

## Chapter 1: Psychology and Scientific Thinking

### What is Psychology?

- William James: regarded as the founder of American psychology.
- The scientific study of the mind, brain, and behavior at the individual level.

### Psychology and Levels of Analysis

- To fully understand psychology, we must consider multiple levels of analysis.
- Both biological and social factors are essential for understanding psychology.
- Psychology is a discipline that spans multiple levels of analysis.
  - Stretch all the way from molecules to brain structures on the low rungs to thoughts, feeling, and emotions and to social and cultural influences on the high rungs, with many levels in between.
  - Lower levels of analysis
    - More closely tied to "the brain"
  - Higher levels of analysis
    - More closely tied to "the mind" (the brain in action)

### 5 challenges of psychology

1. Human behavior is difficult to predict because almost all actions are **multiply determined**
  - Produced by many factors
2. Psychological influences are rarely independent of each other.
  - Can't pinpoint causation.
3. Individual differences
  - People differ from each other in thinking, emotion, personality, and behavior.
  - Help explain why we each respond differently to the same situation.
4. People influence each other
  - A loop of influencing behavior (**reciprocal determinism**)
    - **The fact that we influence each other's behavior; can make it challenging to isolate the causes of human behavior.**
5. Peoples behaviors are often shaped by culture.
  - Cultural differences often place limits on the generalizations that psychology can draw about human nature.

## Common Sense

- Our gut intuitions about how the social world works.
- You have to know when to not trust your common sense
- Science is not a body of knowledge, it's a set of principles.

### Naïve Realism

- The belief that we see the world precisely as it is.
- Our tendencies toward naïve realism can lead us to draw incorrect conclusions about human nature.
- Our beliefs shape our perceptions of the world.

### When our common sense is right

- Can be a helpful guide to generating hypotheses that scientists can later test in rigorous investigations.

## Psychology as a science

- Science is a systematic approach to evidence.
- Sciences begins with **empiricism**
  - The premise that knowledge should initially be acquired through observation.
- Scientific psychologist almost always rely on systematic research methods.
- We must abandon relying on opinions
- Dedicated to truth and facts, and being able to objectively measure, predict, and modify behavior.

## What is a scientific theory?

- Scientific theory is an explanation for a large number of findings in the natural world, including the psychological world.
- It ties multiple findings together into a theory.
- Generate predictions regarding new data we haven't yet observed.

## What makes a theory scientific?

- It must generate novel predictions that researchers can test.
  - Scientists call a testable prediction a **hypothesis**.
- Theories are general explanations while hypotheses are specific prediction derived from those explanations.

## Common misconceptions about theories

- A theory explains one specific event
  - A theory is actually multiple observations tied together.
- A theory is just an educated guess.

All general scientific explanations about how the world works are theories.

- Example: The Big Bang Theory

## Blas

- Confirmation Bias
  - Trying to confirm what you already believe by seeking out information that supports your beliefs.
  - The tendency to seek out evidence that supports our beliefs and deny, dismiss, or distort evidence that contradicts them.
  - "Seek and ye shall find"
  - Leads us to focus on the evidence that supports our beliefs, which causes psychological tunnel vision.
  - The most crucial bias that psychologists need to counteract.
- Belief perseverance
  - Refers to the tendency to stick to our initial beliefs even when evidence contradicts them.
    - None of us want to think we're wrong.
    - Minimizing the facts in order to prove your beliefs

## Metaphysical Claims

- Metaphysical claims are assertions about the world that we can't test.
  - Include assertions about the existence of god, the soul, and the afterlife.

- o Differ from scientific claims because they cannot be tested using scientific methods.

Good scientists are aware they might be wrong.

Scientific knowledge is almost always tentative and potentially open to revision.

Science forces us to question our beliefs.

Prescriptions of humility- scientist never claim to "prove their theories and try to avoid committing to definitive conclusions unless the evidence supports them overwhelmingly.

## Psychology Pseudoscience

- Psychology pseudoscience is a set of claims that seem scientific but aren't.
- Lacks the safeguards against confirmation bias and belief perseverance that characterize science.
- It is testable beliefs that are not supported by evidence.
- They have conclusions that are not drawn from "a priori" hypotheses.
  - o The hypothesis wasn't made before the experiment.

### Warnings of pseudoscience

- Ad hoc immunizing hypothesis
  - o An escape hatch or loophole that defenders of a theory use to protect this theory from being disproven.
- Exaggerated claims
- Overreliance on anecdotes
  - o Difficult to interpret as evidence.
- Absences of connectivity to other research
- Lack of review by other scholars (peer review) or replication by independent labs
- Lack of self-correction when contrary evidence is published
- Meaningless "psychobabble" that uses fancy scientific-sounding terms that don't make sense.
- Talk of "proof" instead of "evidence"
- Making truth claims without sufficient evidence.

**Patternicity**- our tendency to see patterns in meaningless data.

### Finding comfort in our beliefs

- Jennifer Whitson and Adam Galinsky: deprived participants of a sense of control by having them try to solve an unsolvable puzzle or recall a life experience in which they lacked control.
  - o Found that they were more likely than other participants to perceive conspiracies, embrace superstitious beliefs and detect patterns in meaningless visual stimuli (Patternicity)
- **Terror management theory**
  - o Our awareness of our own inevitable death leaves many of us with an underlying sense of fear.
  - o Causes us to cope by adopting cultural worldviews that reassure us that our lives possess a broader meaning and purpose.
  - o Morier & Podlipentseva: Asked people to contemplate death- those that did believed more in paranormal, ESP, ghosts ect. than those that didn't.
  - o Theory suggests that we're more likely to hold many paranormal beliefs regardless of whether they're correct.
- **Thinking clearly: an antidote against pseudoscience:**