

Simple and complex learning



Classical Conditioning Created by Ivan Pavlov. Classical conditioning is a learning process that occurs through associations between an environmental stimulus and a naturally occurring stimulus. In Pavlov's classic experiment with dogs, the neutral signal was the sound of a tone and the naturally occurring reflex was salivating in response to food. By associating the neutral stimulus with the environmental stimulus (the presentation of food), the sound of the tone alone could produce the salivation response.

Unconditioned Stimulus The unconditioned stimulus is one that unconditionally, naturally, and automatically triggers a response. For example, when you smell one of your favorite foods, you may immediately feel very hungry. In this example, the smell of the food is the unconditioned stimulus.

Unconditioned Response The unconditioned response is the unlearned response that occurs naturally in response to the unconditioned stimulus. In our example, the feeling of hunger in response to the smell of food is the unconditioned response.

Conditioned Stimulus The conditioned stimulus is previously neutral stimulus that, after becoming associated with the unconditioned stimulus, eventually comes to trigger a conditioned response. In our earlier example, suppose that when you smelled your favorite food, you also heard the sound of a whistle. While the whistle is unrelated to the smell of the food, if the sound of the whistle was paired multiple times with the smell, the sound would eventually trigger the conditioned response. In this case, the sound of the whistle is the

Conditioned Response The conditioned response is the learned response to the previously neutral stimulus. In our example, the conditioned response would be feeling hungry when you heard the sound of

the whistle. Little Albert Experiment Neutral Stimulus: White Rat

Unconditioned Stimulus: The loud noise

Unconditioned Response: Fear

Conditioned Stimulus: The white rat

Conditioned Response: Fear Little Storm Example Neutral: Lightning

Unconditioned Stimulus : Mom's Behavior

Unconditioned Response: Fear, Crying

Conditioned Stimulus: Lightning

Conditioned Response 3: Fear, Crying GSR (Galvanic Skin Response)

Shock Neutral Stimulus:

Unconditioned Stimulus: Shock

Unconditioned Response: GSR Change

Conditioned Stimulus: 1000 Hz

Conditioned Response: GSR Change Acquisition Curve Acquisition (Trials UCS-

CS), Extinction (CS), and Spontaneous Recovery (CS). Spontaneous

Recovery The temporary return of an extinguished response after a delay.

Extinction To extinguish a classically conditioned stimulus and repeatedly

present the (CS) without the unconditioned stimulus (UCS). Stimulus

Generalization Extension of a conditioned response from the training stimuli

to a similar stimuli. Such as Little Albert being afraid of all the animals after

the CS. Stimulus Discrimination Responding differently because the two

stimuli predict different outcomes. Ex. Responding one way to a class bell

and differently to a fire alarm bell. Operant Conditioning Father of: B. F.

Skinner. Responses are based on reinforcement. He tested this on pigeons

and thus established a schedules of reinforcement. Reinforcement Anything

that makes a response more likely to occur. Shaping The process of

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reinforcing successive approximations to the desired response. Fixed Ratio (e. g. 1: 1, 5: 1, 10: 1)- It is known as the number of responses required prior to responses. Reinforcement is provided after a certain number of correct responses. Steady response, but short delays between each reinforcement. Fixed Interval An amount of time that has to pass after a response prior to the next response being reinforced. Ex. 15 seconds (pause), 15 seconds (pause), etc. Variable Ratio The number of responses required prior to a reinforcement varies, so reinforcement is given after 2 or 3 responses, but they still generate a steady rate response. Variable Intervals Time between previous reinforcement and the next response being reinforced varies. Basically reinforcement is available after a variable amount of time. Ex. 2 minutes, then 7 seconds, then 3 minutes and 40 seconds. Avoidance Learning It resembles both classical and operant conditioning. Highly resistant to extinction. Maintains phobias. Ex. Rat is placed in a grid. A light is then shown, which then releases an electrical impulse on the rat's side of the grid. To avoid the shock the rat climbs over the fence. Probability Learning Is a research paradigm used in the study of learning. In these studies subjects are asked to guess which of a limited choice of stimuli or events will occur next. With experience their predictions will approximate the actual probability of the possible outcomes. Concept Formation The way we learn meaning of concepts and words by identifying relevant dimensions and the levels of those dimensions associated with the concept. Serial Learning The learner is exposed to stimuli to be remembered and later recalls those stimuli in the same order in which they initially appeared. Paired Associates Learning Paired-associate (PA) learning was invented by Mary Whiton Calkins in 1894 and involves the pairing of two

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items (usually words)-a stimulus and a response. For example, words such as calendar (stimulus) and shoe (response) may be paired, and when the learner is prompted with the stimulus, he responds with the appropriate word (shoe). Problems with explaining all learning from classical and operant conditioning, Garcia's work on taste aversions. Chomsky's universal grammar. Face Recognition (prosopagnosia). Difficulty with logic problems , but ease of cheater detection.