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Course Title:

Basic Cognitive Processes

By: Dr. Ark Verma,
Assistant Professor of Psychology,
Department of Humanities & Social Sciences,
IIT Kanpur

Lecture 02: A Brief History of Cognitive Psychology



The word *Psychology*...

- *Psychology* the word basically derives from a combination of two Latin words:
 - *Psyche*: soul
 - *Logia*: the study of
- So, psychology began as the study of the soul!!!

The Origins...

- the origin of psychology can be traced back to two basic disciplines:
 - *Philosophy*: a discipline that seeks to explore & explain human nature through introspection. & also uses tools of thought like epistemology, logic etc.
 - *Physiology*: a discipline dedicated to understanding the functioning of the human body.

Philosophy

Physiology

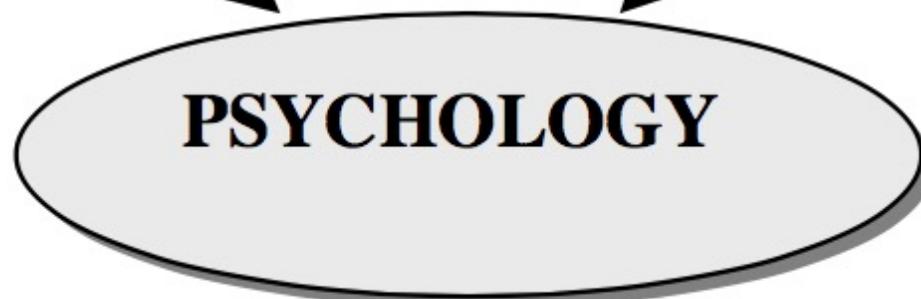


Figure 1.2 Roots of Psychology

- Image reference: Stangor (2011) Introduction to Psychology.

- Surprisingly, one of the first reported experiments in psychology can be traced back to the Egyptian times, though there is no reason to believe that there were no similar investigations going on in other civilisations...(from Charles Stangor, "Introduction to Psychology").

The First ‘Psychological Experiment’

An ancient King of Egypt, as far back as the seventh century B.C., can be considered the first psychology experiment. The king wanted to test whether or not Egyptian was the oldest civilization on earth. His idea was that, if children were raised in isolation from infancy and were given no instruction in language of any kind, then the language they spontaneously spoke would be of the original civilization of man – hopefully, Egyptian.



The experiment, itself, was flawed, but the king deserves credit for his idea that thoughts and language come from the mind and his ambition to test such an idea. While the experiment failed to support the king’s hypothesis, Morton Hunt (1993) suggests that it does illustrate perhaps the first evidence in written history that as long as 2700 years ago there was at least one individual who had the “highly original notion” that mental processes could be systematically investigated and studied.

[source: Morton Hunt, The Story of Psychology, 1993, p.1]

- Image reference: Stangor (2011) Introduction to Psychology.

Philosophical Antecedent of Psychology



The Early Thinkers...

- Hippocrates (460 – 377 B.C.) proposed that mental illness was not caused by demons but physical malfunctions.
 - he dissected human cadavers & living organisms to conclude that *mind* controlled the body.
 - further, that *mind* resides in the brain.



Hippocrates
460-377 B.C

Image source:
emaze.com

The Early Thinkers...

- Plato (427 – 347 B.C.)

- Suggested that reality exists in our minds & the head is the seat of the mind.
- Knowledge is gained through thinking & analysing as an effort to understand the world.
- *mind* and body are different, but they interact.
- A rationalist.

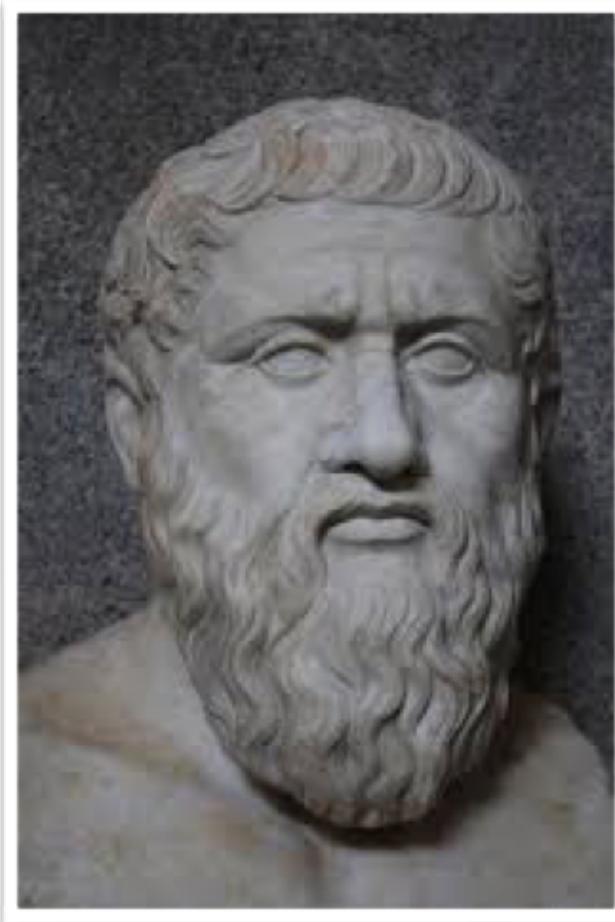


Image source:
ancient.eu/plato/

The Early Thinkers...

- Aristotle (384 – 222 B.C.)
 - felt that *mind* & body were the same thing.
 - we can understand the mind by studying the body.
 - rely on concrete objects & actions rather than thoughts.
 - reality lies in the concrete world.
 - an empiricist.

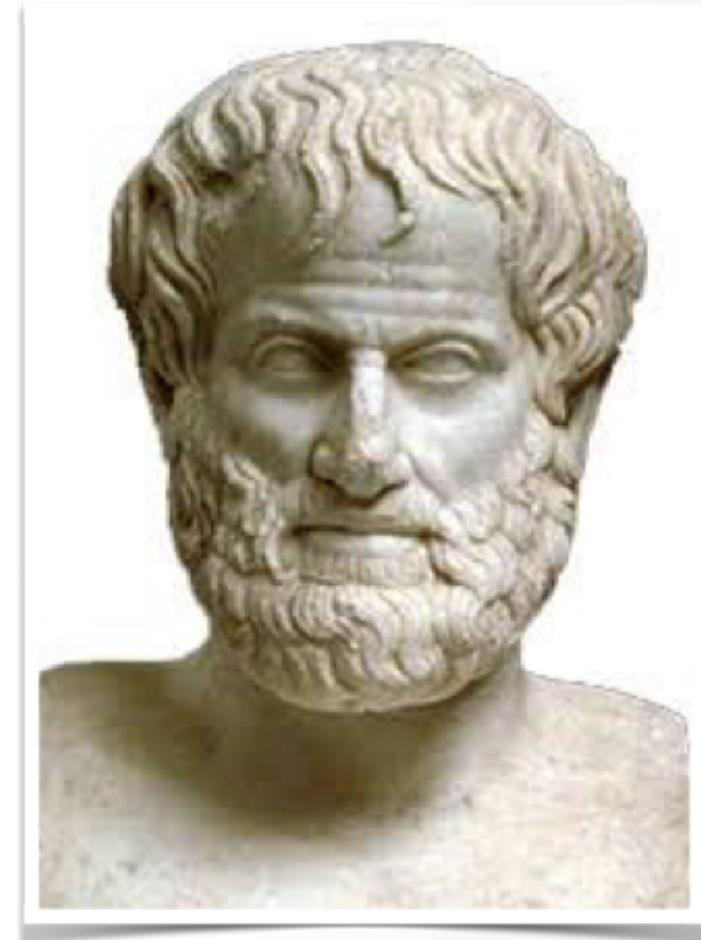


Image source: www.iggy.net

Moving to more Modern
Thinkers...

The Modern Thinkers...

- Rene Descartes (1596-1650)
 - a French mathematician & philosopher.
 - introspection & reflection are better methods than observation.
 - mind & body are two separate things. spiritual & material.
 - *Cogito ergo sum.*



Image source:
www.biography.com/people/ren-descartes

The Modern Thinkers...

- John Locke (1632-1704)
 - relationship between mind & body is an equal relationship of the two aspects of the same phenomenon.
 - mind depends upon the body through the senses for its informations, while the body depends on the mind to process & store sensory experiences.
 - empiricist & believed in *tabula rasa*.

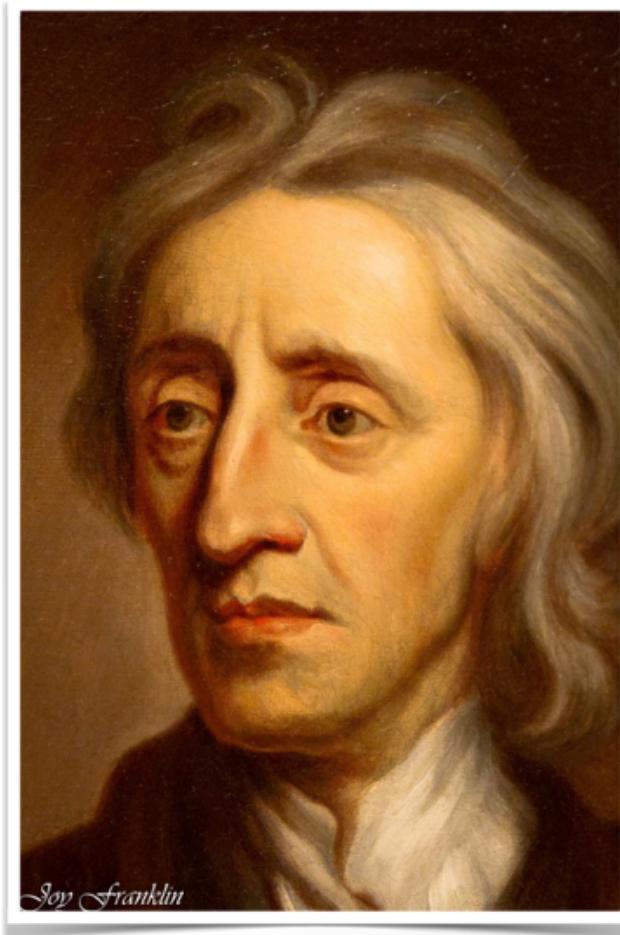


Image:
leonardooh.wordpress.com

The Modern Thinkers...

- Immanuel Kant (1724-1804)

- proposed that humans have a set of faculties - senses, understanding & reasoning, which work together to control the link between mind & body.



Image:
en.wikipedia.org/wiki/Immanuel_Kant

Taking a pause...

- So, the early thinkers basically laid out the broad subject matter of psychology.
- it had to be the elusive relationship between *mind* & *body*.
- *mind* could be studied through various ways, *observable behavior* was an important element.
- *body* on the other hand could be studied via the biological/neural substrates.

Various Schools of Psychology...

Structuralism

- Wilhelm Wundt (1832-1920) developed the first *psychology laboratory* in Leipzig, Germany.
- focussed on the nature of consciousness itself.
- believed that it was possible to analyse the basic elements of the mind & conscious experience.
- founded *structuralism*.
-



Image:
en.wikipedia.org/wiki/Wilhelm_Wundt

- *Structuralism*

- aimed to identify the basic elements or structures of the psychological experience.
- to create something like a *periodic table* of elements of sensations.
- used the method of *introspection* to attempt a map of human consciousness.
- asked participants to describe exactly what they experience as they work on mental tasks, such as viewing colours, reading etc.

- also used *reaction times* as a measure to systematically assess the workings of the mind.
 - identification of sound took longer than detection (Wundt)
- distinguished between *sensation* & *perception*.
- **Edward Titchener** (1867-1927) claimed to identify more than 40,000 sensations, as vision, hearing & taste.

- the approach was rigorous & scientific.
- quantifying mental events.
- had limits: *introspection*.

Functionalism

- William James (1842 – 1910)
 - founded *functionalism*.
- seeks to understand what people do & why they do it.
- Interested in studying how the mind works & why the mind works as it does.

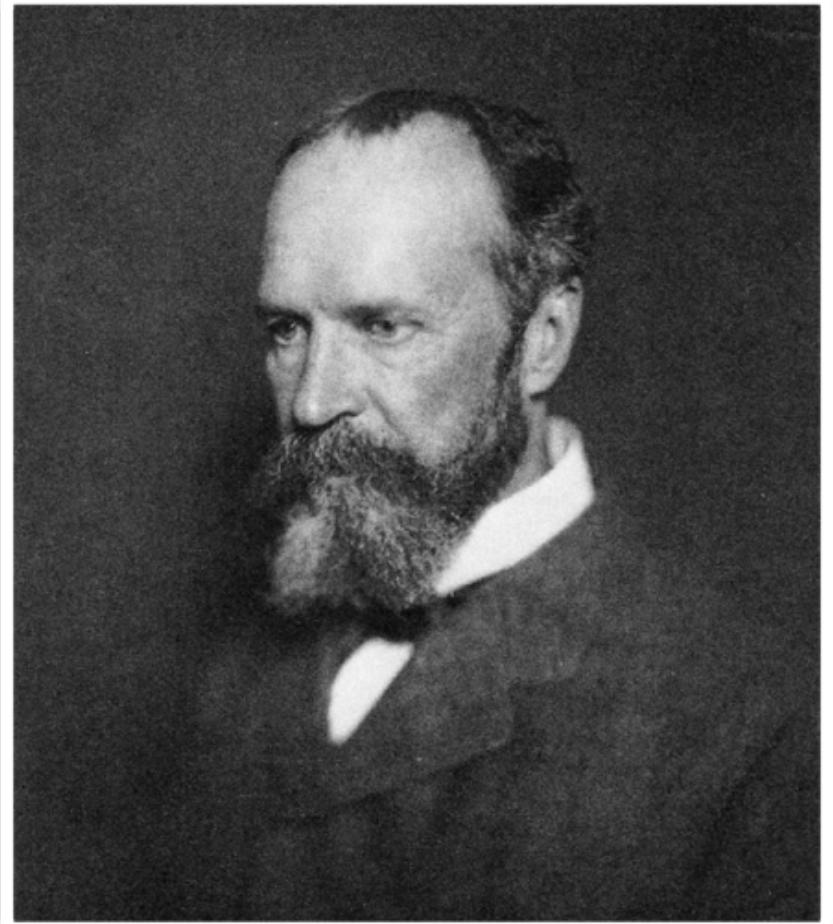


Image:
en.wikiquote.org/wiki/William_James

- the functionalists believed in using whatever methods best answered a given researcher's questions.
- the movement of *functionalism* gradually led to what is known as *pragmatism* in psychology, wherein the main assertion was that knowledge is valuable for its usefulness.
 - So, Pragmatists would be interested in studying something to learn what it helps one do. For e.g. how language helps you communicate your thoughts.

Associationism

- Another influential way of thinking in psychology was *associationism*.
 - Examines how the elements of the mind like ideas, feelings etc., can become associated with each other in the mind to result in a form of learning.
 - For e.g. *contiguity*: things that tend to occur together at about the same time.
 - *contrast*: we also tend to associate things together which represent two extremes like hot/cold; happy/sad etc.

- Hermann Ebbinghaus (1850 – 1909) applied the associationist principles systematically.
- He studied his own mental processes & made up a list of nonsense syllables that consisted of a consonant followed by a vowel and then a consonant. E.g. zat, cax, nad etc.
- Took careful note of how long it took him to memorize those lists, counted errors & recorded response times.



Image: Encyclopaedia Britannica

- Through these self – observations, Ebbinghaus studied how people learn & remember material through *rehearsal* i.e. the conscious repetition of material to be learned.

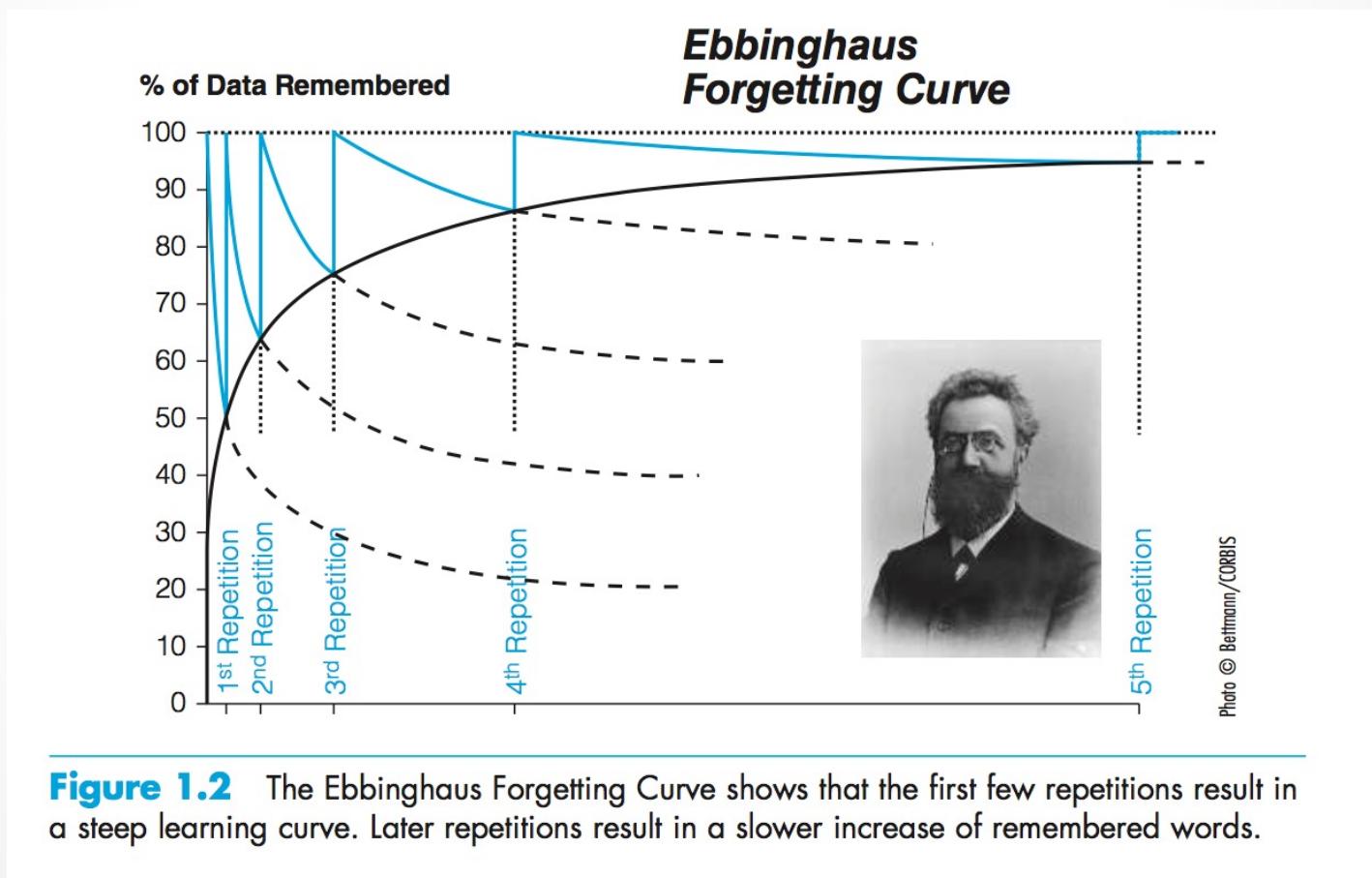


Image: Sternberg, & Sternberg (2012) Cognitive Psychology

- Edward L. Thorndike (1874 – 1949) proposed that the role of “satisfaction” is the key to forming associations.
- termed his principle as *the law of effect* (1905): “*a stimulus will tend to produce a certain response over time if an organism is rewarded for that response*”.
- an organism learns to respond in a given way in a given situation if it is rewarded repeatedly for doing so.

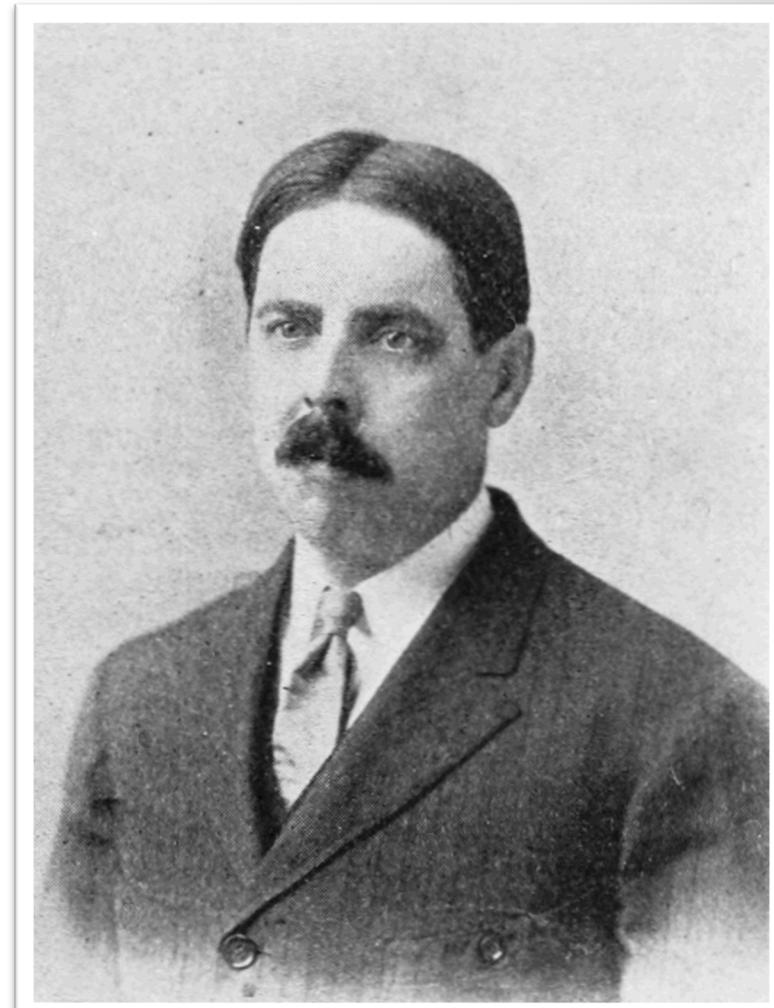


Image:
https://en.wikipedia.org/wiki/Edward_Thorndike

To summarize...

- So, in today's lecture I took you on a ride through the origins of the main ideas & approaches that lead to the development of *Cognitive Psychology*
- It might be an interesting to slowly go over & make a connection from:
 - The ideas of rationalism vs. empiricism.
 - The early philosophical thought about mind & body.
 - The early schools of psychology.
 - The cognitive revolution.

References

- Sternberg, R.J. & Sternberg K. (2012). Cognitive Psychology. 6th Ed. *Cengage Learning*.
- Braisby, N. & Gellaty, A. (2005) Cognitive Psychology. 1st Ed. *Oxford University Press*.