developing psychological features should always be considered in the framework of their social conditions (Davies, 2014; Wade, 2015).

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 behavioral, emotional, and cognitive 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 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, emoting, and decision-making. Electroencephalography (EEG) was introduced gradually around the 1920s and 1930s and has been used in clinical settings ever since. This method allows doctors and researchers to study the dynamic aspects of brain activity under changing functional conditions. Computerized tomography (CT) 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 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 a decade and a half ago in Western countries (Chiao, 2009), this situation is changing recently to include more culturally diverse subjects (Martinez-Tejada et al., 2020).

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

- Identifiable brain structures contribute to particular behavioral, cognitive, and emotional functions of the individual and his or her 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.
- 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

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 of traumatic brain injury of the prefrontal cortex show serious changes in several areas of the individual's activities and emotional states involving disturbances in executive functions (lack of planning and indecisiveness), disconnect between emotions and behavior, changes in emotional responses including anxiety, and lack of stamina (Barrash et al., 2018). Studies involving brain tomography showed a significant underdevelopment 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 regulate anger and other emotions that contribute to violence.

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 (Shalvi & De Dreu, 2014). **Neurotransmitters**, or endogenous chemicals that enable neurotransmission between two cells, are associated with regulation of a wide range of behavioral and psychological functions (Zmorzyński et al., 2021) 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 (Hilger & Markett, 2021). 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 (Glynn, 1999).

The Nervous System Interacts With the Environment

From the opening vignette, you should remember that impulse gratification has something to do, among other factors, with the person's insecurity and the lack of resources. Studies show that poor children as a group are prone to opt for immediate rewards compared to other kids (Mischel, 2014). Educational experience makes young people value their future more and contributes to patience (Perez-Arce, 2011). Asian immigrants in North America tend to emphasize impulse control more than other families do—the fact that some researchers suggest may partly explain the educational and professional success of Asian Americans as a group compared to others (Baumeister & Tierney, 2012). Family background, early cognitive ability of the child, and the home environment matter, too (Watts et al., 2018). Young children can learn to be patient by simply knowing that people around them, especially their family members, are also patient in the way they approach small or big challenges (Doebel & Munataka, 2018).

Psychologists need 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 too 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 an individual's inner world, one has to acknowledge 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 constant interaction has created us, 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 such a large animal a human being with intellectual and personality features. Humans do not have the largest brains, compared to some animals, yet they 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 way to master complex reasoning (Jabr, 2015).

What made 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 that needed to spend a lot of time searching for food to upright, meat-consuming hunters that could roam large distances. Learning to cook with fire, searching for water, making tools, and using the vocabulary cord to make sounds and develop the language were several crucial circumstances among many other conditions that were shaping the minds of our ancestors (Finlayson, 2014).

Evolutionary Science

Personality psychology receives important 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 features, including people's curiosity and shyness, openness to new experiences, friendship and aggression, propensity to lie or suspiciousness to strangers, and many other behaviors—all by evolutionary mechanisms. The main assumption of evolutionary psychology is that most patterns of human behavior should have a biological, evolutionary meaning. People survive, while competing for resources and safety, while cooperating and helping—because the things they do make sense (most of the time). People, for example, are supposed to approach with caution all new, untested obstacles in their lives. Indeed, infants show a very early tendency to be wary of certain unknowns to them like 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). People are supposed to support and protect the members of their families, their neighbors, and friends. On the other hand, other behaviors and habits, such as drug use, overeating, smoking, or constant reckless driving, are harmful to evolution. Individuals who practice such behaviors are likely to risk their health and die prematurely, reducing their chances of having offspring.

The “logic” of the evolutionary theory can be further illustrated with several examples. Let's turn, for instance, to the similarities and differences between men and women as large groups. 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, such conditions certainly benefited strong men,

who maintained this culture. Today, despite massive changes, men as a group 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 constantly lower than women's: It is between 5 and 7 years, depending on a country's conditions and several other social and environmental factors (Baumeister, 2010; Thornton, 2019).

Furthermore, as evolutionary scientists suggest, men's desire for a variety of partners and women's desire for one committed partner (promoted by customs and even religious practices) also played a major role in the evolution of human behavior. Evolutionary "strategies" for men and women were different in some ways. Men throughout sought variety and tried to multiply the number of their offspring. Women's evolutionary strategies were mostly oriented toward protecting resources, selecting reliable partners capable of protecting their offspring, and fighting ways to avoid violence and protect their children. Therefore, men and women, as groups, are engaged in "virtue signaling" (communicating own great personal qualities) differently: Men tend to signal they can provide and protect; women tend to signal they are ready to share and care (Confer & Cloud, 2010; Miller, 2019). Although such ideas of evolutionary psychologists remain assumptions, they are worth discussing.

Social Behavior

Evolutionary theories also attempt to explain stable patterns of social behavior. For example, according to an evolutionary argument, humans can be seen as driven by at least 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). Both such needs could be a cause of prejudice and intolerance against other groups (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 less aggression; greater patience, which was 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 tend to remain speculative because we cannot go back in time and demonstrate how certain individual features (such as greed or kindness) emerged and developed in humans. There are some studies, however, that help better explain how evolutionary factors probably worked. For example, researchers in Russia successfully bred silver foxes for many years to create a line of animals that would be, like pets, nonaggressive and

playful. In each generation, they would select for breeding only the “friendliest” species. The result of this project involving more than 40 generations of silver foxes was a line of friendly pets. They displayed behavioral, physiological, and anatomical characteristics that were difficult to find in the wild population of foxes. These sociable and friendly foxes had significantly lower levels of adrenaline (associated with reactions to stress), rounder skulls and flatter faces with smaller noses, and shorter muzzles compared to their wild counterparts. 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 of various cultures find by researchers as both friendly and beautiful (Goldman, 2010; Mehrabian & Bloom, 1997).

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

1. 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 7.
2. Discuss if other people, in your experience, tend to associate a person’s physical characteristics, such as attractiveness, with their kindness.

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 ever 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 meaning of 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 develop 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 humanities? Here we will start with some important highlights and discussions of such contributions.

Social Sciences

Both natural and social sciences provide 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 such environments 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 difficult 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 (Canudas-Romo, 2018). 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 (Wairaven, 2013). Malnutrition in childhood, particularly during the first year of life; childhood infections; social instability; 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, 2019). Research related to the impact of social and economic factors on individuals will be addressed throughout the text.

Climate and environmental changes and trends both have a tremendous impact on the individual. Harsher climates involve a wide variety of risks and challenges, including severe food shortages, limited diets, air pollution, unclean water, and resulting health problems. People living in regions exposed to harsh climatic conditions persistently face greater risks compared to people living in mild climates and safer environmental conditions (Van de Vliert, 2006). Some remarkable facts have emerged. Consistent levels of pathogens (infectious agents such as microbes) could partly explain people'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—who knows?—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 et al., 2006). Certain parasites tend to degrade physical appearance. Therefore, a person's looks may quickly suggest (correctly or not) 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 et al., 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 well-known study published in *Science* examined 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 communities such as those in India, Malaysia, and Japan had to develop more "cooperative" labor practices and thus collectivist traits compared to Europeans or some other farmers, such as in northern China, who mostly grew wheat (Talhelm et al., 2014). Wheat-growing societies also required cooperation and mutual help, yet to a smaller degree, compared to rice-growers. 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 try to 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 many followers called “communists” suggested that there are “higher” and “lower” classes based on their access to resources, and ultimately, power. How does people’s social class affect their behavioral and psychological features? Social classes, according to Marx, 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 to have their share. 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 or privilege or those who are surrounded by poverty and injustice are expected to develop different personality features relevant to their socioeconomic status. Arrogance and greed, to name a few, as behavioral patterns, would be attributed to the *haves* and kindness and cooperativeness would be attributed to the *have-nots*.

What specific personality features are developed, and how can researchers prove that individuals have different qualities because they belong to different social classes? Sociologists and psychologists have tried to study and answer these questions for years. Studies in the former Soviet Union and in China conducted some 40 years ago showed that people in egalitarian societies (where private property was outlawed so that people were in theory economically and socially equal) tended to be more collectivist, honest, altruistic, generous, and optimistic than people living in capitalist countries, who were described as 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 financial and professional incentives, and they were even required by the government to demonstrate in their research the superior features of people living in communist countries (Shirayev, 2021). 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, habits, and beliefs. Studies showed that social and economic inequality, as well as discrimination of one group against others, could affect a host of psychological features in individuals living under those conditions (Fowers & Richardson, 1996; Jenkins, 1995).

Economists and personality psychologists share common interests: They study people’s behavioral patterns as well as how people make decisions. Which factors influence their 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 roommate. The cooperation between psychology and economics has been very productive. For instance, the 2002 Nobel Prize in economics went for the first time in history to psychologist Daniel Kahneman (b. 1934) for his research on systematic biases of individual decision-making. We will turn to his research later in this chapter.

Social Science and Typology

Social scientists also study individual types based on their **social status**, or position within society. Social status can be a measure of an individual’s access to privileges 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 as a person. People tend to perceive and respond differently to a perceived 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. On these pages, you will see many examples of stereotyping as well as 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

Personality Psychology Learns From Studying Philosophy

Philosophy is rooted in a global intellectual tradition spreading its roots across continents and millennia. Across regions and times, philosophers emphasized the importance of education, 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 since hundreds of years ago. Many philosophers searched for the essence of moral behavior, which we call these days 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, 1956/1785).

Most philosophers endorsed **enlightenment**, which is the view and action 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. Although philosophers expressed different ideas about how the individual should learn, they emphasized the necessity for the learned to apply their knowledge in the right, ethical way. The ability to think critically was also enthusiastically desired (Collins, 1990).

Philosophers initiated the discussion about the interaction between the natural tendencies, or inborn factors, and the quality of the learning process. These thinkers commonly associated

the lack of education with the inability to live a productive, fulfilled, and happy life. Most modern philosophers agree 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. According to his classification, philosophers and public officials are likely to possess the highest quality rational souls. Warriors have strong affective souls. Others should have dominant desirous souls. In horizontal typologies, the types appear as somewhat loose clusters assembled by the philosopher's creative imagination. For example, the 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). Such characteristics and types, are, of course just assumptions—they may be intriguing—but still, they remain untested assumptions.

Personality Psychology Learns From Studying Religion

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 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 humanities was significant.

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 perspective. 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 personal control or that our control is almost inconsequential. We return to these studies and the phenomenon called *locus of control* in Chapter 5.

Second, religious beliefs offer people a distinct possibility of extending their life beyond the time of their physical existence. This can happen because, according to religious teachings, people have a soul. Across religions, the soul is perceived as immortal, indivisible, active, and existing independently of the body (Collins, 1990; Fernandez et al., 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, 2024).

Fourth, religions teach that happiness is possible. Individuals can achieve this stage through their own effort. For example, Buddhism and Hinduism teach about pursuing and reaching 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 (Saroglu, 2011). For example, anger, impulsivity, and jealousy are criticized across faiths. People should not consider wealth and power as the main goals of their lives. Vanity is sinful. 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. We will discuss this in some detail in Chapter 6.

In prescribing 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

<i>Prescriptions</i>	<i>Action and Engagement</i>	<i>Inaction and Disengagement</i>
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 harmful substances. ● Abstain from sex before marriage. ● Confront evil temptations involving greed, vanity, or anger. 	<ul style="list-style-type: none"> ● Reject excessive wealth, greed, and do not consider material success as your ultimate goal. ● Pursue a simple life; embrace asceticism wherever you can. ● If in position to help others, help

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

What does personality psychology gain from the study of religion? Just for starters, psychologists are interested in how religious values and habits affect individual traits and other features, such as self-esteem, altruism, or conscientiousness. Psychologists working in alcohol and drug rehabilitation programs can also apply their knowledge about religious beliefs affecting moderation, temperance, and other forms of impulse control. Most important, religious teachings that encourage self-improvement certainly interest psychology theorists and practitioners (Dahlsgaard et al., 2005). In summary, religious beliefs and prescriptions suggested valuable information about the individual's inner features such as self-cognition, self-growth, the psychological nature of good and evil behavior, and overt behavioral features such as moral and volunteer behavior.

Arts

How do those artistically created objects help our study of personality psychology?

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 scholars 2,000 years ago and European and Middle Eastern philosophers of past 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.

Writers and sculptors are not scientists. Unlike researchers, they artistically reflect their observations of other people, they encourage new reflections of human beings, and they are influencing those who enjoy their art.

Describing

In the 1951 book *Catcher in the Rye* by J. D. Salinger, we learn about the insecurities, identity struggles, alienation, depression, and personal growth of the novel's main character, Holden Caulfield. 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 vision of human beings—their looks, postures, actions, and characters—and then convey it to their audience. Artists also attempt to portray, reflect, and even creatively explain the inner world of others—their thoughts, desires, uncertainties, 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. We learn from them.

Artists (such as actors, directors, and writers) also convey to us their thoughts, beliefs, emotions, moods, and intentions. An artist's creation is often a window into the artist's 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 psychological battles of the individual living in the 21st century.

Encouraging New Reflections

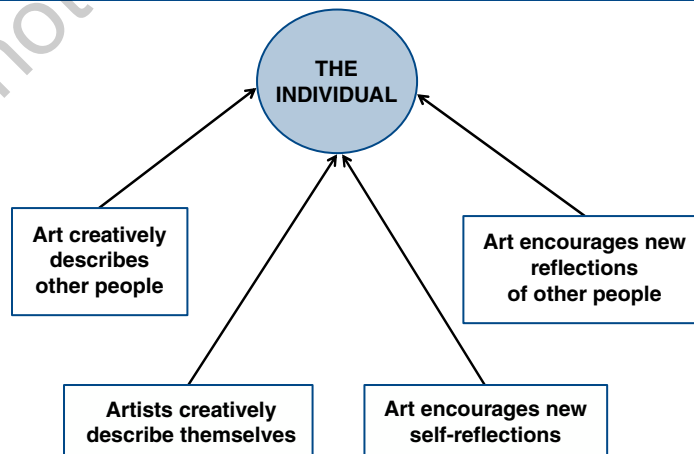
Artists also give the reader or viewer an emotional impulse to look around, ask questions about their lives, revisit the dilemmas they face, and think about the moral choices they make. Their work can encourage us to think critically and analyze other people's behavior, scrutinize their choices, and even speculate about their possible 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 curiosity, joy, and positive 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 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 can bring 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 from these stories and their personality features. This knowledge may affect individual behavior and personality traits: After watching a film or reading a book about other people, we often self-reflect about ourselves. Then a behavioral change is possible. A person may start thinking and acting differently; habits can change, so do several personality features.

FIGURE 2.2 ■ Art's Impact on an 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 Sigmund Freud—one of the most prominent psychiatrists of the past century (see Chapter 4). 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, on the nature of good and evil, is noteworthy. Petrarch influenced Renaissance humanist philosophers for at least a couple of centuries and beyond. Psychologist Lev Vygotsky, author of impactful theories of the child’s development, 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 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? 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 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,

TABLE 2.2 ■ Knowing Own Individual Features

<i>Individual Features</i>	<i>Assessments</i>
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 (including psychological health).	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, the daily routines.	Are you satisfied with your daily habits? Mostly satisfied Not sure Mostly dissatisfied

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? With whom did you discuss these plans? 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 the most reasonable decisions by (a) maximizing your gains and (b) minimizing your losses (Levitt & Dubner, 2005). Psychologists in cooperation with other scientists propose effective techniques to improve the effectiveness of our decisions and life in general. For example, do you worry about your frequent inability to focus on tasks and difficulty finishing projects in time? There are great suggestions on how to improve your ability to focus. The “deep work” method should allow you to ignore all those distracting emails, texts, postings, and videos and focus on your immediate task instead (Newport, 2016). 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 you are grateful. Research shows people who keep such a journal reported 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).



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?

TABLE 2.3 ■ Changing Own Individual Features

<i>Individual Features</i>	<i>Areas of Change</i>
Physical features: Describe your height, weight, body shape, and so on.	Do you want to change your physical features? In which way? How soon? What will you likely do?
Health: Describe if you have health issues or concerns today.	Do you want to change your health status? In which way? How soon? What will you likely do?
Social status: Describe your income, living conditions, and education today.	Do you want to change your social status? In which way? How soon? What will you likely do?
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? What will you likely do?
Daily habits: Describe the things you do regularly, the daily routines.	Do you want to change your daily habits? In which way? How soon? What will you likely do?

We can change our minds and bodies and make more effective decisions if we commit to an effort to achieve this. Consider **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 showed that learning and practicing yoga helps individuals in addressing their emotional problems, such as depressed mood and excessive anxiety (Sathyanarayanan et al., 2019; 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 et al., 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 Chapters 8 and 12.

Strive for Happiness

Some scientists and philosophers (we will learn more about them in Chapter 9) predicted a major crisis in the middle of every person's life—a crisis at which we all seriously question our life and accomplishments halfway through our lives (Camus, 1951/1992). Contemporary sciences and humanities tell us that such “inevitable” crises in the middle of someone's life are more uncommon than common. 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, 2014). Notice the word *educated* here: Our self-improvement should start with self-knowledge first. The Greek philosopher Socrates's famous assertion remains meaningful today: *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 et al., 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 et al., 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 search for and building of happiness. Some suggested an active engagement in daily affairs. Other teachings discouraged too much engagement (Bhikkhu, 2002).

Applying Knowledge to Others

Help People Understand the Sources of Their Problems

Many scientists 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 therapeutic techniques support these assumptions. Psychologists help other people 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 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 between 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. We all have a repertoire of such shortcuts that we tend to use automatically, without necessarily considering their accuracy or validity in each situation.

Renowned psychologists Tversky and Kahneman (1973, 1982) identified several 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 an Asian because he looks like your prototype of an Asian 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 (Tversky & Kahneman, 1974).

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 & Kimmelmeier, 2011)? Would you assume that your fellow student from Denmark (mostly Protestant country) should have different views of free trade compared to 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 psychologists historically embraced progressive values (Shirayev, 2015). For psychology professionals, progressivism means an opportunity to apply scientific knowledge to social issues. Progressivism also emphasizes the importance of applied psychological knowledge in at least 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. How different and how similar are religions and their followers? Read about similarities and differences below.

Similarities. Religiosity stands for a 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 relatively similar impact on individuals regardless of a specific religion. Religious rituals and the experience of related emotions seem rather universal across cultures (Saroglu, 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. What other important differences—such as food, clothing, and rituals—among different religions can you name?

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, what is the difference then between their religious beliefs in your view? Does their actual everyday behavior make it relatively unimportant what they eat and how they pray? Or do the diet and style of praying matter in our scientific understanding of individuals?

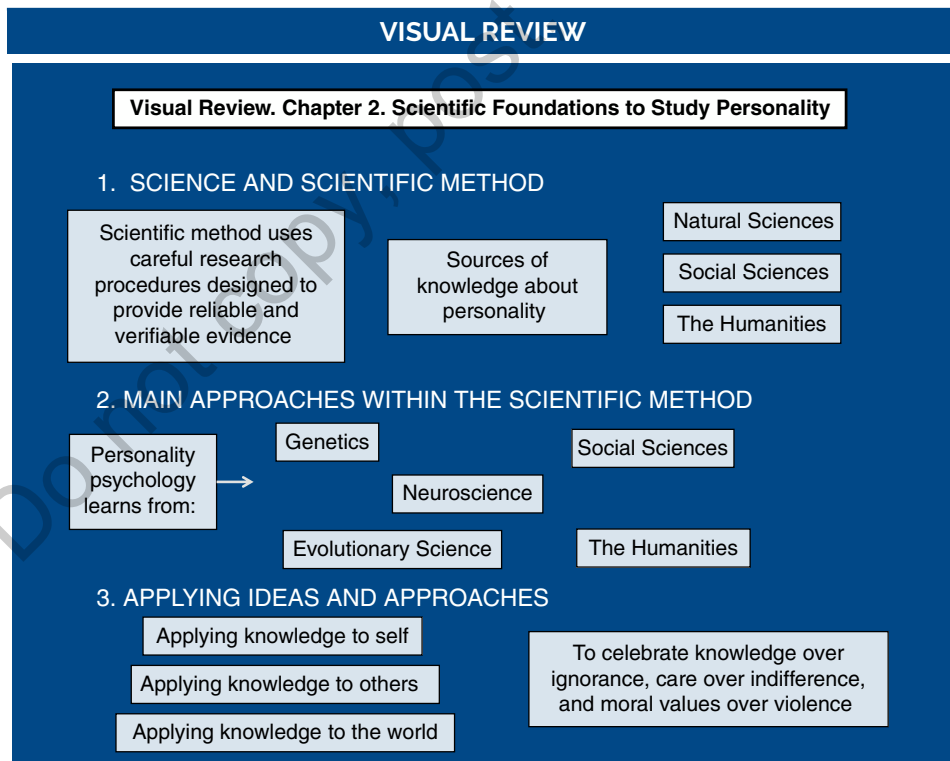
SUMMARY

- 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 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 condition 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—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 environment. 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 life 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, other people, and encourage within us new reflections of others, as well as new self-reflections. Art affects individuals via socialization processes and through the psychologists' new knowledge and its transformation inspired by art.
- In the application fields, social sciences and 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

alpha males	inheritance
amygdala	marshmallow experiments
art	natural science
behavioral economics	neuroscience
categorization	neurotransmitters
class consciousness	philosophy
clinical–pathological method	positive psychotherapy
cognitive neuroscience	progressivism
culture	religion
enlightenment	scientific method
evolutionary psychology	social science
evolutionary science	social status
gene	sociology
genetics	stereotyping
humanist tradition	transcendental
humanities	yoga

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 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.