**Psychology**

**Lecture One : The Nature Psychology**

**Main Objectives**

When reading the first lecture, you should be able to remember and describe:

1. What is psychology?

2. History of how psychology came to be considered a science

3. Five key properties of scientific observations

4. Operational definitions

5. Six types of reasoning errors that people typically make: *statistical reasoning errors, attribution errors, overconfidence errors, hindsight bias, confirmation bias, false consensus.*

**Introduction**

 When you see babies or other people and you cannot explain their behavior, you wish if you could go back in time and remember what it was like to be a baby, see inside people’s memory, read people’s minds, or see what other people see.

Other times, you wonder:

•Why you can remember some important information but forget other equally important information?

• Why some people seem to love school and work, while others hate them?

• How the brain works?

• Whether parents really understand the unintelligible sounds that come out of their two year old’s mouth?

What are anxiety, depression, and psychological disorders? And why some people develop such characteristics while others not?

All these inquiries have to do with the field of psychology.

**Psychology**

 **Psychology** is wide discipline but it can be defined as the science of behavior and mental processes.. The two main parts of the definition are (1) the subject matter, namely behavior and mental processes, and (2) the methods used to study them, which are the methods of science.

A **behavior** is any observable response in an organism, usually a person (although some psychologists study other animals).So answering a survey question, running to get out of the rain, eating, crying, sleeping, and so on are examples of behavior. In short, anything a person does is a behavior and is a legitimate part of the subject matter of psychology. Moreover, behavior does not always require observation with the naked eye, by the way. As long as the response can be reliably measured, it counts as a behavior. For example, when you are nervous, your palms sweat. The sweat increases the electrical conductivity of your hand; it is called galvanic skin response, and it can be measured. Electrical activity in the brain, too, can be measured, so it counts as a behavior.

In the first part of the 20th century in the United States, psychology was almost purely the science of behavior. Modern psychologists try not to just measure behavior but also to figure out which **mental processes**, or functions within the brain, are responsible for producing the observed behavior. Psychology is divided into six themes relevant to everyday life:

Thinking Like a Psychologist

Understanding and Using Principles of Memory, Thinking, and Learning

Understanding Human Nature

Developing Throughout the Lifespan

Getting Along in the Social World

Achieving Physical and Mental Well-Being

1. **Thinking like a psychologist**

 Every day, we attempt to achieve the same goals that psychologists do. We see someone do something, and we try to explain why. For example, imagine that you encounter your best friend in the hall outside class, and he ignores you. Very likely, you would try to explain this behavior. Did he not see you? Is he angry with you? Is something troubling him? Most people will answer the question and have high confidence that their answer, their expectation of the behavior, is correct. Psychologists do something different, they replace everyday observations and explanations with scientific ones. Science is nothing more than a method of gaining knowledge about the physical world. But it is a highly valued method.

If you have the opportunity, take a look at some other general or introductory psychology textbooks. Many of them make a big deal out of the assertion that psychology is scientific. You might wonder, why does it matter if psychology is scientific or not? Think of all the classes you have taken in high school and college. How many of them began with a statement that the discipline you were about to study is a science? Of course, many disciplines are not sciences (for example, English, history, and foreign languages). What about biology, chemistry, or physics? Why doesn’t a chemistry textbook explain that chemistry is a science in its first chapter? The answer is probably obvious; it is because everyone knows that chemistry is a science. The reason that psychology textbooks have to explain the link with science is that not everyone knows that psychology is a science (Lilienfeld, 2012). Unfortunately, that seems to include other scientists. As a consequence, psychology sometimes seems as if it is “fighting for respect” among the scientific disciplines (Stanovich, 2019).

Over the past few centuries, science has emerged as the most important and most widely respected way of discovering truths about the physical world. Even in the 18th century, scientific ideals were held up as the model for many disciplines. Unfortunately, Immanuel Kant (2004/1786), an influential 18th century philosopher, had asserted that a scientific psychology was impossible. Given the respect with scientific disciplines were treated, the implication may have been that psychology was not “good enough” to be a science.

It is interesting to note, however, that many of the scholars who were interested in psychological concepts during the 18th and 19th centuries had a scientific background. To give one quick example, Hermann von Helmholtz, who in 1852 proposed a theory of color vision that is still accepted by psychologists today, was a physicist. Also, it seemed

reasonable to believe that if other complex systems—for example, the universe—could be studied scientifically, why not the human mind?

Still, when psychology emerged as a legitimate discipline, it had to struggle to establish itself as a science. One reason that the German researcher Wilhelm Wunt is credited with being the first psychologist is because he worked so hard at establishing psychology as a science throughout Europe (Hunt, 2007).

It is the characteristics of scientific inquiry itself that make it so effective. It has five key properties:

• Science is empirical. **Empirical** means “derived from experience.” Simply science proceeds as scientists “experience” the world and make observations in it. The other kind of potential observation is an inside-the-head one, observation of one’s own consciousness and thought processes.

• Science is repeatable. If you were to conduct a scientific research project, you would seek to publish an article about your research in a scientific journal. One of the sections of that article is called Methods and it would lay out in great detail how you conducted your study. If future researchers want to repeat your study, all they would have to do is pick up your article and follow your methods like a recipe. This process, repeating a research study, is called **replication.**

• Science is self-correcting. Replication is what allows science to be self-correcting. Let us explain. *Self-correcting* means, roughly, that evidence based on good research tends to accumulate, while information based on bad research tends to fade away, forgotten.

• Science relies on rigorous observation. Scientific evidence was produced under tightly controlled conditions designed to allow the scientist to draw valid conclusions. The conditions under which scientific observations are made are laid out by specific research methods. These methods are essentially the rules for making scientific observations.

 • Science strives to be objective. You should be aware of two related but distinct senses of *objective.* First, scientists strive to be personally objective; they try to not let their personal beliefs influence their research. Second, the observations that scientists make must be objective, meaning that different observers would observe the same thing.

Another source of difficulty when trying to make objective observations is a lack of clarity about precisely what is being observed. In order to make observations more objective, researchers use **operational definitions.** Operational definitions specify exactly how a concept will be measured in the research study. For example, an operational definition for aggressiveness could be a checklist of behaviors that observers might see in the children they are watching: hitting, punching, kicking another child, using profanity toward another child, directing a threat toward another child, and so on. The goal is to come up with a list of behaviors that are a reasonable reflection of aggressiveness and that different observers can consistently recognize as aggressiveness. An operational definition like this gives observers a way to know what to count as an aggressive behavior.

In the case of psychology, we see someone engage in a behavior and then try to explain it and the mental processes underlying it. For example, if we see someone running down the hall at school and yelling, we might wonder, “Why did he do that? Is he being chased? Is he celebrating because he just finished his finals?” We would have to call this very common human activity of searching for explanations **naïve, or intuitive psychology***.* Researchers have discovered that people generate their own explanations for physical phenomena without relying on formal physics principles (as you might guess, it is sometimes called naïve, or intuitive physics)

Why should we care about intuitive reasoning (about psychology and the physical world)? Psychologists who study reasoning and thinking have discovered an important fact about it. We make many predictable sorts of errors when we try to draw conclusions about our everyday observations without thinking scientifically. After all, if your explanations about human behavior and mental processes were all correct before you took this class, psychology educators would be out of a job. In other words, if naïve psychology were always correct, there would be no need for scientific psychology.A bias is a specific tendency, a consistent way of thinking, seeing, believing, or acting. One important source of bias is one’s personal experiences and background. So now you might realize that when we spoke earlier about scientists’ need to ignore their personal backgrounds and make objective observations, we were in fact talking about the need to move beyond their biases. We distinguish between error and bias because an error, by definition, is always wrong. A bias in some specific situations might lead to a correct conclusion. For example, professors who have a bias that students are dishonest may be very successful at identifying cheaters in their classes. This can make it very difficult for people to discover that their biases might be incorrect. The key idea is that if a bias is applied consistently, eventually it will lead to an error. In what follows there are some types of errors:

**Statistical reasoning errors** are poor judgments about likelihoods. Largely because we do not have the time or ability to calculate probabilities in our heads, we use shortcuts when trying to judge likelihood, which leads to many important errors.

***Attribution errors*** *is* to make errors in the types of explanations that we come up with for people’s behavior.

***Overconfidence errors*** *occurs when*we have a set of biases that lead us to think that we are correct more often than we actually are. Individually, each bias is quite a dangerous **overconfidence error.** Together, they combine to make us overconfident of our ability to explain and know things without relying on scientific research. And we can be *very* overconfident.

***Hindsight bias occurs*** once an event has happened, it seems to have been inevitable, and people misremember and believe that they could have predicted the event.

**Confirmation bias** is the tendency to notice and pay attention to information that confirm your prior beliefs and to ignore information that disconfirm them.

**False consensus** isthe tendency to overestimate the degree to which other people agree with us.