

Three Themes in Understanding Psychology: Science, Philosophy, and History

I. INTRODUCTION

A. Issues and Goals

- Understanding psychology involves adopting three perspectives:
 - Scientific Perspective:
 - Understanding the procedures psychologists use to answering questions in a scientific manner.
 - Historical Perspective:
 - Understanding the social, cultural, intellectual, and emotional settings that shaped psychological ideas.
 - Philosophical Perspective:
 - Understanding the enduring questions about the nature of reality and knowledge addressed by psychology.

I. INTRODUCTION

A. Issues and Goals

- In this lecture we review each perspective, highlighting central points or issues.
 - Of interest is how to hold the three perspectives simultaneously when exploring Psychology
 - Simultaneous adoption of the scientific, historical, and philosophical perspectives amounts to exploring Psychology from a *Philosophy/History of Science* point of view.
 - The history/philosophy of science affords a broad appreciation of psychology, its nature, origins, and place in modern society.

II. SCIENTIFIC PERSPECTIVE

A. What is Science?

- Stanovich defined science as:
 - Systematic Empiricism: Evidence-based.
 - Publicly verifiable: Ideas are open to scrutiny.
 - Deals with solvable problems: Only testable ideas.
- But by focusing on *process* not *content*, the definition insures that psychology is scientific,
 - Kant and Galileo (among others) argued that psychology could never become a science because of its focus on subjective experience (e.g., mental events)
 - Less than 75 years later, psychology was heralded as a new science and quickly spread into popular culture.

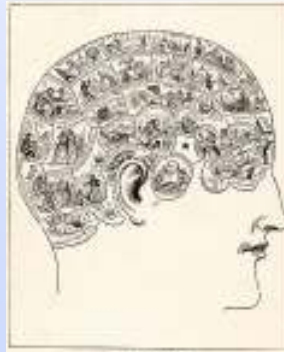
II. SCIENTIFIC PERSPECTIVE

A. What is Science?

- Science was developed as a way to **answer questions** about nature.
- One issue is whether Psychology has answered any questions using scientific methods?
 - Do ideas in psychology just come and go or are they accepted or rejected by scientific means?
- Did Phrenology (18th belief that personality traits were determined by "reading" bumps on the skull) fall out of favor because...
 - the idea was scientifically rejected OR
 - believers died off and other ideas took its place

II. SCIENTIFIC PERSPECTIVE

A. What is Science?



- Actually, Phrenology is still with us in the form of the Modularity Hypothesis (localization of brain function) in cognitive neuroscience.

II. SCIENTIFIC PERSPECTIVE

A. What is Science?

- Science was developed as a way to answer questions without appeal to ...
 - church dogma (Darwin: Evolutionary Theory)
 - past authorities (Copernicus: Heliocentric Theory)
 - superstition (Galileo: Moons of Jupiter)
 - abstract thought alone (Philosophy)
- The unique contribution of science over other methods of arriving at truth is the use of *direct observation of nature!*
 - But is the mind something "natural" of which you can have "direct observation"

II. SCIENTIFIC PERSPECTIVE

A. What is Science?

- Science itself is a combination of rationalism and empiricism (systematic empiricism)
 - Rationalism – mental operations or principles (rules of logic) must be employed to attain true knowledge.
 - Empiricism – the source of all knowledge is sensory observation.
- Scientific theories are mostly composed of *testable propositions* and have two functions.
 - Organize empirical observations.
 - Provides guide for future observations.

II. SCIENTIFIC PERSPECTIVE

A. What is Science?

- Theories are evaluated by assessing their testable propositions.
- If the theoretically derived propositions are tested experimentally and confirmed, then the theory gains strength, otherwise the theory will be revised or abandoned.
- The logic of the test of the theoretical proposition is the rational side of science.
- The analysis of the data and its use as evidence for or against a theoretically-based proposition is the empiricist side of science.

II. SCIENTIFIC PERSPECTIVE

A. What is Science?

- But there is more to science than just theories; there are scientific laws.
- Law – consistently observed relationship between two or more classes of empirical events which is amenable to public observation and verification.
- Two classes of scientific laws:
 - Correlational laws – how classes of events vary together.
 - Causal laws – how events are causally related.
- Major goal of science is to discover the causal laws underlying natural phenomena.

II. SCIENTIFIC PERSPECTIVE

B. Determinism vs. Free Will

- One implication of assuming psychology is scientific is also believing in *determinism*.
- Science assumes that what is being studied can be understood in terms of causal laws.
 - If true, the assumption suggests that all human behavior can be predicted from causal laws – that we are determined.
- A scientific account of human behavior appears to support *determinism* over *free-will*.
 - This may be an overstatement as complete determinism may not even apply in physics, where there is some indeterminacy ([Heisenberg Uncertainty Principle](#)).

II. SCIENTIFIC PERSPECTIVE

B. Determinism vs. Free Will

- Two general types of determinism.
- **Psychical determinism** – mental causes, conscious or unconscious, of behavior.
 - Freudian and cognitive approaches in psychology adopt a psychical deterministic view.
 - Each adopts a view of mental causation in which behavior is predicted and explained by psychological processes.

II. SCIENTIFIC PERSPECTIVE

B. Determinism vs. Free Will

- **Physical determinism** – determinants are directly measurable.
 - **Biological determinism:** emphasizes importance of physiological conditions and/or genetic predispositions in explanation of behavior.
 - **Environmental determinism:** emphasizes importance of environmental stimuli as determinants of behavior.
 - **Sociocultural determinism:** emphasizes cultural or societal rules, regulations, customs, and beliefs that govern human behavior

II. SCIENTIFIC PERSPECTIVE

B. Determinism vs. Free Will

- Psychology can be scientific but reflect *indeterminism* about human behavior
 - It may be assumed that human behavior is causally lawful, but the causes cannot be accurately measured.
 - Psychology like Physics may be subject to the Heisenberg Uncertainty principle
 - Heisenberg's principle applied to psychology states that we can never learn at least some causes of behavior because in attempting to observe them we change them.

II. SCIENTIFIC PERSPECTIVE

B. Determinism vs. Free Will

- Some reject science as a way of studying humans, because behavior is freely chosen, or self generated, reflecting *non-determinism*.
 - Free will and personal/moral responsibility
 - Hard determinism
 - Causes function in an automatic, mechanistic manner, thus the notion of personal responsibility is meaningless.
 - Soft determinism
 - Cognitive processes intervene between experience and production of behavior. Human behavior is result of thoughtful deliberation of options available; thus, a person is responsible for actions.

III. HISTORICAL PERSPECTIVE

A. Adopting an Historical Perspective

- A historical perspective of psychology provides an understanding of the context in which psychologists work
 - Focus on the social, cultural, intellectual, and emotional forces that shaped psychologists lives and actions they have taken.
 - Although we make speak of people of time in terms of uniformity, psychologists may have acted on the basis of conflicting beliefs and ideologies
 - Understanding diverse perspectives is also a key to historical perspective-taking.

III. HISTORICAL PERSPECTIVE

A. Adopting an Historical Perspective

- Adopting a historical perspective is very different from the common-sense notion of identification with another person.
 - Indeed, taking historical perspective demands comprehension of the vast differences between us in the present and those in the past.
- Adopting a historical perspective is sometimes called “historical empathy,”
 - One must try to understand the actors in past in terms of the social political, cultural and moral context in which that person lived!

III. HISTORICAL PERSPECTIVE

A. Adopting an Historical Perspective

- Hergenhahn addresses three critical issues in **historiography**: The study of the proper way to write history.
 - Where to start?
 - What marks the beginning of psychology?
 - What to include?
 - What is relevant to telling the history?
 - Choice of approach?
 - What approach to history should be adopted?

III. HISTORICAL PERSPECTIVE

B. Where to Start (End)?

- Its often said that Psychology is a recent discipline with a long history.
 - Should we identify the history of psychology beginning with...
 - Ancient man’s explanations
 - Early Greek philosophers - theories of cognitive processes
 - When psychology became a separate science – in the 19th century
 - The textbook starts (ends) with the ancient Greek philosophers

III. HISTORICAL PERSPECTIVE

C. What to Include?

- The decision to include and exclude material in an historical analysis is critical!
 - Two kinds of systematic errors
 - Presentism: attempt to understand the past in terms of present knowledge and standards
 - Historicism: study of the past without addressing the relationship between past and present
 - A balance between the two errors seems necessary
 - The textbook concentrates on individuals who contributed the most to the development of or who has become closely associated with ideas.

III. HISTORICAL PERSPECTIVE

D. Choice of Approach?

- Four different approaches to writing history
 - Zeitgeist (spirit of the times)
 - Zeitgeist (spirit of the times) approach emphasizes the influences of developments in other sciences, political climate, technological advancements, and economic conditions on the development of psychology
 - Great-person
 - emphasizes the works of individuals
 - Historical development
 - Illustrates how individuals and/or events contributed to changes and development of ideas and concepts
 - Eclectic approach
 - combines these three approaches and is the approach used in the book

IV. PHILOSOPHICAL PERSPECTIVE

A. Introduction

- Psychology addresses enduring philosophical questions.
 - Appreciating the questions is essential for understanding psychology.
 - Much of psychology can be understood as an attempt to answer these questions empirically
 - Appreciating the answers is central for grouping theories together into paradigms
 - Paradigms are defined as a set of assumptions, concepts, values, and practices that constitutes a way of viewing reality for the community that shares them, especially in an intellectual discipline.
 - Hergenhahn identifies 10 enduring philosophical questions

IV. PHILOSOPHICAL PERSPECTIVE

A. Introduction

- | | |
|---------------------------------------|---|
| ▪ What is the nature of human nature? | ▪ How are humans related to nonhuman animals? |
| ▪ How are the mind and body related? | ▪ What is the origin of human knowledge? |
| ▪ Nativism versus empiricism | ▪ Objective versus subjective reality. |
| ▪ Mechanism versus vitalism | ▪ The problem of the self |
| ▪ Rationalism versus irrationalism | ▪ Universalism versus relativism |

IV. PHILOSOPHICAL PERSPECTIVE

B. Questions

- Q1 - What is nature of human nature?
 - Determine what is universally true about humans
- Q2 - How are the mind and body related?
 - **Materialists:** Matter is only reality, thus everything must be explained in terms of matter
 - **Idealists:** Attempt to explain everything in terms of consciousness
 - **Monists:** Believe in only one view: either materialist or idealist
 - **Dualist:** Believe that there are both physical events (materialism) and mental events (idealism). The question is, how are they related?

IV. PHILOSOPHICAL PERSPECTIVE

B. Questions

- Types of dualism
 - **Interactionism:** The mind and body interact.
 - **Emergentism:** Mental states emerge from brain states.
 - **Epiphenomenalism:** Mental processes are byproducts of brain processes.
 - **Psychophysical parallelism:** Environmental events cause both mental events and behavior simultaneously, which are independent of each other.
 - **Double aspectism:** Humans cannot be divided into mind and body; they are a unity of experience. Mind and body are aspects of the same person.
 - Some dualists propose a pre-established harmony between mind and that is coordinated by an external agent (i.e. God).
 - **Occasionalism:** When a desire occurs in the mind, God causes the body to act; when events happen to the body, God causes the corresponding mental experience.

IV. PHILOSOPHICAL PERSPECTIVE

B. Questions

- Q3 - Nativism vs. Empiricism
 - Nativism (nature): Emphasizes the role of inheritance
 - Empiricism (nurture): Emphasizes the role of experience.
 - Most psychologists take the position that human behavior is influenced by both nativism and empiricism
- Q4: Mechanism vs. Vitalism
 - Mechanism: Behavior of all organisms can be explained as machines in terms of parts and laws.
 - Vitalism : Living things contain a force that does not exist in inanimate objects (the soul).

IV. PHILOSOPHICAL PERSPECTIVE

B. Questions

- Q5 – Rationalism vs. Irrationalism
 - Rationalism: Emphasizes logical and systematic, thought processes in explanations of behavior
 - Irrationalism: Emphasizes unconscious processes in behavior which cannot be pondered rationally.
- Q6 – How are humans related to nonhuman animals?
 - Quantitative Difference (degree): Studying animals can contribute to understanding human behavior
 - Qualitative Difference (kind): Studying animals cannot contribute to understanding human behavior

IV. PHILOSOPHICAL PERSPECTIVE

B. Questions

- Q7 – Origin of Human Knowledge
- Epistemology: Study of the nature of knowledge
 - **Radical empiricism:** All knowledge comes from sensory experience and mind that passively takes in that information
 - **Rationalism:** Although sensory information is important, the mind actively transforms the information in some way before knowledge is attained. (The mind is *active*.)
 - **Nativists:** Propose that some ideas are a natural part of the mind (Examples: Plato and Descartes)

IV. PHILOSOPHICAL PERSPECTIVE

B. Questions

- Q8 – Objective vs. subjective reality
 - **Naïve Realism:** Subjective experience is exactly what is present in the physical world.
 - Something may be lost or gained in when translating from the physical to the subjective world.
 - **Reification:** A fallacy in which we tend to believe that something with a name has an independent existence
- Q9: Problem of the Self
 - Viewed as having a separate existence (instigator and evaluator).
 - The self as an autonomous power creates problems that psychology still struggles with today.

IV. PHILOSOPHICAL PERSPECTIVE

B. Questions

- Q10 – Universalism vs. Relativism
 - **Universalism:** The goal is to describe general laws and principles that govern the world and our perception of it.
 - Universal truths can be discovered or inferred.
 - **Relativism:** Universal truths either do not exist, or if they do, they cannot be known.
 - Truth is relative to the individual's perspectives; there is no ultimate truth—just truths.
 - Humans influence what they observe, thus the search for universal truths independent of human existence is in vain.

V. PHILOSOPHY/HISTORY OF SCIENCE

A. Introduction

- The Philosophy and History of Science grew out problems in tradition view of science.
- Traditional view of science is what you learned in elementary school:
 - Hypothesize, observe, revise.
- Traditional account does not account for the logical of science or the actual practice of scientists
 - Logical issues were addressed by Karl Popper.
 - Actual Practices were addressed by Thomas Kuhn.

V. PHILOSOPHY/HISTORY OF SCIENCE

B. Popper and the Logic of Science

- Karl Popper (1902–1994)
 - Science starts with a problem, which determines what observation are to be made.
 - Propose solutions (conjectures) and find fault with solutions (refutations).
 - Thus, science involves problems, theories (proposed solutions), and criticism.
 - A scientific theory must be refutable – principle of falsifiability
 - Falsifiability: Principle which makes theories scientific!
 - Freud vs. Hull

V. PHILOSOPHY/HISTORY OF SCIENCE
B. Popper and the Logic of Science

- Karl Popper contribution is the difference between confirmation and disconfirmation
- Confirmation is logically impossible as there are always alternative theories to refute.
- Theories must make risky predictions – predictions that run a risk of being incorrect
 - Better theories make predictions that are riskier.
 - Postdiction – explaining phenomena after they have already occurred
- Science is unending search for better solutions to problems or better explanations of phenomena.

V. PHILOSOPHY/HISTORY OF SCIENCE
C. Kuhn and the Practices of Scientists

- Thomas Kuhn (1922 - 1996)
- Scientists view the world according to their theoretical commitments (paradigms)
 - Paradigm: The entire constellation of beliefs, values, techniques, and so on shared by the members of a given scientific community.
- These commitments help scientists “see” phenomena, but challenge the correspondence theory of truth
 - Correspondence theory of truth: The notion that the goal, when evaluating scientific laws or theories, is to determine whether or not they correspond to an external, mind-independent world.

V. PHILOSOPHY/HISTORY OF SCIENCE
C. Kuhn and the Practices of Scientists

- Thomas Kuhn
- Scientists’ commitment to a paradigm will continue until the failure of the paradigm to support productive research.
- Normal science is when scientists work applying the paradigm.
 - Normal science is likened to puzzle solving and is guided by the restrictions of the paradigm.
- Researchers become emotionally involved with their paradigm and it becomes very difficult to give up.

V. PHILOSOPHY/HISTORY OF SCIENCE
C. Kuhn and the Practices of Scientists

- Thomas Kuhn
- Failure of a paradigm to account for anomalies will bring normal science to a halt
 - Anomalies – persistent observations that a currently accepted paradigm cannot explain
- Paradigms change as observations cannot be explained by the current paradigm.
 - Science progresses as scientists are forced to change their paradigmatic commitments
 - This is a difficult process as belief systems are very difficult to change.

V. PHILOSOPHY/HISTORY OF SCIENCE
C. Kuhn and the Practices of Scientists

- Thomas Kuhn
- Stages of scientific development
 - Preparadigmatic stage
 - Many rival schools of explanation with random fact gathering. Eventually one school succeeds and becomes a paradigm and science continues.
 - Paradigmatic stage
 - Science occurs until a new paradigm displaces the old one.
 - Revolutionary stage
 - A new paradigm displaces another one.

V. PHILOSOPHY/HISTORY OF SCIENCE
C. Kuhn and the Practices of Scientists

- Thomas Kuhn
- What is the status of Psychology?
 - Preparadigmatic vs. Multiparadigmatic discipline
 - Gathering facts looking for paradigm.
 - Multiple competing paradigms.
 - Some suggest that psychology needs to synthesize into one paradigm
 - Others suggest that psychology will always have several coexisting paradigms.

V. PHILOSOPHY/HISTORY OF SCIENCE
D. Kuhn vs. Popper

- Kuhn's and Popper's views of science are at odds with each other
 - Popper stated that scientific problem solving is a creative activity (conjectures), unlike the puzzle solving that Kuhn describes it as.
 - The difference suggests that scientists are socialized into a way of thinking or are cognitively independent.
 - Popper's analysis stresses logic and creativity while Kuhn's analysis of sciences stresses convention and subjective (paradigmatic) factors.
 - The issues raises of question of whether science progresses rationally.

V. PHILOSOPHY/HISTORY OF SCIENCE
D. Kuhn vs. Popper

- More on Kuhn vs. Popper
 - Popper accepted the correspondence theory of truth, while Kuhn rejected this theory.
 - Assumes that scientists create "reality".
 - Kuhn's argues that that observations are incommensurable across paradigms.
 - Incommensurability is a view that language constrains observations and that paradigm change in a language change.
 - This proposal is very philosophically significant.
 - A key in understanding the holist nature of meaning.

V. PHILOSOPHY/HISTORY OF SCIENCE

D. Kuhn vs. Popper

- Even more on Kuhn vs. Popper
 - History of science is revealing of philosophically important issues in how conceptual change actually occurs.
 - Of interest, in our account of the history of psychology is how ideas evolve.
- Were the psychology ideas of today shaped by...
 - a rigorous scientific process of conjectures and refutations (Popper)
 - a more social process of conceptual change (Kuhn)
 - New paradigms emerged from the rejection of older less adequate ones.