

# What is Psychology?

## Psychology as a Natural Science and a Social Science

**Psychology** is the study of mental processes, behavior, and the relationship between them.

- ✚ Mental processes include skills like learning, reasoning, emotion, and motivation.
- ✚ To study psychology is to learn how humans and other organisms think, understand, learn, perceive, feel, act, and interact with others.
- ✚ Because psychology encompasses human and social issues as well as biological and physiological ones, it is *categorized as both a natural and social science*.
- ✚ As a *natural science*, psychology is concerned with the laws of nature.
- ✚ As a *social science*, psychology involves the study of the laws of thoughts, feelings, and behaviors of humans and other organisms.
- ✚ The focus of psychology is generally on the individual, whether alone or in interaction with others and the environment.
- ❖ Psychologists profit from insights into human behavior offered by other disciplines. Important examples are biology and computer science.
- ❖ Psychology shares a focus on human behavior with other social-scientific disciplines, such as sociology and anthropology.
- ❖ *Sociologists* generally investigate larger aggregates of individuals, such as occupational, societal, economic, or ethnic groups.
- ❖ *Cultural anthropologists* seek to gain insight into various cultures.
- ❖ *Physical anthropologists* study human evolution from simpler organisms.

## Key Themes in the Evolution of Psychological Ideas

- ✚ Georg Hegel, a German philosopher, referred to evolution of thought as **dialectic**, a continuing intellectual dialogue in which thinkers strive for increased understanding.
- ✚ First, thinkers strive to reach the truth by positioning an initial **thesis**, a statement of opinion.

- ✚ Other thinkers soon propose an **antithesis**, an opinion that takes a somewhat different perspective and often contradicts the original thesis.
- ✚ Eventually, other thinkers suggest a **synthesis**, the selective combining of the two opinions.
- ✚ An example of the dialectic process in psychology is the attitude of researchers of intelligence about the roles of nature (biology) and nurture (environment) in human development.
  - Early in the 20<sup>th</sup> century researchers very much emphasized the role of biological factors (*thesis*).
  - By the 1960s and the 1970s, there was a heavy emphasis on environment as opposed to biology (*antithesis*).
  - But by the end of the century, most researchers realized that both nature and nurture matter a great deal (*synthesis*).
- ❖ Dialectical progression depends on permitting current theses to be challenged by alternative, contrasting, and sometimes even *radically* divergent antitheses.
- ❖ These challenges then may lead to syntheses of features of several old ideas.
- ❖ Note that even when we reject outdated ideas, they still move us forward. They serve a valuable springboard for new ways of looking at things. They are theses to our innovative antitheses.

## The Early History of Psychology

600 – 300 B.C.: *Ancient Greece and Rome*

### Roots of Psychology in Philosophy and Physiology

- Psychology is rooted in two different approaches to human behavior.
  1. The first is **philosophy**, a means of exploring and understanding the general nature of many aspects of the world.
    - Philosophy is pursued primarily through **introspection**, the self-examination of inner ideas and experiences.
  2. The second approach is **physiology**, the scientific study of living organisms and of life-sustaining functions and processes, primarily through observations.

## Hippocrates, Plato, and Aristotle: Thought, Observation, and Experimentation

- The Greek physician (and philosopher) **Hippocrates**, commonly known as the father of medicine, left his mark on both physiology and philosophy.
- What sharply distinguished Hippocrates from archaic Greek philosophers and physicians was his unorthodox idea that disease is not a punishment sent by the gods.
- He also anticipated modern psychology by speculating that biological malfunctions rather than demons cause mental illness.
- He thereby turned away from divine intervention as a cause of human behavior.
- Hippocrates also used unorthodox methods—empirical observation—to study medicine.
- He was particularly interested in discovering the source of the mind. He saw the mind as a separate, distinct entity that controlled the body.
- The philosophical belief that the mind is qualitatively different from the body is termed **mind-body dualism**.
- According to this view, the body is composed of physical substances, whereas the mind is ethereal. Hippocrates proposed that the mind resides in the brain.

Two younger contemporaries of Hippocrates also considered the location of the mind to be within the body.

- 1) Plato agreed that the mind resides within the brain.
- 2) His student Aristotle located the mind within the heart.

Plato and Aristotle differed in their views of mind and body because of their differing views about the nature of reality.

- According to Plato, reality resides not in the concrete objects we recognize but in the ideal, abstract forms that these objects represent.
  - Aristotle, in contrast, believed that reality lies *only* in the concrete world of objects.
- Today we would call Aristotle an **empiricist**, a person who believes that we acquire knowledge through **empirical methods**, obtaining evidence through experience, observation, and experimentation.

- The Aristotelian view is associated with the empirical methods by which we conduct research—in laboratories or in the field—on how people think and behave.
- For Plato, however, empirical methods have little merit because true reality lies in the abstract forms, not in the imperfect copies of reality that we see in the world outside our minds.
- Observations of these imperfect, unreal objects and actions would be irrelevant to the pursuit of the truth.
- Instead, Plato suggested a **rationalist** approach that asserts that knowledge is most effectively acquired through logical methods, using philosophical analysis to understand the world and people's relationship to it.

### *1300-1600: The Renaissance and the Birth of Modern Science*

- Science as we know it was born during the Renaissance, when direct observation was established as the basis of knowledge.
- Many contemporary scientists seek to synthesize theory and observation.
- Theory should guide and give meaning to our observations, yet our theories should be formed, modified, and perhaps even discarded as a result of our observations.
- The development of psychology as a science today depends on a continual interaction between theory and data.
- During the beginning of the modern period, however, many thinkers, such as Descartes and Locke, emphasized either theory or data rather than their interaction.

### *1600-1850: The Early Modern Period*

- The French philosopher Rene Descartes continued the dialectic of theory versus data in the 17<sup>th</sup> century.
- Descartes agreed with Plato's rationalist belief that the introspective, reflective method is superior to empirical methods for finding the truth.
- Also like Plato, Descartes espoused the ideas of **mind-body dualism**, believing that the mind and the body are separate and qualitatively different, and of innate (versus acquired) knowledge.

- In contrast, the British empiricist philosopher John Locke believed that humans are born without knowledge, and they must therefore seek knowledge through empirical observation.
- Locke's term for this human condition is **tabula rasa**, which means "blank slate" in Latin. Experience "writes" knowledge upon us.
- In the 18<sup>th</sup> century, the debates about dualism versus monism (the belief that mind and body are one) and empiricism versus rationalism reached a peak.
- German philosopher Immanuel Kant began the process of dialectic synthesis for these questions.
- Kant believed that the quest for understanding mental processes requires both rationalism and empiricism working together.

### **Early Psychological Approaches to Behavior**

When psychology was starting out as a field in the late 1800s, it was viewed by some as a branch of philosophy and by others as a branch of medicine.

Gradually, the psychological branches of philosophy and medicine diverged from the two parent disciplines.

Psychology was increasingly seen as a distinct, unified, scientific discipline that focuses on the study of mind and behavior.

#### *Structuralism: Taking Inventory of the Mind*

- In **structuralism**, the first major school of thought in psychology, the goal was to understand the mind by analyzing its elements, such as particular sensations or thoughts.
- Although structuralism is no longer a dynamic force, it is important for having taken the first steps toward making psychology a systematic, empirical science.
- A forerunner to structuralism was the perspective of German psychologist Wilhelm Wundt, who some considered the "founder" of modern psychology.
- Wundt believed that psychology should focus on immediate and direct (for ex., seeing narrow, vertical, spiky, green protrusions of varying lengths and widths, amassed closely together on a 2D surface), as opposed to mediated or interpreted, conscious experience (the inferred concepts of *lawn* and *grass*).

- For Wundt, the optimal method by which a person could be trained to analyze such sensory experiences was a form of self-observation called **introspection**.
- This method involves looking inward at pieces of information passing through consciousness—a form of self-observation.
- Wundt's student Edward **Titchener**, like Wundt believed that all consciousness could be reduced to elementary states.
- After using strict structuralist principles in his teaching, research, and writing, Titchener changed his mind toward the end of his life.
  - Like others, he recognized the problem that structuralism proposed too many elementary sensations. The number of such sensations could increase without end.
  - Structuralism also provided no means for understanding processes of thought.
  - Furthermore, it was probably too rigidly tied to a single methodology: introspection.

*Functionalism: Why Do We Do What We Do*

- ❖ The roots of structuralism are in Germany, but its countermovement, functionalism, originated in the United States—the first U.S.-born movement in psychology.
- ❖ Functionalism focuses on active psychological processes rather than on passive psychological structures or elements.
- ❖ The key difference between structuralists and functionalists was in the fundamentally different questions that they asked.
- ❖ Whereas structuralists asked, What are the elementary contents, the structures, of the human mind?, functionalists asked, What do people do, and why do they do it?
- ❖ Another way of viewing the difference between structuralism and functionalism is that structuralists considered humans and other organisms as largely passive in analyzing incoming sensations.
- ❖ Functionalists, in contrast, viewed humans and others as more actively engaged in processing their sensations and formulating their actions.

- ❖ Functionalists' openness to diverse methodologies broadened the scope of psychological methods. Among the various approaches used by the functionalists was experimentation on animals.
- ❖ A leader in the functionalist movement was William James, whose chief contribution to the field of psychology was a single book, his landmark *Principles of Psychology*.
- ❖ James is particularly well known for his pragmatic theorizing about consciousness. He was a leader in guiding functionalism toward **pragmatism**, a view of science and psychology that asserts that knowledge is validated by its usefulness.
- ❖ Functionalism, like structuralism, did not survive as an organized school of thought. The term function lacked clear definition as applied to psychology. the result was that the school did not hold together.

*Associationism: Early Ideas About Learning*

- Associationism, like functionalism, was a less rigid school of psychology than an influential way of thinking.
- In general, associationists are mainly interested in the middle- to higher-level mental processes, such as those of learning (this is opposite of Wundt's insistence on studying elementary sensations).
- **Associationism** examines how events or ideas can become associated in the mind, thereby resulting in a form of learning.
- An influential associationist, the German experimenter Herman Ebbinghaus was the first experimenter to apply associationist principles systematically.
- He used self-observation to study and quantify the relationship between rehearsal—conscious repetition—and recollection of material.
- He found that frequent repetition mixes mental associations more firmly in memory, by extension, that repetition aids in learning.
- Ebbinghaus's ideas were elaborated by Edwin Guthrie, who proposed that two observed events (a stimulus and a response) become associated through their close **temporal contiguity**—their occurring very close together in time.
- In contrast, Edward Lee Thorndike, held that “satisfaction”, rather than Guthrie's temporal contiguity, is the key to forming associations.

- Thorndike called this principle the law of effect: Over time the actions (“the effect”) for which an organism is rewarded (“the satisfaction”) are strengthened and are therefore more likely to occur again in the future.
- Associationism in its strictest form has not survived. The school of thought was overly simplistic and did not explain cognition, emotion, or many other psychological processes.
- Nevertheless, associationism made a contribution to contemporary thinking in psychology and has been linked to many other theoretical viewpoints.

## **Psychology in the 20<sup>th</sup> Century**

An important 20<sup>th</sup> century contribution was the idea that the primary subject matter of psychology ought to be the self.

In her self-psychology, Mary Whiton Calkins, argued both that the self should be the focus of psychological investigation and that the self must be studied in its social context.

### *From Associationism to Behaviorism*

#### Ivan Pavlov and Classically Conditioned Learning

- In Russia, Nobel Prize-winning physiologist Ivan Pavlov studied involuntary behavior.
- He began with the observation that dogs salivated in response to the sight of lab technician who fed them before the dogs even saw whether the technician had food.
- To Pavlov, this response indicated classical conditioned learning, whereby an originally neutral stimulus comes to be associated with a stimulus that already produces a particular physiological or emotional response.
- Pavlov believed that the dogs have no conscious control over this form of learning.

### *Behaviorism: A Search for Rigor and Reduction*

Behaviorism is a theoretical outlook that emphasizes the idea that psychology should be scrupulously objective.

#### John Watson and Radical Behaviorism

- The individual usually acknowledged as the founder of radical behaviorism is American psychologist John Watson.
- John Watson had no use for internal mental contents or mechanisms. His radical conception of behaviorism stated that any behavior can be shaped or controlled.
- This view is dramatized in his famous challenge: “Give me a dozen infants...and I’ll guarantee to take any one at random and train him to become any type of specialist I might select—doctor, lawyer, artist, merchant-chief and yes, even beggar and thief—regardless of his talents...”
- Behaviorism differed from earlier movements in psychology in its emphasis on nonhuman animal rather than human research participants.
- Watson himself preferred animal subjects. From his point of view, the simpler the organism’s emotional and physiological makeup, the less the researcher needs to worry about any of the interference that can plague psychological research with humans as participants.
- An American behavioral psychologist who tried to connect the involuntary learning studied by Pavlov with the voluntary learning studied by Watson and Thorndike was Clark Hull.
- Hull’s work was ignored for a decade before its importance was recognized.
- Hull was particularly influential for his belief that the laws of behavior could be quantified—expressed in terms of numerical quantities—like the laws of other scientific disciplines.

### Skinner’s Experimental Analysis of Behavior

- In modern times, radical behaviorism has seemed almost synonymous with the work of one of its most radical proponents, B.F. Skinner.
- Skinner, unlike Watson, was not a S-R (stimulus-response) psychologist.
- Skinner distinguished between two different kinds of learned behavior.
  - *Respondent* behavior, the kind studied by Pavlov, is involuntary. It is elicited by a definite stimulus (such as food or even the sight of the lab technician).
  - *Operant* behavior, on the other hand, is largely voluntary. It cannot be simply or certainly elicited.

- The probability of an operant behavior can be increased, however, if it is followed by an event referred to as a *reinforcer*.
- The radical behaviorist approach, by ignoring internal states, effectively limits itself. It has difficulty explaining many aspects of behavior, such as acquisition and use of language.
- Despite many criticisms, behaviorism has had a great impact on the development of psychology as a rigorous science grounded in empirical evidence.

### *Gestalt Psychology: the Whole is Different than the Sum of Its Parts*

- ✚ Of the many critics of behaviorism, Gestalt psychologists have been the most vocal.
- ✚ Actually, the movement was not only a reaction against the early behaviorist tendency to break down behaviors into stimulus-response units.
- ✚ It was also a reaction against the structuralist tendency to analyze mental processes by studying elementary sensations.
- ✚ According to **Gestalt psychology**, psychological phenomena are best understood when viewed as organized, structured wholes—that is, holistically—not when they are analyzed into myriad component elements.
- ✚ The Gestalt movement originated in Germany, but then spread to the United States and other countries.
- ✚ Gestalt psychology is usually traced back to the work of German psychologist Max Wertheimer.
- ✚ He collaborated with Kurt Koffka and Wolfgang Kohler to form the new school of thought.
- ✚ The maxim “The whole is different from the sum of its parts” aptly sums up the Gestalt approach.
- ✚ The Gestaltist applied this framework to many areas in psychology, such as problem solving.

The Gestalt perspective has been criticized on several grounds.

1. It generated little data relative to the abundance of theory it provided.
2. Studies conducted under the Gestalt approach tended to lack careful experimental controls.

3. Furthermore, the approach often used imprecise definitions of terms and even occasionally circular thinking.

### *Cognitivism: How We Think As a Key To How We Behave*

- ✚ **Cognitivism** emphasizes the importance of thought as a basis for understanding much of human behavior.
- ✚ The cognitive movement began during the 1960s.
- ✚ Ulrick Neisser's book *Cognitive Psychology* was especially critical in bringing cognitivism to prominence.
- ✚ Neisser defined cognitive psychology as the study of how people learn, structure, store, and use knowledge.
- ✚ Jean Piaget was central in applying a cognitive approach to the study of child development.
- ✚ The approach of the early cognitivists tended to emphasize exclusively serial processing, or step-by-step processing of information.
- ✚ Some cognitivists, however, emphasize serial processing in conjunction with parallel processing, in which multiple mental processes are viewed as occurring all at once.
- ✚ The cognitive approach has been applied in a variety of areas of psychology, including thinking, emotion, daydreaming and imagination.
- ✚ In the 1960s cognitivism was just coming of age, and today it is still popular. Many fields within psychology have adopted a cognitive perspective.
- ✚ At the same time, it is important to remember that many aspects of behavior, such as emotion and social interaction, probably cannot be reduced to simply to cognitive processing.

### *Biological Psychology: The Mind and the Body Reconciled?*

- **Biological psychology** attempts to understand behavior by carefully studying anatomy and physiology, especially of the brain (neurobiology).
- Its roots go back to Hippocrates, who observed that the brain seems to control many other parts of the body.
- By definition, biological psychology assumes that mental processes and the body are interrelated and perhaps indistinguishable.

- **Psychobiology** is not really a school of thought, but rather an affirmation of biological theorizing and experimentation as desirable bases for studying psychological problems.
- One psychobiological approach is to determine which specific regions of the brain are responsible for the organization, learning, and expression of particular behaviors, feelings, or kinds of thoughts.
- **Behavioral genetics** attributes behavior and underlying traits in part to the influence of particular combinations of genes expressed in a given environment.
- An even newer field is *molecular genetics*. Molecular geneticists try to find the genes that contribute to mental processes and behavior.
- The **biopsychosocial approach** to psychology understands the individual in terms of the various psychological, social, and biological factors that contribute to behavior.
- *Evolutionary Psychology: Understanding the Adaptive Value of Certain Behaviors*
- In his theory of natural selection and evolution, Charles Darwin sought to understand how behaviors such as facial expressions, mating rituals, and even emotions might have evolved from or be related to those in other species.
- Today, psychologists building on the integrative work of Darwin have created a new and exciting field, evolutionary psychology.
- The goal of **evolutionary psychology** is to explain behaviors in terms of organisms' evolved adaptations to a constantly changing environmental landscape.

*Psychodynamic Psychology: Conscious Behavior as the Tip of the Iceberg*

- One of the oldest, most controversial, stimulating, and influential schools of psychology developed from the observations made in the clinical practice of the *neurologist* (a physician who treats disorders of the brain and the nervous system) **Sigmund Freud**.
- Freud's **psychodynamic theory** emphasizes the importance of unconscious mental processes.
- It also underscores the importance of early childhood experiences as influences on adult personality.

- Psychoanalysis is the kind of psychological treatment based on Freud's theory of motivation and behavior.
- In his theory of psychoanalysis, Freud proposed two levels of awareness of reality.
  1. The conscious is composed of mental states, such as memories, of which we are aware. But it is just the tip of the iceberg. According to Freud, the motivation for many of our actions is often outside our awareness.
  2. The unconscious is composed of mental states of which we are unaware or to which we do not normally have access.
- The conscious and the unconscious minds operate according to different governing principles.
- In addition, Freud proposed three mental structures—the id, ego, and superego—each operating according to different principles and serving different functions.
- Freud also posited a multistage theory of development that emphasizes the important role of early childhood experiences in the development of personality—and, when problems arise in this development, mental disorder.

Several valid criticisms have been leveled against psychoanalysis.

- It probably overemphasized sexual explanations of phenomena.
- It also relied too much on case study research, and some of the case studies may have been interpreted in ways that overstated their fit to Freud's ideas.
- The ideas have not been subjected to as much empirical testing as would be ideal.
- In any case, Freud contributed greatly to the development of psychological theory.
- Several of Freud's disciples rebelled and formulated their own versions of the theory. These more recent psychodynamic theorists are often called "neo-Freudians".
- Their views differ from Freud's in many and varied respects.

- One of the main differences is the neo-Freudians' emphasis on conscious as opposed to unconscious processing.
- Another main difference is the neo-Freudians' belief in the profound influence key human relationships can have on how we come to view the world.

### *Humanistic Psychology: Free Will and the Importance of Human Potential*

- During the 1950s, one response to the psychodynamic theory was the humanistic-psychology movement.
- Recall that psychodynamic psychology tends to see humans as being somewhat at the mercy of developmental events in their lives.
- In contrast, **humanistic psychology** emphasizes free will and the importance of human potential as well as holistic rather than analytic approaches to psychological phenomena.
- It also emphasizes conscious experience in personal development rather than unconscious experience.
- An *analytic approach*, such as Freud's, aims to break down a construct like personality into its constituent components.
- A *holistic approach* to personality theory, however, seeks to avoid dividing the personality smaller elements. It argues that the essence of the construct is lost through such divisions.
- A leading humanistic psychologist, Abraham Maslow proposed that all people possess an innate drive for self-actualization.
- People seek to actualize (make real through action) their potential as creatively as they can.
- Maslow believed that people differ in the extent to which they succeed in self-actualizing.
- Those who succeed have in common an objective view of reality and an acceptance of their nature, including both their strength and their limitations.
- Carl Rogers, another humanistic psychologist, followed Maslow's emphasis on self-actualization.
- But Rogers stressed the dependence of self-actualization on the relationship between mother and child.

- He believed that if the mother meets the child's needs for unconditional love, then the child will probably develop in a well-adjusted way.
- Rogers argued that we need this love, which he termed unconditional positive regard, in infancy and childhood.
- The humanistic approach has made a valuable contribution to our understanding of human nature.
- At the same time, its theories tend to be somewhat less comprehensive than those of some alternative approaches.

### **Psychology as a Field of Study**

A **psychological perspective** centers on a particular set of theories and beliefs based on the philosophical strands described earlier.

In contrast, a **field** is a domain of study centered on a set of topics that have a common core of related phenomena.

### Psychobiology

- Also termed biological or psychobiological psychology, this field deals with the biological structures and processes underlying thought, feeling, motivation, and behavior.
- Some questions of interest to psychologists working in this area might be:
  - 1) What neurochemicals are active in the brain when a person feels depressed?
  - 2) What happens in the brain when we experience physical pleasure?
  - 3) What brain structures are invoked when people experience three-dimensional objects?
  - 4) How does the brain receive messages from and send messages to the limbs?

### Cognitive Psychology

- This field deals with how people perceive, learn, remember, and think about information. Cognitive psychologists study how people use language, think, solve problems, and make decisions.

- Those working in this field might be concerned with:
  - 1) How people perceive depth?
  - 2) Why do people remember some facts but forget others?
  - 3) How do people think when they play chess or solve everyday problems?
  - 4) What is insight? How is insight different from creativity?

### Developmental Psychology

- This field is the study of how people develop over time through the processes of maturation and learning. Developmental psychologists may focus on particular ages, e.g. infancy, childhood, adolescence, adulthood, and aging.
- They tend to focus on an aspect of development such as mental abilities or social skills such as peer relations.
- A developmental psychologist might wonder:
  - 1) Are certain kinds of substance-abuse prevention messages likely to be particularly effective with an adolescent audience?
  - 2) How do children form attachments to their parents?
  - 3) How do people acquire an understanding of what others expect of them in social interactions?
  - 4) At what age does it begin to be more difficult for a child to learn a second language?

### Neuropsychology

- This field is concerned with the bases of behavior in the human nervous system, with special emphasis on the brain. It is one of the most rapidly developing fields in psychology today.
- Neuropsychologists study the biological bases of perception, learning, emotion, motivation, and other phenomena.
- They might ask:
  - 1) What neural circuitry is responsible for learning?
  - 2) What parts of the brain are activated when we feel anger?

- 3) What are the differences between the brains of people with and without autism?

### Social Psychology

- This field focuses on the personal dispositions that lead people to behave as they do, and also on how these dispositions interact with situations to affect behavior.
- Personality psychologists might be concerned with trying to pinpoint or measure personality traits.
- They may also be seeking answers to these questions:
  - 1) Why do some people seem nervous and tense, even in apparently safe settings, whereas other people are easygoing and relaxed?
  - 2) What makes some people highly conscientious and others less so?
  - 3) How much does personality change over time?

### Clinical Psychology

- This field deals with understanding and treating abnormal behavior. Clinical psychology may offer therapy or do research on particular disorders or kinds of treatment.
- Questions they might be concerned with include:
  - 1) What behavior is just a little out of the ordinary, and what behavior is truly abnormal?
  - 2) How could a person lose touch with reality and with rational thought?
  - 3) What causes people to engage in behavior that they themselves consider inappropriate and even abnormal and would like to stop if they could?
  - 4) What sort of experiences seem linked to depression? Anxiety?

Although the fields of psychology described above are the main ones described in this book, new specialties of psychology are constantly evolving.

These new fields include:

Cultural psychology

Health psychology

Educational psychology

School psychology

Organizational psychology

Engineering psychology

Forensic psychology

Political psychology