Epistemology

Epistemology is a branch of philosophy that deals with the nature of knowledge and seeks answers to questions below. Epistemology is a philosopher’s way of looking at learning.

- What is knowledge?
- What are the limits of knowledge?
- What are the origins of knowledge?
- How is knowledge acquired (learning)?

Socrates

Theory of Knowledge

Knowledge is acquired through disciplined conversation (dialectics).

Disciplined conversation requires ideas be consistently clarified through dialogue.

(470-399 BC)
Problems

1. Conversations, in defining ideas can lead to confusions rather than clarity.
2. Such confusions arise due to different perspectives people may hold especially with abstract definitions, that are hard to define in the first place. People stick to particular cases when defining abstract ideas, e.g., beautiful flower and not the idea of beauty.

Plato

**Innateness of Knowledge**

Plato student of Socrates, believed in the innateness of knowledge.

Human mind possessed knowledge.

To acquire knowledge, humans must reflect on the contents of the mind.

Self-exiled himself to Italy after Socrates execution and joined Pythagoras.

Pythagoras suggested that universe was dualistic. Plato proposed mind-body dualism, and said that mind affected the body, but the body could not affect the mind.
Aristotle

Knowledge through Experience

Aristotle student of Plato, believed that sensory information was the basis of all knowledge (experience). Attainment of knowledge was through mind, which interconnects ideas. All forms of sensory information result in mental ideas.

Aristotle

Aristotle’s Laws

Laws of Association
a. Similarity (lemon-lime)
b. Contrast (night-day)
c. Contiguity (table-chair)

Law of Frequency If two events are experienced repeatedly, presentation of one will lead to the recall of other.
Comparison

<table>
<thead>
<tr>
<th>Plato (Nativist)</th>
<th>Aristotle (Empiricist)</th>
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<tbody>
<tr>
<td>Knowledge is innate.</td>
<td>Knowledge is acquired through senses.</td>
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Plato & Aristotle (Rationalists): Mind acquires knowledge because it is a reasoning organ.

Plato thought mind was associated with the brain.

Aristotle thought mind was associated with the heart.

Rene Descartes

Interactive Dualism

Like Plato, Descartes believed, mind possessed innate ideas.
Proposed Interactionism.
Mind and body interacted at pineal gland.
Description of reflex action.
Beginnings to modern S-R psychology.

Thomas Hobbs

Sense Impressions

Hobbs was an empiricist and an associationist, like Aristotle.
Believed that sense impressions are the basis of knowledge.
Proposed stimuli either help or hinder vital functions of the body.
John Locke

Tabula Rasa

Locke was an empiricist and completely against the idea of innate ideas. Mind is blank slate (*tabula rasa*) at birth and experience writes on it. (1632-1704)

John Locke

Qualities

Characteristics of the physical world can be primary, those that form accurate mental representations e.g., size, weight, quantity, solidity, extension etc., and secondary that cannot e.g., color, odor, sound, atoms, molecules, airwaves etc. (1632-1704)

George Berkeley

Secondary Qualities

Berkeley an empiricist, suggested that contents of the mind are derived from experience. No primary qualities, all secondary qualities. What we experience through our senses are God’s ideas. (1685-1753)
David Hume

Reality?
Hume an empiricist-associationist, suggested that we cannot be sure of the physical world and the ideas it generates. Because of secondary qualities of sensory information.
Mind = stream of ideas, memories, images, associations, and feelings.

John S. Mill

Complex Ideas
Revised Hobbs and Locke empiricism and associationism.
All ideas do not reflect sensory stimulation.
Complex ideas may not be based on combination of simple ideas e.g., red, blue and green gives white light.

Immanuel Kant

Nativist & Empiricist
Kant was both a nativist and an empiricist, revived Plato’s rationalism.
Attempted to save philosophy from Hume’s criticism and removed the impractical aspects of rationalism and empiricism.
Sensory Experiences
Sensory experience (ideas & concepts) are manipulated by reasoning. However, meaningfulness is generated by sensory experiences and innate categories.

Immanuel Kant

Innate Categories
Proposed 12 Innate categories of thought.

- Categories of Quantity
  - Unity
  - Plurality
  - Totality

- Categories of Quality
  - Reality
  - Negation
  - Limitation

- Categories of Relation
  - Substance and accident
  - Cause and effect
  - Reciprocity (agent and patient)

- Categories of Modality
  - Possibility—Impossibility
  - Existence—Non-existence
  - Necessity—Contingency

Thomas Reid

Faculty Psychology
Reid was an empiricist and a nativist, like Kant.
Proposed even greater number of innate categories (27 in all) and founded Faculty Psychology.
Franz J. Gall

Phrenology

Faculties (categories) housed in different parts of the brain. Founded the area of phrenology. The idea that skull bumps and dips represent degrees of development of faculties. (1758-1828)

“Skull Bumps”

Phrenology

Faculties became stronger with practice, and weaker without it. A “mental muscle” approach called formal discipline. Phrenology (a pseudoscience) in ways similar to modern neuroscience envisioned functional brain modularity.

Phrenology Hi-tech

Early 1900s

During early 1900s Phrenology went electrical and amused people at train stations and theme parks.
Brain Anatomy

Brodman’s Areas

Phrenology (a pseudoscience) led modern neuroscience to discover functional modularity of the brain. See anatomical areas of the brain charted by Korbinian Brodmann in 1909.

Areas 1-3: Sensory areas
Area 4: Motor area
Areas 17, 18 & 19: Visual areas
Areas 39-40, 44-45: Language areas

Hermann Ebbinghaus

Memory & Forgetting

Emancipated psychology from philosophy. Introduced rigorous experimental methodology.
Studied memory and forgetting (using nonsense syllables) to investigate how humans made mental associations.

(1850-1909)

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Retention

Saving in Memory

As participants practiced the list more on Day 1, they needed fewer repetitions to relearn it on Day 2. Information was retained due to practice on Day 1.
Wilhelm Wundt

School of Voluntarism

Wundt (1879) founded the first school of thought in psychology called voluntarism, meaning active mind. It was based on German rationalist tradition to study human will.

(1832-1920)

Wilhelm Wundt

School of Voluntarism

Humans can selectively attend to elements of thought (apperception) and can arrange them in a number of ways (creative synthesis).

(1832-1920)

First Psychology Lab

Wundt founded the first psychology lab in Leipzig, Germany (1879) and devised introspection as a method to study the elements of thought.
Edward B. Titchner

School of Structuralism

Student of Wundt. Carried out experiments on mind at Harvard.

Used introspection to study the elements of mind: sensation, images and feelings.

Studied laws of association between mental elements.

(1869-1927)

Charles Darwin

Evolution & Learning

Darwin was an empiricist and an associationist, proposed the theory of evolution, which affected modern science and religion.

Learned (as opposed to innate) behaviors in man and animal were a predominant way to greater environmental adaptability.

(1809-1882)

William James

School of Functionalism

Consciousness (mind) cannot be divided into elements. It flows like a stream (James, 1901).

Function of consciousness is to make the individual adapt to the environment.

(1842-1910)
John B. Watson

**School of Behaviorism**

Goodbye consciousness, hello behavior. Scientific study of **overt behavior**. S-R psychology. “Give me a dozen healthy infants... and I'll guarantee to take any one... and train him to become [a] – doctor, lawyer, artist, merchant-chief and, yes, even beggar-man...,” (Watson, 1930).

Max Wertheimer

**Gestalt School of Psychology**

Mind or behavior must be studied as a **whole**, not broken into parts. “The whole is greater than the sum of its parts”. Laws of Perceptual Organization.

Questions

1. Compare and contrast Plato’s and Aristotle theory of knowledge. Include terms like nativism, empiricism, and rationalism.
2. Describe and elaborate on three philosophers after Descartes who followed Aristotle’s tradition of empiricism and two that followed Plato’s tradition of nativism.
3. Describe and elaborate schools of thought in psychology.