

Conditioning and Learning

1. Define learning.

Learning is a relatively permanent change in behavior that can be attributed to experience. Learning is based on reinforcement.

2. Define reinforcement and explain its role in conditioning

Reinforcement is any event which increases the probability that a response will occur. A response is an identifiable behavior. Responses may be observable actions, such as blinking, eating a piece of candy, or turning a door handle; or they may be internal events, such as an increase in heart rate.

Conditioning is reinforced learning.

3. Differentiate between antecedents and consequences and explain how they are related to classical and operant conditioning.

Antecedents - Events, things that happen before a response

Consequences - Events, things that happen after a response

Classical Conditioning - a form of learning in which reflex responses are associated with new stimuli.

The antecedent is the focus in classical conditioning. In classical conditioning antecedent events become associated with one another. A stimulus that does not produce a response is linked with one that does.

Operant Conditioning - learning based on the consequences of responding

Operant conditioning involves learning that is affected by consequences. Each time a response is made, it may be followed by a reinforcer, by punishment, or by nothing. Such results determine whether a response is likely to be made again.

4. Give a brief history of classical conditioning.

Began with psychologist Ivan Pavlov as a result of studying digestion with his dog. After Pavlov observed that meat powder causes reflex salivation, he began his classic experiments.

5. Describe the following terms as they apply to classical conditioning:

- a. **neutral stimulus (NS)** - does not evoke a response
- b. **unconditioned stimulus (US)** - innately (inborn, unlearned behavior) capable of eliciting a response
- c. **unconditioned response (UR)** - innate reflex response elicited by an unconditioned stimulus
- d. **conditioned stimulus (CS)** - evokes a response because it has been repeatedly paired with an unconditioned stimulus
- e. **conditioned response (CR)** - learned response elicited by a conditioned stimulus

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6. **Describe and give an example of classical conditioning using the abbreviations US, UR, CS, and CR.**

The bell in Pavlov's experiment starts out as a neutral stimulus (NS)(a stimulus that does not evoke a response). In time the bell becomes a conditioned stimulus (CS); that is, a stimulus to which the dog has learned to respond. The meat powder is an unconditioned stimulus (US) (because the dog did not have to learn to respond to it). Unconditioned stimuli typically produce reflexive responses or involuntary emotional reactions. Since a reflex is "built in," it is called an unconditioned (non-learned) response, (UR). Salivation is the UR in Pavlov's study. When the bell alone causes salivation, we would say that salivation has become a conditioned (learned) response (CR)

7. **Explain how reinforcement occurs during the acquisition of a classically conditioned response.**

During acquisition, or training, a conditioned response must be reinforced or strengthened. Reinforcement pairs CS with a US

Explain higher order conditioning

In higher-order conditioning a well-learned CS is used to reinforce further learning. In other words, the CS is strong enough to be used like an unconditioned stimulus.

8. **Describe and give examples of the following concepts as they relate to classical conditioning:**

- a. **extinction** - the weakening of a conditioned response through removal of reinforcements
- b. **spontaneous recovery** - occurs when a period of rest follows extinction. It is the reappearance of a learned response after its apparent extinction.
- c. **stimulus generalization** - greatly affects our behavior; it is the tendency to respond to stimuli similar to, but not identical to, a conditioned stimulus.
- d. **stimulus discrimination** - the learned ability to respond differently to similar stimuli

9. **Describe the relationship between classical conditioning and reflex responses.**

In its simplest form, classical conditioning depends on reflex responses.

10. **Explain what a conditioned emotional response (CER) is and how it is acquired.**

A conditioned emotional response is an emotional response that has been linked to a previously non-emotional stimulus by classical conditioning.

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11. Explain the concept and the importance of vicarious classical conditioning.

Vicarious classical conditioning occurs when we observe another person's emotional reactions to a stimulus and, by doing so, learn to respond emotionally to the same stimulus. It is a transfer effect.

12. State the basic principle of operant conditioning.

Learning to associate responses with their consequences. The basic principle of operant condition (or instrumental learning) is simple: Acts that are followed by reinforcing consequences tend to be repeated. "Law of effect," according to Thorndike is when learning is strengthened each time a response is followed by a satisfying state of affairs

13. Contrast operant conditioning with classical conditioning. Briefly compare the differences between what is meant by the terms "reward" and "reinforcement."

Classical is passive and involuntary - it simply "happens" to the learner when a US closely follows a CS

In operant conditioning, the learner actively "operates on" the environment. Thus, operant conditioning refers mainly to learning voluntary responses.

Reward is anything that produces pleasure or satisfaction; a positive reinforcer

Reinforcement is any event that brings about learning or increases the probability that a particular response will occur.

14. Explain what response contingent reinforcement is.

reinforcement that is given only after the desired response

15. Describe how Skinner's vision of behavioral engineering has been put into practice.

Walden Two

16. Explain how shaping occurs.

Shaping is the gradual molding of responses to a final desired pattern. The principle of shaping, then, is that successive approximations (ever closer matches) to the desired response are reinforced.

Example: Establish a goal then set steps to accomplish that goal rewarding yourself for each small step in the right direction.

17. Explain how extinction and spontaneous recovery occur in operant conditioning.

If a learned response is not reinforced, it gradually drops out of behavior. Operant extinction refers to the same general concept as extinction in classical conditioning.

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Even after extinction seems complete, there may be a return of the previously reinforced response. The brief return of an operant response after extinction is another example of spontaneous recovery.

Spontaneous recovery seems to be very adaptive. “Just checking to see if the rules changed!”

18. Describe how negative attention seeking demonstrates reinforcement and extinction in operant conditioning.

Realize that reinforcement and extinction are often combined to change behavior. Generally, a behavior is ignored when it is positive, however when it becomes negative it draws attention to itself and usually a reprimand or consequence follows. Even though the behavior may draw negative attention it is still attention and that attention seeking is being reinforced.

If you praise the positive behavior that often goes unnoticed and ignore the disruptive behavior, the disruptive behavior will more likely become extinct.

19. Compare and contrast positive reinforcement, negative reinforcement, and punishment and give an example of each.

Positive reinforcement occurs when a pleasant or desired event follows a response.

Negative reinforcement occurs when making a response removes an unpleasant event.

Both increase responding but negative reinforcement does so by ending discomfort.

Punishment is described as any event that follows a response and decreases its likelihood of occurring again.

Punishment can be attached to positive and negative reinforcement. The term used when a reinforcer or positive state of affairs is removed is response cost.

Examples:

Positive reinforcement - After a successful performance the audience applauds and gives you a standing ovation

Negative reinforcement - A cancer patient under going chemotherapy smokes marijuana to relieve nausea and discomfort. He/she feels better.

Punishment - You are caught stealing, your hand is cut off.

Response cost - You did not make it home prior to your curfew, your car was sold and you cannot leave the house except to go to school and church.

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- 20. Differentiate primary reinforcers from secondary reinforcers and list several examples of each kind.**

A primary reinforcer is natural or unlearned. They are usually rooted in biology and produce comfort, end discomfort, or fill immediate physical need. (ie., food, water, sex)

Secondary reinforcers are a broader range of rewards and reinforcers. They are learned and are often associated with a primary reinforcer. (ie., money, attention, approval, grades, success, material possessions)

- 21. Discuss three ways in which a secondary reinforcer becomes reinforcing.**

Association with a primary reinforcer
Learned desires for attention and approval
When they can be exchanged for primary reinforcers

- 22. Discuss the major advantages and disadvantages of primary reinforcers and secondary reinforcers (tokens, for example), and describe how tokens have been used to help “special” groups of people.**

Satiation problem - become fully satisfied and as a result have a reduced desire

Advantage of tokens is that they do not lose their reinforcement value as quickly as primary reinforcers do.

Tokens provide an immediate, tangible reward for learning

- 23. Explain how a secondary reinforcer can become a generalized reinforcer.**

In time secondary reinforcers may become independent of their link to primary reinforcers.

- 24. Explain how the Premack principle (involving prepotent responses) can be used as reinforcement.**

Premack principle - any frequent (or “prepotent”) response can be used to reinforce an infrequent response

Anything you do frequently can serve as a reinforcer

- 25. Describe how the delay of reinforcement can influence the effectiveness of the reinforcement.**

Reinforcement is most effective when there is a short time lapse between a response and its consequences. In general, you will be most successful if you present a reinforcer immediately after a response you wish to change.

- 26. Describe response chaining and explain how it can counteract the effects of delaying reinforcement.**

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Response chaining is the collecting of individual responses into a series of actions that lead to reinforcement.

1. Future reward is anticipated
2. Some type of reinforcement happened along the way with the individual events
3. A single reinforcer can often maintain a long chain of responses

27. Explain why superstitious behavior develops and why it persists.

Association is made between an unnecessary behavior and a response (positive or negative) Continuing the unnecessary behavior reinforces it. Superstitious acts appear to pay off

28. Compare and contrast the effects of continuous and partial reinforcement.

Continuous reinforcement means that a reinforcer follows every correct response. Applies to the lab but not the real world. In the real world responses are more inconsistently rewarded.

Responses acquired by partial reinforcement are highly resistant to extinction.

29. Describe, give an example of, and explain the effects of the following schedules of partial reinforcement:

- a. Fixed Ratio (FR)** - a set number of correct responses must be made to get a reinforcer. For example, a reinforcer is given for every 4 correct responses.
Produce very high rates of response.
- b. Variable Ratio (VR)** - a varied number of correct responses must be made to get a reinforcer. For example, a reinforcer is given after 3 to 7 correct responses; the actual number changes randomly.
- c. Fixed Interval (FI)** - a reinforcer is given only when a correct response is made after a set amount of time has passed since the last reinforced response. Responses made during the time interval are not reinforced.
- d. Variable Interval (VI)** - a reinforcer is given for the first correct response made after a varied amount of time has passed since the last reinforced response. Responses made during the time interval are not reinforced.

30. Explain the concept of stimulus control.

Stimuli present when an operant response is reinforced tend to control when and where the response is made.

31. Describe the processes of generalization and discrimination as they relate to operant conditioning.

Generalization - responses followed by reinforcement tend to be made again when similar antecedents are present.

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Discrimination - the tendency to make a response when stimuli previously associated with reward are present and to withhold the response when stimuli associated with non-reward are present.

32. Explain how punishers can be defined by their effects on behavior. Explain the concept of response cost.

Any consequence that reduces the occurrence of a behavior is, by definition, a punisher. It is not always possible to know ahead of time what will act as a punisher for a particular individual.

Response cost - removal of a positive state of affairs

33. List and discuss three factors which influence the effectiveness of punishment.

Timing - punishment suppresses behavior best when it occurs as a response is being made, or immediately afterward

Consistency - when it is given each time a response occurs

Intensity - severe punishment/mild punishment

34. Differentiate the effects of severe punishment from mild punishment.

severe punishment - intense punishment; punishment capable of suppressing a response for long periods

mild punishment - punishment that has a relatively weak effect, especially punishment that only temporarily slows responding

35. List the three basic tools available to control simple learning.

1. Reinforcement strengthens responses
2. non-reinforcement causes responses to extinguish
3. punishment suppresses responses

36. Discuss how and why reinforcement should be used with punishment in order to change an undesirable behavior.

Punishment tells a person that a response was “wrong.” It does not say what the “right” response is, so it does not teach new behaviors. If reinforcement is missing from the formula, punishment becomes less effective.

37. List and discuss three problems associated with punishment.

The first basic problem with punishment is that it is usually aversive (painful or uncomfortable).

Second Aversive stimuli usually encourage escape learning and avoidance learning. Escape learning is based on negative reinforcement. Avoidance learning appears to involve both classical and operant conditioning.

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A third problem with punishment is that it can greatly increase aggression

38. List six guidelines which should be followed when using punishment.

1. Don't use punishment at all if you can discourage misbehavior in other ways.
2. Apply punishment during, or immediately after, misbehavior.
3. Use the minimum punishment necessary to suppress misbehavior
4. Be consistent
5. Expect anger from a punished person
6. Punish with kindness and respect

39. Explain how using punishment can be habit forming and describe the behavior of children who are frequently punished.

Punishment often works. When it does, a sudden end to the adult's irritation acts as a negative reinforcer. This encourages the adult to use punishment more often in the future.

40. Name two key elements that underlie learning and explain how they function together in learning situations.

a responsive environment and information

If you are trying to learn to use a computer, to play a musical instrument, to cook, or to solve math problems, reinforcement comes from knowing that you succeeded at getting a desired result.

41. Explain what two-factor learning is.

The intertwining of classical and operant conditioning in the real world.

42. Explain classical and operant conditioning in terms of the informational view.

The informational view is a perspective that explains learning in terms of information imparted by events in the environment. Learning creates mental expectancies (or expectations) about events. (e.g. Avoidance learning) Once acquired, expectancies alter behavior.

43. Define feedback, indicate three factors which increase its effectiveness, and explain its importance in learning.

Feedback is the information about what effect a response had

frequent, immediate and detailed

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Increased feedback almost always improves learning and performance.

44. Describe programmed instruction and computer-assisted instruction and discuss their application in learning and teaching.

Programmed instruction teaches students in a format that requires precise answers about information as it is presented. This method gives ample feedback to keep learners from practicing errors. It also has the advantage of letting students work at their own pace.

In computer-assisted instruction, students work at individual computer terminals. The computer displays lessons on a screen, and students type answers. In addition to giving immediate feedback, the computer can analyze each answer. This allows use of a branching program that supplies extra information and asks extra questions when errors are made.

45. Define cognitive learning.

Cognitive learning is a higher level learning involving thinking, knowing, understanding, and anticipation

Cognitive learning refers to understanding, knowing, anticipating, or otherwise making use of information-rich higher mental processes.

46. Describe the concepts of cognitive map and latent learning.

A cognitive map (internal representation of spatial relationships) acts as a guide even when you must detour or take a new route.

Latent learning is learning that remains hidden until reinforcement is provided.

47. Explain the difference between discovery learning and rote learning, and describe the students who use each.

In discovery learning skills are gained by insight and understanding instead of by rote. Rote learning is repetition and memorization.

48. Discuss the factors which determine whether or not modeling or observational learning will occur.

First the learner must pay attention to the model and remember what was done. Next, the learner must be able to reproduce the modeled behavior. If a model is successful at a task or rewarded for a response, the learner is more likely to imitate the behavior.

Finally, once a new response is tried, normal reinforcement determines if it will be repeated thereafter.

49. Describe the experiment with children and the Bo-Bo doll that demonstrates the powerful effect of modeling on behavior.

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- 50. Explain why what a parent does is more important than what a parent says.**

Actions speak louder than words.

- 51. Briefly describe the general conclusion that can be drawn from studies on the effects of TV violence on children. Explain whether this means that TV violence causes aggression or not and why.**

If large groups of children watch a great deal of televised violence, they will be more prone to behave aggressively. Not all children will become more aggressive, but many will.

Televised violence can make aggression more likely, but it does not invariably "cause" it to occur.

- 52. Describe the procedures and results of Williams' natural experiment with TV.**

After TV came to town:

Reading development among children declined

Children's scores on tests of creativity dropped

Children's perceptions of sex roles became more stereotyped