



Early Learning Theories

Psychology 390
Psychology of Learning
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Begins with Associative Learning

- Reflexes
 - Described as a stimulus always eliciting the same response
- S → R
- The strength of the response can change two ways with experience

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Habituation

- A decrease in some response due to repeated exposures to a stimulus.
 - e.g., Walk into a room with a bad odor (Sulfur). At first you grimace and attempt to avoid the smell.
 - Once you habituate, it doesn't smell as strongly as it did at first.

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Sensitization

- An increase in some response due to repeated exposures to a stimulus
 - e.g., Walk through the woods. At first you are alert to the noise (sensitized), then you habituate.
- Then a twig snaps – You immediately become alert and responsive again.

Signals may be potential dangers

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Habituation and Sensitization

- Often occurs very rapidly
- Usually is not caused by fatigue
- Usually is associated with some type of stimulus that can be harmful to the organism.

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So What is Associative Learning?

- Defined as the the relationship between two stimuli.
 - S₁ becomes associated with S₂
 - S₁ S₂
- Key: The stimuli to which associations can develop can be anything.
- Several types of associative learning

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Classical Conditioning

- Has a Stimulus - Stimulus focus
- S - S - R
- Analyze characteristics of the stimuli and how they influence the response

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Instrumental Conditioning

- Has a Stimulus - Response focus
- S - R
- Focus is on the stimulus and how it influences the response

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Operant Conditioning

- Has a Response - Stimulus focus
S - R - S
- Examines how the consequent stimuli influences the response

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Cognitive Learning

Has a Stimulus - Organism - Response focus.
Two Forms

- S - O - R
- Examines how some internal variable influences a response.
 - S - O - R - S
- Examines how the consequent stimulus influences some internal variable which then influences the response.

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Early Classical Conditioning Ideas

- Ideas begin with the concept of the reflex by Descartes.
- Senses and muscles are connected by a complex set of nerves.
- The flow of animal spirits through these nerves makes it possible for instinctive reactions to take place.

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Example

- Step on a sharp stick.
- Nerves in foot send a signal to the Brain.
- Brain releases an animal spirit into the nerve which goes to a muscle causing it to swell and ultimately causes the foot to be pulled up off the stick.

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Voluntary Reflexes

- Were more problematic because the mind and body are separate.
- Again,
 - Body is controlled by physical mechanisms.
 - Mind is controlled by the soul.
- So how does the mind influence the body?

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Answer

- The soul was located in the Pineal gland.
- The pineal also was the container for the animal spirits
 - Animal Spirits was the fluid that produced the muscle contractions.
- Tip the Pineal in the right direction, the soul then pushes the fluids in the right direction.
- Fluids would flow to the correct muscle and movement would occur.

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Answer

- Thus, Pineal was the connecting system for both the mind and the body.

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Later Concepts for Classical Conditioning

- Concepts come from physiology and reflexology.

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Reflexes

- The experimental study of reflexes began with casual observations.
- If you stimulate the muscle, you get a contraction.
- Hall
 - Used decapitated newts and snakes.
 - Found a widespread response to a stimulus some distance away from the stimulus site.

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Sherrington

- Was an English physiologist.
- For Psychology, developed a major concept.
- Neural impulses and pathways extending from the sense organs and glands results in an automatic reaction from the stimulus (Spinal Reflexes).

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Sechenov (1829-1905)

- Called the father of "Reflexology.
- Wrote a book called "The Reflexes of the Brain"
- Argued that psychology should be studied by objective methods of physiology.
- Independently worked with reflexes

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Contended

- All acts of consciousness or unconscious life are reflexes.
 - Thus, mental processes of learning, memory, thoughts, etc. were basically complex chains of reflexes.
 - For thoughts, the motor aspects were inhibited.

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Contended

- Was in contrast to other researchers of his time.
 - Was called immoral and materialistic.
 - Attempted to picture the subjective world in a purely physiological context.
- Concluded that although actions were attributed to mental terms, the observed events were objective behaviors.
- Argued that since natural science relied on objective observations, psychology must use objective procedures as well.

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