Psychology chapter 5 – models to explain learning.

5.1

1. define the meaning of the term learning.

Learning is commonly defined as a relatively permanent change in behavior that occurs as a result of experience.

1. briefly describe three key characteristics of behavior that is learned.

* Change in behavior.
* Relatively permanent.
* It is a result of experience.

1. compare and contrast the concepts of learning and conditioning.

Classical conditioning involves associating an involuntary response and a stimulus, while operant conditioning is about associating a voluntary behavior and a consequence. E.g. In a classroom setting, a teacher might utilize operant conditioning by offering tokens as rewards for good behavior.

1. Distinguish between a learned response and a reflexive response.

A reflex is a behavior that humans are born knowing how to do, such as sucking or blushing; these behaviors happen automatically in response to stimuli in the environment. Learned behaviors are things that humans are not born knowing how to do, such as swimming and surfing.

1. smiling, laughing, and crying have all been observed in deaf-blind children who cannot have learned these responses by seeing or hearing them in others. What is a possible explanation of these responses?

Some psychologists view this as evidence of fixed-action patterns in humans and suggest that these behaviors are programmed by our genetic inheritance.

1. What observation led Pavlov to study classical conditioning?

Classical conditioning was stumbled upon by accident. Pavlov was conducting research on the digestion of dogs when he noticed that the dogs' physical reactions to food subtly changed over time. At first, the dogs would only salivate when the food was placed in front of them.

1. In what ways did restraining the dogs in his experiments help to control potential confounding variables?

The dog would not look at other objects in the room (including the researchers).

1. Define classical conditioning with reference to the neutral stimulus, unconditioned stimulus, conditioned stimulus, and conditioned response.

Classical conditioning is a form of learning whereby a conditioned stimulus (CS) becomes associated with an unrelated unconditioned stimulus (US) in order to produce a behavioral response known as a conditioned response (CR). The conditioned response is the learned response to the previously neutral stimulus.

1. What is a possible explanation for why Pavlov actually used the term ‘conditioned reflex’ rather than conditioned response?

The response of salivation made by the dogs is in truth a reflex, hence conditioned reflex.

1. Briefly describe how classical conditioning occurs, with reference to the three phases.

Classical conditioning occurs when a conditioned stimulus (CS) is paired with an unconditioned stimulus (US). After pairing is repeated the organism exhibits a conditioned response (CR) to the conditioned stimulus when the conditioned stimulus is presented alone.

**Phase 1 (before conditioning)** – neutral stimulus (NS) produces no relevant response; unconditioned (unlearned) stimulus (UCS) elicits the unconditioned response (UCR)

**Phase 2 (during conditioning)** – neutral stimulus (NS) is repeatedly paired with the unconditioned (unlearned) stimulus (UCS) to produce the unconditioned response (UCR)

**Phase 3 (after conditioning)** – neural stimulus (NS) becomes a conditioned (learned) stimulus (CS); CS produces a conditioned (learned) response (CR), which is usually similar to the previously unconditioned (unlearned) response (UCR).

1. Define and explain the role of each of the different kinds of stimuli and responses in classical conditioning: UCS, NS, CS, CR, UCR

UCS – is any stimulus that consistently produces a particular, naturally occurring, automatic response.

UCR – is the response that occurs automatically when the UCS is present. A UCR is a reflexive involuntary response that is predictably caused by UCS.

NS – is any stimulus that does not normally produce a predictable response. In particular this stimulus is ‘neutral’ to the UCR.

CS – is the stimulus that is ‘neutral’ at the start of the conditioning process but, eventually elicits a very similar response to that caused by the UCS – a response that has become a conditioned response.

CR – the learned response that is produced by the CS. The CR occurs after the NS has been associated with the UCS and has become a CS. The behavior involved in CR is very similar to that of the UCR, but it is triggered by the CS alone.

1. Describe the relationship between the neutral stimulus and conditioned stimulus in classical conditioning.

During the second phase of the classical conditioning process, the previously neutral stimulus is repeatedly paired with the unconditioned stimulus. The during conditioning phase involves pairing a neutral stimulus with an unconditioned stimulus. Eventually, the neutral stimulus becomes the conditioned stimulus.

1. When can it be said that a response has been learned and the final phase is evident?

A response is said to have been learnt when the CS alone reliably produces a CR that was not previously present.

5.2

Identify the NS, CS, UCS, CR and UCR in each of these three scenarios.

**Scenario A**

UCS: Cyclone Tracey

CS: The bathroom

UCR: Hiding in bathroom to protect themselves from the Cyclone

CR: Fearing bathrooms

**Scenario B**

UCS: Witnessing the planes crash into the WTC

CS: The sight or sound of low-flying planes

UCR: Shock and terror from seeing 9/11

CR: Anxiety and nervousness

**Scenario C**

UCS: An electric shock

CS: The sound of a buzzer

UCR: The movement of the participants hand in response to the electric shock

CR: The movement of the participants hand in response to the buzzer

5.4

Complete the following table to summarize key principles of classical conditioning.

|  |  |  |  |
| --- | --- | --- | --- |
| **PRINCIPLE** | **DESCRIPTION** | **EXAMPLE IN PAVLOV’S EXPERIMENTS** | **EXAMPLE IN EVERYDAY LIFE** |
| **Stimulus generalization** | The tendency for another stimulus that is similar to the original CS to produce a response that is similar, but not necessarily identical, to the CR. | If stimulus generalization to the sound of a bell occurred with one of Pavlov’s dogs, the dog might also salivate in response to the ringing of a front doorbell. | A young girl who was pecked by her family’s pet duck developed a bird phobia as an adult. |
| **Stimulus discrimination** | A response does not occur when a stimulus similar to the CS is presented | Stimulus discrimination would be observed when a dog salivated only in response to the sound of the ‘experimental’ bell, and not in response to any other similar sound such as a front doorbell. | If someone has a fear of a particular dog that has frightened them dies not flinch at the sight of other dog breeds. |
| **extinction** | The gradual decrease in the strength or rate of a CR that occurs when the UCS is no longer presented. | Pavlov’s dogs eventually ceased salivating (CR) in response to the bell (CS) presented alone after a number of trials in which the food (UCS) did not follow the sound of the bell. |  |
| **Spontaneous recovery** | The reappearance of a CR when the CS is presented, following a rest period. | Spontaneous recover would occur if one of Pavlov’s dogs started salivating again to the sound of a bell after extinction is intentionally achieved as part of the experimental research. |  |

5.5

PART A

Scenario 1

Elizabeth was conditioned to feel nervous around handling red flowers as she on two separate occasions injured her hands when handling red roses, this is an example of stimulus generalization.

Scenario 2

The dogs demonstrated that they had associated the sight of the experimenter in the white coat with getting food.

Scenario 3

A – in attempting to classically condition an eye-blink response to the sound of a pencil tap, Sophia was the experimenter and Isabelle was the participant. During conditioning, Sophia noticed that Isabelle’s conditioned response was becoming stronger as the number of pairings of **two** the **stimuli** increased.

B – once the experiment was over, Sophia was concerned that Isabelle might continue to blink every time she heard a pencil tap. Sophia made sure this would not happen by presenting the pencil tap alone for some time until she was sure that **extinction** had been achieved.

C – the following week in their psychology class, Sophia accidently tapped her pencil and noticed that Isabelle blinked. This suggests that **spontaneous recovery** may have occurred.

PART C

Scenario 5

A person under treatment for a gambling addiction often feels an urge to play the pokies whenever he again encounters cues such as driving past a gambling venue where he experienced a huge 'buzz' after hitting a jackpot, and hearing about someone else's big win on the machines.

Scenario 6

On the two occasions Glen went swimming in the lake, he associated the lake with the feeling of the blood-sucking leeches (UCS) on him (disgusting - UCR). Now when driving past the lake (CS), Glen is reminded of the leeches again and feels disgusted (CR).

Scenario 7

While toddlers, Mari and her sisters associated the sound of the vacuum cleaner (CS) with the feeling of sleepiness (UCS) and the act of falling asleep (UCR). This causes them to still feel sleepy (CR) when hearing the sound of the vacuum cleaner.

Scenario 8

Sienna associated the sound of the doorbell (CS) with seeing the startling monster (UCS) which terrified her (UCR). Now when she hears the doorbell she whimpers and hides (CR).

Scenario 9

During the pilots training, they learn to associate the flashing light (CS) with the possibility of danger (UCS), causing a rush of adrenaline (CR).

5.6

1. To which objects did albert demonstrate stimulus generalization?

White rabbit, sealskin coat and a dog.

1. Consider Watson and Rayner's (1920) study from an ethical perspective. To what extent were ethical principles for psychological research applied in the 'Little Albert' experiment? Explain with reference to procedures used by Watson and Rayner.

During the period, the study was completed, ethical guidelines were not properly established, and as a result the research was conducted without consultation to a board for ethical consideration. Albert was however screened to be a healthy child, and it was believed that no lasting harm or psychological damage would be imposed on Albert. Other researchers from the time period however claim that Watson and Rayner did not take steps towards ensuring that Albert would not have lasting damage, and it is unclear as to whether informed consent by Albert's mother was given, as well as whether withdrawal rights were able to be executed.

1. Using the language of classical conditioning, suggest an ethically acceptable procedure that could be used to extinguish Alberts conditioned fear response to the white rat.

The procedure of counterconditioning could be used to quell Albert's fear.

5.8

1. What is operant conditioning?

Operant conditioning is a learning process in which consequences which follow a response determine whether the behavior is likely to be repeated.

1. In what way is it a form of associative learning?

Operant conditioning (also called trial-and-error learning) is another type of associative learning in which a voluntary motor behavior is strengthened or weakened, depending on its favorable or unfavorable consequences.

1. in what way is an antecedent stimulus a discriminative stimulus.

A discriminative stimulus is the antecedent stimulus that has stimulus control over behavior because the behavior was reliably reinforced in the presence of that stimulus in the past. Discriminative stimuli set the occasion for behaviors that have been reinforced in their presence in the past.

1. Explain charlotte’s changed behavior using the three-phase model of operant conditioning.

* Discriminative stimulus - Running a mini-marathon.
* Operant response - Experiencing 'runner's high' due to endorphin release.
* Consequence - charlotte feels good and is motivated.
* Effect on future behavior - charlotte increases the frequency at which she goes for a run.

1. Consider toddler Alex who is being toilet-trained by her parents using operant conditioning. Her parents wait until after Alex has had a drink and her bladder is full, then put her on a potty seat and wait for nature to take its course. When Alex urinates in the potty, her parents provide a verbal praise ('What a good girl you are, Alex!') or even some stickers that she loves. She is also punished when she has a wetting accident by verbal disapproval ('Mummy is very disappointed in you, Alex'). Gradually, Alex learns enough bladder control to recognize when urination is imminent, and to withhold the response long enough for a quick trip to the potty seat - thus obtaining a reward and avoiding punishment. Eventually the behavior becomes automatic enough that Alex continues to use the potty seat. Explain Alex's successful toilet training using the three-phase model of operant conditioning. Ensure you refer to each component with reference to the relevant aspect(s) of Alex's toilet training.

* Discriminative stimulus - Feeling of needing to urinate.
* Operant response - Urination
* Consequence - Praise by parents
* Effect on future behavior - (Positive reinforcement) More likely to use the toilet.
* Discriminative stimulus - Feeling of needing to urinate.
* Operant response - No urination or wetting accident
* Consequence - Scolding by parents
* Effect on future behavior - (Positive punishment) More likely to use the toilet.

5.11

1. Define the term reinforcement with reference to an example.

Reinforcement refers to a consequence which encourages an operant response to be repeated in the future.

1. Explain the meaning of the term’s positive reinforcer and negative reinforcer.

Positive reinforcement refers to consequences that encourage behavior to be repeated in the future by addition of a desirable stimulus. Negative reinforcement refers to consequences that encourage behavior to be repeated in the future by removal of an undesirable stimulus.

1. In what way are reinforcers and rewards similar and in what way are they different?

* Reinforcers strengthen behavior regardless of whether the organism experiences pleasure or satisfaction whereas a reward will generally always involve a pleasant experience.
* Both can have satisfying consequences.
* Both can lead to the strengthening of a response.

1. What do positive and negative reinforcers have in common in terms of their consequences?

The consequence that occurs will likely lead to the operant response occurring again in the future.

1. Identify three positive and negative reinforcers that you have observed teachers use in the classroom and three that you have observed in other real-life contexts.

* food to students who perform well on tests (positive reinforcement)
* Special stamps to students who perform well on tests (positive reinforcement)
* No pestering for completion of homework once homework is done (negative reinforcement)

1. How are positive and negative reinforcers different?

Positive reinforcers refer to when something pleasant is experienced after the operant response whereas negative reinforcers refer to the removal of an unpleasant stimulus after the operant response.

1. Define the term punishment.

Punishment refers to the delivery of unpleasant consequence following a response which in turn reduces the likelihood of that response being repeated.

1. Explain what punishment involves and why it is used, with reference to an example not used in the text.

An example of punishment may be being yelled at by a lifeguard when running around a pool. This is used to minimize repetition of the behavior (running around a pool) in the future.

1. Distinguish between positive and negative punishment with reference to an example not used in the text.

Positive punishment involves the addition of an unpleasant stimulus whereas negative punishment involves the removal of a pleasant stimulus.

1. What is response cost?

Response cost refers to the removal of a valued stimulus.

1. Explain why is is a form of negative punishment with reference to an example not used in the text.

The valued stimulus is often a pleasant stimulus, removal of the stimulus therefore disincentivises the behavior, leading to negative punishment.

1. How does punishment differ from negative reinforcement? Explain with reference to an example.

Punishment discourages repetition of a particular behavior whereas negative reinforcement encourages repetition of behavior by removing an unpleasant stimulus.

1. Describe a situation in which a punisher might reinforce a behavior rather than weaken it or reduce its frequency.

A child wanting attention in class may increase their talking back to a teacher when yelled at as they are getting attention even though the yelling by the teacher was intended to decrease the amount of talking back.

5.13

1. Positive reinforcement
2. Negative reinforcement
3. Positive punishment
4. Positive punishment
5. Negative reinforcement
6. Positive punishment
7. Negative punishment

5.16

1. Define each of the following terms in relation to operant conditioning

Stimulus generalization – Stimulus generalization is the tendency of a subject to respond to a stimulus or a group of stimuli similar but not identical to the original CS.

Stimulus discrimination – Discrimination is a term used in both classical and operant conditioning. It involves the ability to distinguish between one stimulus and similar stimuli. In both cases, it means responding only to certain stimuli, and not responding to those that are similar.

Extinction – extinction refers to the process of no longer providing the reinforcement that has been maintaining a behavior.

Spontaneous recovery – Spontaneous recovery refers to the sudden reappearance of a previously extinct response.

1. How does punishment differ from extinction?

Negative punishment is an EVENT – the actual removal of something that causes the decrease in behavior. Extinction is a "NON-EVENT." It is lack of reinforcement. Instead of getting something good to strengthen the behavior or having something added or taken away to suppress it, nothing happens.

1. Which of the following scenarios involve stimulus generalization and discrimination?
2. Lauren asks Gino out on a date but he declines. Lauren decides that she won't ask another boy out again.

Stimulus generalization

1. Toul is paid for doing chores around the home and expects to be paid for doing chores at her aunt’s place when she stays there.

Stimulus generalization

1. Jackson is scared of the sound of a lawnmower but not the sound of an electric toothbrush.

Stimulus discrimination

1. Sam is scared of the sound of his dad's electric drill. When his dad stops using the drill Sam relaxes. Sam's dad then reaches for the electric saw. As soon as Sam sees this, he is scared and runs inside.

Stimulus generalization

1. Maria had enjoyed attending the same P-12 college for ten years. Quite suddenly this year, her friendship group drifted away from her. She is now being bullied by some other girls because she has become a 'loner'. After an unsuccessful attempt to solve her problems by speaking with her year-level coordinator, Maria started to take days off school, telling her mother she wasn't feeling well. Her absenteeism increased. Although she was concerned about missing school, she couldn't face the unpleasant actions of the bullies.
2. Which operant conditioning process explains the increase in Maria's behavior of deceiving her mother and staying home from school? Explain how this process worked in Maria's situation.

Maria was negatively reinforced when skipping school as she would not have to face the bullies and therefore avoided an unpleasant experience.

1. Which operant conditioning process describes the consequence of the bullying behavior for Maria? Explain its effect on Maria's attendance behavior.

Maria was positively punished when attending school as she would have to face the bullies and therefore experience an unpleasant stimulus.

5.19

|  |  |  |
| --- | --- | --- |
| FEATURE | CLASSICAL CONDITIONING | OPERANT CONDITIONING |
| How a response is acquired |  |  |
| Stimulus generalization | A stimulus provided may be similar to the CS and produce the CR | A stimulus provided may be similar to the antecedent and produce the operant response |
| Stimulus discrimination | stimuli similar to CS does NOT brings about CR | stimuli similar to the antecedent (discriminative stimulus) do NOT bring about the behavior. |
| extinction | The weakening of the CR when only the CS is presented until the CR no longer occurs | extinction occurs over a period of time when a consequence is no longer given |
| Spontaneous recovery | after extinction & a rest period when the CS is presented again it causes a CR. However, it is not as strong as after the initial association and doesn’t usually last as long | after extinction & a rest period when the antecedent is presented again it causes the behavior. However, it is not as strong as after the initial association and doesn’t usually last as long |
| Role of learner | Passive | Active |
| Timing of stimulus and response | Response occurs before stimulus | Response occurs after stimulus |
| Nature of response (reflexive/voluntary) | Reflexive | Voluntary |

5.20

Consider each of the following scenarios and state whether the behaviour that is described is best explained by classical conditioning, operant conditioning or a combination of both these types of learning. Give a reason for each answer.

1. Stephanie cries whenever she hears a barking dog. Before this, Stephanie had reached out to pat a stray dog and the dog barked and bit her hand. The next time Stephanie tried to pat the dog, it barked and bit her hand.

Classical conditioning

Sally experiences an involuntary response when she sees a dog. She has associated the sound of hearing a dog barking with her hand being bitten.

UCS - Barking and biting dog.

UCR - Crying in response to having her hand bitten.

NS - Hearing a dog barking.

CS - Hearing a dog barking.

CR - Crying in response to hearing the dog barking.

1. Hamish's ex-girlfriend always wore a musk perfume. Hamish still cringes whenever he comes across someone wearing musk perfume.

Classical conditioning

Hamish experiences an involuntary feeling of cringe when smelling musk perfume as he has associated that smell with his ex-girlfriend.

UCS - His ex-girlfriend

UCR - Feeling cringe in response to his ex-girlfriend.

NS - Musk perfume

CS - Musk perfume

CR - Feeling cringe in response to the smell of musk perfume.

1. A father refuses to let his daughter borrow his car after she has 'borrowed' it previously and returned it with a near-empty petrol tank.

Operant conditioning

The father associated his daughter taking his car out with the stimulus of having a near-empty petrol tank. This provided negative punishment (response cost) and decreased the likelihood of him wanting to let his daughter take his car out again in the future.

Antecedent - Daughter asking the dad if she can borrow his car.

Behavior - Dad letting daughter borrow his car.

Consequence - Having a near-empty petrol tank when she comes back.

1. Emilia arrives home on time after having been grounded for being home late the last time she went out with her friends.

Operant conditioning

Having previously been grounded for coming home late (response cost) Emilia decided not to repeat her behavior from the week before.

Antecedent -?

Behavior - Coming home late after going out.

Consequence - Being grounded for a week.

5.21

* 1. Define observational learning with reference to an example.

Observational learning occurs when someone’s behavior is guided by the result of watching someone else's behavior. An example of observational learning is watching someone else playing pong and then being able to play pong yourself.

* 1. Why is observational learning also referred to as modelling?

Observational learning occurs by the learner watching a model. As a result of watching the model's behavior, the learner's behavior is guided to mold the set of actions made by the model.

* 1. What are two key assumptions of Bandura's social learning theory?
* The learner is attentive and focuses on the behavior and its consequences.
* The learner saves a mental representation of the behavior.
* The learner has the physical and intellectual ability able to complete the behavior.
* The learner motivated to reproduce the behavior.
* The learner believes that reinforcement will be arise from completing the behavior.
  1. What does vicarious conditioning involve when observing a model?

Vicarious conditioning involves watching a model be either reinforced or punished for producing a certain behavior. This leads the learner to then perform the behavior in the same way, a modified way or avoid performing the behavior altogether depending on the consequences observed after the model performs the behavior.

* 1. Distinguish between a live model and a symbolic model with reference to relevant examples.

A live model is someone in the flesh in front of the learner performing an action whereas a symbolic model may be a fictional or real person portrayed in a movie, TV show or book. An example of a live model may be a parent chopping up vegetables at dinner. An example of a symbolic model may be watching a man on TV get hit by a car after jay walking.

* 1. Give two examples of learned behaviors that are not acquired through observational learning. Explain your choice of examples.
* Learning not to touch hot objects. After having touched many hot objects (e.g. soldering irons, pans, ovens) I have associated the stimulus of something hot with pain via CC.
* Learning to complete homework. After choosing to increase the amount of homework I complete each day I was reinforced by seeing my grades rise in my subjects.

5.23

1. What is the role of the learner in observational learning?

The role of the learner is to watch and think about the actions made by the model and then understand the consequences and whether they themselves should reproduce the behaviour.

1. identify one similarity and one difference between operant conditioning and social learning theory.

Operant conditioning is learning through either positive reinforcement or punishment or negative punishment or reinforcement. In operant conditioning learning is based on what is acceptable and results in either a reinforcement (reward) or punishment. Social learning theory is based on watching and learning. Social learning theory proposes that learning occurs through observation while operant conditioning proposes that learning occurs when behavior is followed by consequences.