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Chapter 6

Learning Through Conditioning

Types of Learning: Classical Conditioning

- 1 (two words) explains how a stimulus (**neutral stimulus**) can acquire the capacity to evoke a response originally evoked by another stimulus.
- 2 (full name), a prominent Russian physiologist in the early 1900's, who did Nobel prize winning research on digestion, discovered partly by accident that dogs will salivate in response to the sound of a tone. In doing so, he discovered **classical** (sometimes called "Pavlovian") **conditioning**.
- In classical conditioning, the 3 (two words) is a stimulus that evokes an **unconditioned response** without previous conditioning...Pavlov's meat powder.
 - The 4 (two words) is an unlearned reaction to a **UCS** that occurs without previous conditioning...salivating.
 - The 5 (two words) is a previously neutral stimulus that has acquired the capacity to evoke a **conditioned response**...the sound of a tone.
 - The 6 (two words) is a learned reaction to a **conditioned stimulus**...salivating to the tone.

Classical Conditioning: Basic Processes

- In classical conditioning research, a **trial** is a pairing of the **UCS** and the **CS**. (How many times have the tone and the meat powder been paired?) Some behaviors are learned after only one **trial** or **pairing**, while others take many trials.
- **7**, refers to the initial stage of learning something (formation of a new conditioned response tendency.)
- Conditioning has been shown to depend on **stimulus 8**, that is, they occur closely together in time & space.
- So when do you sound the tone in a classical conditioning task? What works best? Of the three types of conditioning (simultaneous, short-delayed, and trace), **short-delayed conditioning** appears to most promote acquisition of a classically conditioned response...ideally the delay should be very brief, about 1/2 a second.

Processes in Classical Conditioning

- **9** is a gradual weakening of a conditioned response tendency. This occurs when the CS and UCS are no longer paired and the response to the CS is weakened. We know that the response is still there, just not being active, because of **spontaneous recovery**. That is, an **extinguished response** may reappear after a period of non- pairing.
- **Stimulus 10** occurs when conditioning **generalizes** to additional stimuli that are similar to the CS. For example, Watson and Rayner's study conditioned Little **11**, to fear a white rat, but later came to be afraid of many white, furry objects (including Santa Claus because of the white whiskers).
- **Stimulus 12** is the opposite of stimulus generalization ... that is, the response is **ONLY** to a specific stimulus; similar stimuli don't work.
- **13 (3 words)** occurs when a CS functions as if it were a UCS, to establish new conditioning (e.g., condition to respond to a tone with saliva, pair the tone with a light.)

B.F. Skinner's Learning Style

- The term **operant conditioning** was derived from his belief that an organism "14" on the environment instead of simply reacting to stimuli.
- Skinner's principle of reinforcement demonstrates that organisms tend to 15 those responses that are followed by favorable consequences.
- Skinner defined 16 as when an event following a response that *increases* an organism's tendency to make that response.

Operant Conditioning: Terms & Procedures

- Skinner created a prototype experimental procedure, using animals and an operant chamber or “17 (2 words)”. This is a small enclosure in which an animal can make a specific response that is recorded while the consequences of the response are systematically controlled.
 - For example, a 18 (animal) presses a lever or pecks a disk and gets a treat.
- Because operant responses tend to be voluntary, they are said to be 19 rather than 20 (or evoked).
- **Reinforcement contingencies** are the circumstances or rules that determine whether responses lead to the presentation of reinforcers.
- The cumulative recorder creates a 21 record of responding and reinforcement in a Skinner box as a function of time.

Basic Processes in Operant Conditioning

- As in classical conditioning, acquisition refers to the initial stage of learning where a new response tendency is formed.
- Learning operant responses usually occurs through a gradual process called 22, which consists of the reinforcement of closer and closer approximations of a desired response...key in pet tricks.
- **Extinction in operant conditioning** refers to the gradual weakening and disappearance of a 23 (two words) because the response is no longer followed by 24 (e.g., stop giving food when the rat presses the lever results in a brief surge of responding followed by a gradual decline until it approaches zero).

Basic Processes in Operant Conditioning

- Stimuli that 25 a response can influence over operant behavior, basically becoming “signals” that a reinforcer is coming. 26 (2 words) are cues that influence operant behavior by indicating the probable 27 of a response (ex. slow down when the highway is wet, ask Mom when she’s in a good mood, etc.).
- **Discrimination** occurs when an organism responds to one stimulus, but not another one similar to it; **Stimulus 28** occurs when a new stimulus is responded to as if it were the original.
- Example: If a cat runs to the sound of a can-opener which signals food, but not to the sound of the mixer that’s called, 29 ... but if you get a new blender, cat runs to it just like the can opener that’s called, 30 .

Reinforcement: Consequences that Strengthen Responses

- Skinner said that reinforcement occurs whenever an outcome 31 a response...this definition avoids the use of “experience of pleasure”, which is an unobservable event.
- Operant theorists distinguish between 32 reinforcers, which are events that are inherently reinforcing because they satisfy 33 needs; and 34 reinforcers, which are events that acquire reinforcing qualities by being associated with primary reinforcers.
- **Primary reinforcers** in humans include 35, water, 36, sex, and maybe affection expressed through hugging and close bodily contact.
- **Secondary reinforcers** in humans include things like 37, good grades, 38, flattery, praise, and 39.

Schedules of Reinforcement

- Immediate reinforcement produces the fastest conditioning.
- A **40 (3 words)** is a specific pattern of presentation of reinforcers over time.
- **41** reinforcement occurs when every instance of a designated response is reinforced (faster acquisition, faster extinction).
- **42** reinforcement occurs when a designated response is reinforced only some of the time (is more **43** to extinction).
- **44** schedules require the organism to make the designated response a certain number of times to gain each reinforcer. A **45 (2 words, no hyphen)** schedule entails giving a reinforcer after a **46** number of nonreinforced responses. A **47 (2 words, hyphen)** schedule entails giving a reinforcer after a **48** number of nonreinforced responses.

Schedules of Reinforcement- 2

- 49 schedules require a time period to pass between the presentation of reinforcers.
- A 50 -interval schedule entails reinforcing the first response that occurs after a fixed time interval has elapsed.
- A 51 -interval schedule entails giving the reinforcer for the first response after a variable time interval has elapsed.
- More than 50 years of research on these schedules has yielded an enormous amount of information about how organisms respond to different schedules.

Consequences: Reinforcement & Punishment

- 52 can take 2 forms: positive or negative reinforcement.
- **Negative reinforcement** plays a key role in 53 and 54 learning. In 55 learning, an organism acquires a response (learns to perform a behavior) that 56 or ends aversive stimulation (turning on the air conditioner). In 57 learning an organism learns to prevent or avoid some 58 stimulation (turn on the a/c before it gets too hot).
- **Punishment** occurs when an event following a response 59 the tendency to make that response. Punishment is much more than disciplinary procedures...wear a new outfit and friends laugh...punishing.
- Research suggests that children subjected to physical punishment tend have elevated 60, delinquency and behavioral problems than average and have poor quality parent-child relations

Changes Directions in the Study of Conditioning

- New research has greatly changed the way we think about conditioning, with both biological and cognitive influences having been discovered.
- Findings have demonstrated that there are limits to the generality of conditioning principles--- imposed by an organism's 61 heritage
- Conditioned 62 (**2 words**) can be readily acquired, after only one trial and when the stimuli are not contiguous (i.e. becoming ill occurs hours after eating a food), suggesting that there is a biological mechanism at work.
- 63 (**Full name**) has outlined the fact that some phobias are more easily conditioned than others, suggesting an **innate preparedness**...that is, we are biologically programmed to learn certain types of associations more easily than others (eg., to “fear objects or events” that have inherent danger.)

Recognizing Cognitive Processes in Conditioning

- **64 (2 words)** theory (**Rescorla**) illustrates that the predictive value of a CS (a signal for a person) is an influential factor governing classical conditioning.
- **65 (2 words)** relations holds that when a response is followed by a desired outcome, it is more easily strengthened if it seems that it caused the outcome (predicts)
 - ...for example, you study for an exam and listen to the group “Coldplay”...you make an A. What is strengthened, studying or listening to Smash Mouth?
- Thus, **Signal relations** and **response-outcome** research suggest that **66** processes play a larger role in conditioning.

Observational Learning: Basic Processes

- 67 (**Full name**) outlined the theory of observational learning.
- In **observational learning**, occurs when an organism's responding is influenced by the 68 of others (who are called "models"). Observational learning can occur for both classical and operant conditioning.
- In order for **observational learning** to take place, 4 key processes are at work:
 - (A) the organism must pay attention to the model, (B) retain the information observed, (C) be able to reproduce the behavior and (D) an observed response is unlikely to be reproduced unless the organism is motivated to do so (i.e., they believe there will be a pay off).
- **Bandura** distinguishes between acquisition (having the response in your repertoire) and performance (actually engaging in the behavior). Bandura asserts that reinforcement usually influences already acquired responses, more than the acquisition of new responses.