

PSY 281 Experimental Psychology : Learning

- EXPERIMENTAL PSYCHOLOGY: LEARNING
- Instructor: Ibrahim Bahtiyar (MSc)
- LEARNING
- Learning refers to the process by which experience change our nervous system and hence our behavior.
- If a behavior shared by all the members of any specific species, this is instinctual behavior not learning.
- Learning produce changes in the way we perceive , act, feel and perceive.
- Learning can take at least four basic forms.

Perceptual Learning: is the ability to learn to recognize the stimuli that has been perceived before.

Stimulus – Response Learning: is the ability to learn to perform a particular behaviour when particular stimulus is present. Includes,

- Classical conditioning and
- Instrumental conditioning

Motor learning: is learning the skilled movements such as dancing or riding a bike.

Relational learning: involves learning the relations among individual stimuli.

- Three Characteristics of Learning
- 1- learning reflects a change in the potential for a behavior.
- 2- changes in the behavior due to learning are relatively permanent.
- 3- changes in behavior can be due to processes other than learning.
- CONDITIONING
- UCS – natural stimuli.
- UCR – response elicited by the UCS
- CS – stimulus which comes to elicit a response by being paired with the UCS.
- CR – arises when the CS is paired with the UCS.

Meat

Saliva after seeing meat

Bell

Saliva after bell

UCS

UCR

CS

CR

- Laws of Pavlovian Conditioning

The law of internal inhibition

What would happen to an established CR if the CS was turned on but the UCS was omitted?

The dog eventually stops salivating.

The dog loses the association between the CS and UCS, so that animal could no longer remember what CS signified.

This procedure known as 'experimental extinction'.

- CS – UCS relations in Pavlovian Conditioning
 - *Pairing of a CS with UCS

CS

Simultaneous

Delayed

Traced

Backward

After-UCS - Before

Simultaneous: the onset and off- set of CS and UCS are identical.

Delayed: CS is presented and is overlapped by the presentation of the UCS.

Trace: there is a delay in time between off-set of CS and on-set of UCS.

- RESULTS
- All the conditions (except backward conditioning) will generate conditioning.
- Delayed CS require fewer trials to form than trace.

- APPLICATION OF PAVLOVIAN CONDITIONING
Wolpe and Desensitization Therapy

Wolpe's initial experiments were with cats. These animals were given mild electric shocks accompanied by specific sounds and visual stimuli. Once the cats knew to equate the unpleasant shock with these images or sounds, the images and sounds created a feeling of fear. By gradually exposing the cats to these same sights and sounds-with food being given instead of shocks-the cats gradually "unlearned" their fear. Cats could be induced to show gradually less and less fear, by being fed first at a distance, then closer to the box where previously they were shocked. Wolpe called this counter-conditioning.

- APPLICATION OF PAVLOWIAN CONDITIONING
Wolpe and Desensitization Therapy

Wolpe`s propositions

1- eating could – if sufficiently intense- suppress fear.

2-the repeating pairing of the eating with the feared stimulus , would cause the feared stimulus to become a permanent inhibitor rather than an elicitor of fear.

Jone`s study: Jones eliminated a young boy`s conditioned fear of rabbits by presenting the feared stimulus while giving boy something to eat

- APPLICATION OF PAVLOWIAN CONDITIONING
Wolpe and Desensitization Therapy: phobia

- A phobia is an unreasonable anxious anticipation in the face of a situation. Fear of object or animal is out of proportion when compared to the actual possible danger.
- **example of a Specific (Simple) Phobia in a Human**

With a specific phobia, the person is presented with some object, for example, a spider. This object can be compared to Pavlov`s bell. The spider doesn`t cause anxiety in the human body, just like bells don`t cause dogs to salivate. Indeed, many people are not afraid of spiders.

But something else, for example, a thought like, "What if the spider bites me and I die?" causes the anxiety, similar to the food causing the salivating.

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APPLICATION OF PAVLOWIAN CONDITIONING

Wolpe and Desensitization Therapy

Systematic desensitization assumes that phobias are learned (through classical conditioning). Systematic desensitization is the controlled and gradual exposure to the object of the phobia. It helps take away the person's sensitivity (i.e. desensitizes them) to the feared object.

Exposure can be done in two ways:

- In vitro – the client imagines exposure to the phobic stimulus
- In vivo – the client is actually exposed to the phobic stimulus

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APPLICATION OF PAVLOWIAN CONDITIONING

Wolpe and Desensitization Therapy

To begin the process of systematic desensitization, one must first be taught relaxation skills in order to control fear and anxiety responses to specific phobias. The second component of systematic desensitization is gradual exposure to the feared object. Let's take a snake example, the therapist would begin by asking their patient to develop a fear hierarchy, listing the relative unpleasantness of various types of exposure. For example, seeing a picture of a snake in a newspaper might be rated 5 of 100, while having several live snakes crawling on one's neck would be the most fearful experience possible. Once the patient had practiced their relaxation technique, the therapist would then present them with the photograph, and help them calm down. They would then present increasingly unpleasant situations: a poster of a snake, a small snake in a box in the other room, a snake in a clear box in view, touching the snake, etc. At each step in the progression, the patient is desensitized to the phobia through the use of the coping technique. They realize that nothing bad happens to them, and the fear gradually extinguishes. To use the terminology from the Conditioning chapter, the *conditioned stimulus* (sight of the snake) no longer elicited a *conditioned response* of anxiety.

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APPLICATION OF PAVLOWIAN CONDITIONING

Wolpe and Desensitization Therapy

Desensitization treatment phase:

- 1- construction of fear hierarchy
- 2- relaxation training
- 3- actual counter-conditioning
- 4- assessment

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APPLICATION OF PAVLOWIAN CONDITIONING

Wolpe and Desensitization Therapy

Relaxation:

Series of muscle exercises

Series of breathing exercises

Clinical effectiveness of desensitization therapy:

- 90 % of 210 patients showed significant improvement with desensitization.
- Desensitization produced a much more rapid extinction than psychodynamic therapies.

- AN INTENSE CRAVING

Opponent – process theory (Salomon and Corbit(1974)).

Says that all the experiences (both biological or psychological) produce an initial affective reaction which would be called as 'A state' (this can be either pleasant or unpleasant).

The strength of the A state depends on the intensity of the experience.

If there is an 'A state', there always will be a 'B state'

'A state' 'B state'(Emotional opposite of the 'A state')

If A state is positive, then B state is negative.

Drinking Pleasure Aversive affective situation

Exam Pain Pleasurable relief

First few stimulation after many stimulation

Smoking cigarette

Positive A state (pleasure)

Diminished A state after several puffs

When smoking is finished, A state declines quickly

B state (Craving:pain or withdrawal)

- INTENSIFICATION OF THE OPPONENT 'B STATE'

Repeated experience with an event increases the strength of the opponent 'B state' and reduces the affective reaction (A state) experienced during the event.

Strengthening of the 'B state' thought to be responsible for the TOLERANCE (decreased reactivity to an event with repeated experience)

The strong 'B state' which experienced in the absence of the event is called Withdrawal

- INSTRUMENTAL CONDITIONING
- 3 Characteristics of Instrumental Conditioning

1- Experimental plan of instrumental conditioning uses procedures that involves reward or punishment

e.g. Food or electric shock.

The general term for operations of reward and punishment is reinforcement. Particular kind of reward or punishment are called reinforcer.

2- experimental plan can lead an organism to either produce or withhold some specific response

e.g. do something actively(mice press the liver and obtain food) or inhibit a behavior (mice avoid a certain area in the cage where he receives electric shocks).

3- Experimental plan uses a discriminative cue: a stimulus that tells the organism when the reinforcer can be obtained or when it can not be obtained.

- Reinforcers
- One of the most basic principals that SHAPES the human behaviors is avoiding the pain and seeking for pleasure.

Positive reinforcer: is a pleasant stimulation that organism obtains after behaving in a certain way.

The behaviors that rewarded with a pleasant stimulus increases in frequency.

Examples?

- On the other hand, behaviors followed by an unpleasant stimulus decreases in frequency.

Negative reinforcer:

is an unpleasant stimulus that organism tries to avoid by increasing the frequency of another behavior

(another behavior: the behavior which enables him to avoid the unpleasant stimulus).

Examples?

Omission of the reinforcer: is a kind of negative reinforcement that involves excluding a pleasant stimulation from the environment or reach of the organism.

Ex. A rat is placed in a cage and immediately receives a mild electrical shock in the feet. The shock is a unpleasant situation for the rat. The rat presses a bar and the shock stops. The rat receives another

shock, presses the bar again, and again the shock stops. The rat's behavior of pressing the bar is strengthened by the consequence of the stopping of the shock. In conclusion rat is able to escape the shock by pressing the bar.

Ex. Driving in heavy traffic is a negative condition for most of us. You leave home earlier than usual one morning, and don't run into heavy traffic. You leave home earlier again the next morning and again you avoid heavy traffic. Your behavior of leaving home earlier is strengthened by the consequence of the avoidance of heavy traffic.

- The difference between Pavlovian con. And the instrumental con.

Pavlovian Conditioning:

learning organism plays a passive role (the dog has no control over the delivery and the amount of the meat).

Instrumental Conditioning

organism has an active role. Organism can not obtain reward or can not escape from punishment, until it makes the response.

- 8 Specific Experimental Plan
- Reward Training
- When the lever is pressed the hopper automatically delivers a palled of food. Organism learns and continues to pres the lever for food.
- Real life examples?
- Discrimination Training
- Discrimination Training
- Discrimination training
- In discrimination training, we train the rat to discriminate a stimulus which is related to a reward or a punishment. This way, organism learns when the reward is available or when it is going to face an unpleasant situation.

Any real life examples?

Ex. Your father came home and he is tired, is it the best time to ask for money?

Ex. Your girl friend had a heavy make up in a usual day. What does that tells to you?

- Avoidance Training
- Avoidance Training

- the dog is placed in one compartment of the box with the light
- We provide the dog a discriminative cue by turning the light on and opening the door which separates the first compartment from the second.
- At the beginning dog learns to escape to the other compartment when ever there is a shock underneath.
- After a while, dog realizes that after a short while that light comes on, it receives a shock. Establishing that relation, dog starts running to the other compartment as soon as it sees the light comes on and it manages to avoid the electric shock.

Any real life examples?

- Punishment training
- We establish a lever- pressing response through simple reward training.
- Then suddenly change the outcome of the response from food delivery to electric shock to the rat's feet.
- Rat will learn not to press the lever very quickly.

Real life examples?

- Principles and Application of Instrumental/Operant Conditioning

Gambling in a casino

Play \$5 black-jack table

Won \$7.50

She continued to play for the next 2 hours (she was down by \$25 but felt that her luck was changing)

Dinner (she can not wait to get back to the table)

Why?

- She lost but still there is resistance to the extinction.
- Winning, at least one time can be a very powerful reinforcer.
- The expectation of wining again is critically important .
- The Acquisition of an Appetitive Response

B.F Skinner, has proposed that reinforcement has a significant effect on our actions.

Contingency: is a specified relationship between the behavior and the reinforcement.

Reinforcer: increases the likelihood of a behavior to appear again.

- The Distinction Between Instrumental and Operant Conditioning

Instrumental conditioning: when the environment constraints the opportunity for the reward.

Ex. Rewarding an animal only when he turns to right in a T- maze.

There is a limited opportunity to obtain the reward.

Ex. A parent is concerned about his child's failure to complete her homework. He decides to give her a reward(chocolate) when she finishes her homework.

Child's perspective: she can obtain a reward (chocolate) when she finishes her homework.

There is a single opportunity for reward.

- The Distinction Between Instrumental and Operant Conditioning

Operant conditioning: no constraints in the amount of the reward that an organism can obtain.

Individual or animal decide the frequency of the response and consequently the amount of the reward she/he will obtain.

What happens in Skinner's box is an example of the operant conditioning. Mice receives food whenever it presses the lever.

similarly, In the gambling there are no constraints on the number of the reinforcers that people can earn.

- TYPE OF REINFORCERS

Primary reinforcer: has innate reinforcing properties.

Ex. Food

Secondary reinforcer: develops its reinforcing properties through association with the primary reinforcer.

Ex. Money

- Variables that effects the strength of the secondary reinforcers

1- magnitude of the primary reinforcer. (that have been paired with the secondary reinforcer)

Ex. Some people might like a governmental position because of the amount of the influential power and the respect they will obtain.

Ex. Getting food by the tickets in a working place.

What else?

2- number of the times that secondary reinforcer that has been paired with the primary reinforcer

Ex. A person who won many times while gambling will want to play more in comparison to a person who has not won that much.

Ex. A person who caught many fishes that will want to go fishing more in comparison to a person who has not been catching that many fishes.

What else?

3- the time that elapses between the presentation of secondary reinforcer and the primary reinforcer

Ex. Rats looked less interested and made less responses in pressing the lever when the time got longer between the light and the food.

Light	food
	0.5
	1.0
	2.0
	4.0
	10.0 sec.

- SHAPING

We use shaping whenever the capacity of the organism and the complexity of the desired behavior do not match.

This is the technique that have been used for training the circus animals for centuries.

Experiment. Training a rat for pressing the bar and obtaining the reinforcement (target behavior).

Stage 1- reinforcing the rat for eating from the food dispenser

Stage 2- reinforcing the rat when it is moving away from the food dispenser. Moving away response continues to be reinforced, until the behavior occurs consistently.

Stage3- reinforcing the rat only for moving away in the direction of the bar.

- Teaching social skills by shaping
- Typically parents only reinforce the final response. However in many situations children may need to practice new skills before they can perform the desired behavior. In that cases if parents put pressure, children may experience frustration and give up.

It is always a good idea to start reinforcing a behavior that children can readily perform.

Ex. Opening the door when the bell rings.

Later, reinforcing children for saying hello to the visitors.

Later, reinforcing children for asking visitors some questions such as, how are you today?

You want to increase your friend's washing the dishes behavior.

You are able to use the event of taking him out with car for a ride as a reward.

Before, he was able to go out whenever he wants but you change this to a instrumental situation that he can go out whenever he washes the dishes. In that case washing behavior increases.

To add classical conditioning and discrimination training in to the scenario, you put your keys next to the door when you come home and you are relaxed and happy. That times he learns that when he washes he can go out. But when you come and put your keys on the tv it means that you are angry and unhappy. He learns that he wont be able to go out even he washes the dishes. (classical conditioning and discrimination training involved).

- ⊙ The factors that determines the strength of conditioning
- ⊙ 1- Delay of Reward
- ⊙ The closer in time the response and reward, the greater conditioning of the response.

Ex. Help a friend to change the tire

you are thanked for your assistance immediately

(social reward)

Thanking, increase your likelihood of future helping behavior.

* If your friend waits several hours before thanking you, the impact of the reward is reduced.

- ⊙ Experiment:

The role of the reward delay on the rat's learning to go into a black room instead of the white one.

Correct response – delay -- reward response

0

0.5

50

1.2

40

30

20
10 time
0 0.5 1.2 2 5

- ⊙ Experiment: delay of reward in humans

First grade children – 10 second delay – reward, following the correct solution of the problem

Results: to learn to solve the problems, the children required approximately 7 trials with immediate reward. Compared with an average of 4 trials when reward was delayed (30 seconds later).

* As the time elapses between the behavior and the reward, the effectiveness of reward decrease.

- ⊙ 2- magnitude of the reward

- ⊙ Experiment:

Rewarding children for learning vocabulary words.

The rate of the acquisition of the vocabulary words is influenced by the magnitude of the reward.

the larger reward magnitude

The faster vocabulary acquisition

- ⊙ MAGNITUDE OF THE REWARD AND THE IMPORTANCE OF THE PAST EXPERIENCE

Suppose that your boss's profit decrease

Your salary will decrease

your performance will be worse now than it would have been if your salary had always been low.

Depression effect: experienced when a shift from a high to a low reward magnitude produces a level of behavior below that which would have been exhibited if the level of the reward had always been low.

Suppose that your boss's profit raised

Your salary raised

your behavior will be more efficient as a result of higher magnitude of reward

Elation effect: a shift from low to higher reward magnitude produce a level of behavior greater than which would have been occurred if the higher level had always been experienced.

- ⊙ Probability – differential theory

Using activities as reinforcers.

Premack's probability-differential theory, claims that an activity will have reinforcing properties when its probability of occurrence is greater than that of the behavior it is intended to reinforce.

The use of activities as reinforcers, such as in educational and business situations, has been successful.

* If watching a movie is liked more than studying, watching a movie can be a reinforcer for studying.

Pinball machine

Candy

Observation about the children's relative rate

of responding to each activity

Some children played pinball

some children ate candy

More frequently than they ate

more often than they

Candy

Played pinball

(Players)

(Eaters)

Second Phase

Players had to eat candy in order to play the pinball.

Eaters had to play pinball in order to get candy.

Result: the contingency increased the number of the times the `eaters` played the pinball and the number of pieces of candy eaten by the `players`.

Application 1

To encourage desired behaviors in young children

Highly probable behavior
shouting

running around the room and

Less probable behavior

sitting quietly and attend

Occurrence of sitting quietly is increased by using running around and shouting as reinforcer.

Application 2

We want to increase the reading behavior of the children in a class

Desired behavior is reading.

Reading – low frequency behavior

Coloring – high frequency behavior

The occurrence of the reading increased by using coloring as reinforcer.

⊙ SCHEDULES OF REINFORCEMENT

The predictability of the consequence of the behavior is termed as schedules of reinforcement.

Period of time – must elapse after one reinforcement has been obtained before next one can be obtained.

Ex. 5 minutes.

Number of responses – have to be made by an organism to produce successive reinforcers.

Ex. Reinforcing every tenth response.

⊙ Fixed – Ratio reinforcement (F-R)

In F-R reinforcement, the reinforcement is contingent up on the occurrence of a fixed number of responses.

*Piece work. Amount of money one makes depends on the item amount that he/she completed. Higher your output, greater your pay. *results in high productivity.

- ⊙ Reinforcement on a ratio schedule places a premium on rapid responding. The higher rate of responding, the higher rate of reinforcement.

Post reinforcement pause

the organism tends to pause for a while just after it has obtained a reinforcement.

- ⊙ Variable – Ratio reinforcement
- ⊙ You do not know when the consequence will occur. You only know reinforcement will occur on an average after you perform a behavior number of times.

Gamblers plays many times and they know they will win sooner or later *Results in the behavior that persist.

- ⊙ Characteristic of the most conditions that under which natural behaviors occur
- ⊙ Post reinforcement pause do not become a dominant part of the performance.
- ⊙ Experiment

Rats exposed to patterns of punishment which varied from 50 to 110 waltz (with an average intensity of 80 volt).

Rats exposed to constant 80 volt succumbed to the effects of the punishment to a greater extend than other rats.

Rats in the variable intensity group eventually behaved as if they were being shocked continuously at the extreme 110 volt value.

- ⊙ Fixed – interval reinforcement (F-I)
- ⊙ You know when the consequence will occur.

Ex. A salaried employee knows he will receive money at the end of the month.

Employee work to meet minimum requirement or standards. Working beyond the minimum does not result in more pay

- ⊙ Responses early in the interval are never reinforced immediately.

Consequently, the organism tends to pile up its responses toward the end of the interval and usually responds in a higher rate at the end or close to the end of the interval.

*There might be actually no responding following the delivery of reinforcement.

- ⊙ Variable – interval reinforcement (V-I)
- ⊙ You don't know when the consequence will occur. You only know reinforcement will occur in approximate time intervals.

Ex. Students may receive a pop quiz once a week, twice a week or once in a three weeks. The approximate average is once a week.

Because students don't know when they will have a quiz, they will study every week.

* consequently, an organism tend to respond at an extremely stable rate on a V-I schedule.

Ex.

In fishing,

It does not matter how many times you make a movement or behavior. You may have to wait only a few minutes between catches on one occasion but have to wait several hours on another.

- ⊙ Mailman must visit the same number of mail boxes each day in order to go home

Fixed ratio

- Playing bingo

Variable ratio

- ☐ Doing 20 push ups to keep fit

Fixed ratio

- ❖ Looking at your watch during a lecture to see how much longer until the end of the class

Fixed interval

- Periodically checking your e-mail to see if you have any interesting correspondence

Variable interval

- waiting for fish to bite after casting your line

Variable interval

- Waiting for a bus to your hotel at the airport

Variable interval

- DISCRIMINATION
- Discrimination

Organism need to perform an appropriate behavior in certain circumstances to be reinforced.

Appropriate response (discrimination) -> reinforcement

Any response -> reinforcement unavailable

not to respond when reinforcement is available

Failure to discriminate

responding when the reinforcer is unavailable

Example.

Children misbehave for a substitute teacher but behave appropriately with their regular teacher. (regular teacher punishes them but substitute does not).

- Discriminative Paradigms

Two – choice discrimination task

Ra = stimulus that signals that reinforcer is available

Ru = stimulus that indicates that the reinforcer is unavailable

Experiment.

Parent A -> Ra

Parent B -> Ru

In the research, children`s response rates was observed for the purpose of investigating discrimination behavior.

Research showed that children started by responding equally to the Ra and Ru.

At the end of the training children were responding at the higher rate to the Ra and making very few responses or no responses to the Ru.

CONCLUSION: in the discrimination phase, responding to Ra increases and responding to Ru decreases.

The increased responding to R_a and decreased responding to R_u is called behavioral contrast.

- APPLICATION: CONTINGENCY MANAGEMENT

CONTINGENCY MANAGEMENT: use of contingent reinforcement and non-reinforcement to increase the frequency of the appropriate behavior and eliminate or reduce the inappropriate behavior.

Contingency management is based on the principle that behavior is a function of its consequences.

That is, what people do is related in a predictable way to the consequences of their behavior

BEHAVIOR MODIFICATION: using the reinforcement and the non-reinforcement to control the behavior.

There are four categories of consequences (contingencies) that can influence behavior. Positive and negative reinforcement increase the likelihood of the behavior being repeated. Extinction and punishment decrease that likelihood.

Skinner believed that organisms are shaped by their environments. With the appropriate changes in the environment (availability of rewards and punishments) any behavior could be created, modified or suppressed.

B.F Skinner says: `Partly arranged (sometimes, non or not complete) reinforcement contingencies are sometimes responsible for people`s behavioral problems`.

Sometimes organism does not behave consistently because the reinforcement is not consistent.

Organism will not behave in the desired way if the reinforcement is not available, particularly at the beginning of the training.

Reinforcing problem behavior sustains its occurrence.

Changing reinforcement schedule -> changes the behavioral pathology and increase the desired behavior`s occurrence rate and the consistency.

- Contingency Management: Assessment
 - Assessing the frequency of the appropriate and inappropriate behavior.
 - Determining the situation that which instrumental or operant behavior occur.
 - Determining the particular reinforcers that are maintaining the inappropriate responding
 - Determining the potential reinforcers for the appropriate behavior.

Ex. Parents complains to a therapist that their children is having frequent `temper tantrums` which they have tried but failed to stop.

` therapist instructs parents to fill a chart`

<u>Day</u>	<u>Tantrums</u>	<u>Duration</u>	<u>Description of the incident</u>
1	1 event	4 minutes	he slapped himself and banged his head while crying. Ignored.
2	1 event	5 minutes	screamed and slapped himself. Ignored.
3	2 events	5 minutes	ignored until he calmed down.
4	1 event	4 minutes	ignored and child stopped spontaneously after a short while

- **CONDITIONAL DISCRIMINATION TASK**

The reinforcement contingency associated with a particular stimulus depends on the status of a second stimulus.

Child wants money

Asks to his parents but he knows he is most likely to be ignored

When a relative is visiting, child's request is more likely to be granted

- **An Insoluble Discrimination Problem**

Pavlov (1928) trained dogs to discriminate between a circle and ellipse.

Circle-> food

Ellipse -> no food

Later, ellipse was made progressively more like a circle

The dog was no longer able to discriminate

Result : agitation , trying to escape and strong conflict (Experimental neurosis)

It has been observed that the dog was not able to respond appropriately when it was returned to the original discrimination task.

Ex. Inconsistent parental discipline leads to the behavioral problems.

A father sometimes responds nice and sometimes aggressively when he is drunk. That creates a confusion for the son when he needs to ask something to his father. This may lead to a neurosis in the future and son may experience anxiety when he need to ask people something.

EXTINCTION

EXTINCTION, can be explained in terms of removal of the reinforcement, following the occurrence of the some response that have been reinforced before, which results in suppression of the response.

Extinction helps to assure that behaviors do not persist which is no more useful in producing rewards or avoiding punishment.

A hungry rat (used to be given food as reinforcement for bar pressing)

Bar press but food reinforcement is no more available

Extinction occurs

Rate of bar pressing declines and then stops

A CHILD IS SHOPPING WITH HIS MOTHER

Favorite candy leads to temper tantrum

(Contingency)

tantrums

Persuades the mother to buy candy mother does not buy a
candy and does not reinforce
child's tantrums

This teaches the child to have Tantrum incidents

a tantrum when he wants decline quickly.

a candy.

A children get rewarded in the principle of variable ratio in his home. He goes to school but would not get any reinforcements. This children experiences a natural extinction towards the things to do in the school.

A rat run down the alley but is not rewarded.

Inhibition response becomes associated with the alley

When the rat is placed in the alley again, inhibition appears as a conditioned response. Rat suppresses its running response.

Inhibition is not the only impact of non-reward. The influence of the aversive quality of not being rewarded is important as well.

Aversive quality of the non-reward

Abraham Amsel, has suggested that non-reward elicits an aversive internal frustration.

Internal frustration: **stimuli, associated with non-reward, acquire the potential of creating frustration as a conditioned response.** Escaping from aversive situation or aversive environment becomes reinforcing.

Acquisition of an aversive quality means that a stimuli, an object, a sensation or an environment becomes something that disliked.

Ex.

Animals jumped out of a box where previously associated with reward , within 5 seconds if they were not rewarded.

In contrast, the animals who rewarded for jumping out of the box, sometimes prolonged their jumping time up to 20 seconds.

Further, while the rewarded animals stopped jumping after about 60 extinction trials, the frustrated animals did not quit responding even after 100 trials even though their only reward was escape from a frustrating situation.

In conclusion: if a behavior is happening because of an aversive quality, this behavior will be persistent to change.

Ex. Car – seat belt and wheel smoothing

Aversive conditioning

In aversive conditioning, the client is exposed to an unpleasant stimulus while engaging in the targeted behavior, the goal being to create an aversion to it.

In adults, aversive conditioning is often used to combat addictions such as smoking or alcoholism. One common method is the administration of a nausea-producing drug...

Ex.

His parents does not reward john when he water the garden in the rainy days. After a while, cloudy weathers acquire a aversive quality and John begin to dislike cloudy weather.

Ex.

Jack is a student who used to get rewarded for his desired responses. However, a change of teacher leaves Jack with no reward to his behaviors . Jack experiences internal frustration and school acquires an aversive quality for Jack.

Ex.

Children `A` experience a frustration in the school and he escapes.

Children `B` escapes school for meeting his friend.

Which children's desire is more intense?

Children `A`'s desire for escape, possibly will be much more intense than the children `B`.

Ex.

First group of rats stopped receiving food in the cage.

Second group of rats stopped receiving food when they jumped out of the cage.

Which group of rats made more jumps?

Result: it has been observed that the first group of rats made more jumps in comparison to second group of rats.

RESISTANCE TO EXTINCTION

3 factors contribute to the resistance to extinction of an instrumental response

1- Reward Magnitude

When the level of training or effort is low

Higher reward magnitude

Greater resistance to extinction

Ex. A children receives relatively big rewards from his parents for going to the bed at the bed time. When parents stop giving rewards, children continues to go to bed at the bed time for a while.

When the level of training or effort is high

Higher reward magnitude

Less resistance to extinction

Ex. Workers of a mining company would give up the work more easily when they are not paid in comparison to the workers in the sawing factory.

2- Delay of reinforcement

If the reward is sometimes delayed during acquisition

resistance to extinction is enhanced

* However, the resistance to extinction is not enhanced if the reward is always delayed.

3-The consistency of reinforcement

During extinction, an operant response that has not been reinforced every time it occurred, continues for a longer period then does a response that has always been reinforced.

GENERALIZATION

THE PROCESS OF RESPONDING IN THE SAME MANNER TO THE SIMILAR STIMULI

It is an important process which involved, from using concepts to making social judgments.

When we learn a concept, we learn how to use it for similar objects or situations as well.

What is a concept?

Grouping particular similarities and excluding some distinctive properties of something for the purpose of describing a unique object, situation or phenomenon.

Then an exclusive name is given to that thing.

How do we learn concepts?

A mother shows a red toy box to her children.

Relational learning helps children to learn the association between the word, red toy box and its image.

Instrumental conditioning is involved whenever mother gives children a smile when he says red toy box.

After children learns what toy and box means, he need to learn what red is used for.

Toy? Or Box?

To do that child needs couple of more other examples such as red apple or red car to be able to differentiate the meaning and the usage of the red.

After learning and differentiating what these words are used for, child generalizes their usage to the similar objects.

How abstraction comes in, in all this?

What is abstraction?

Abstraction is reducing an object or a situation in to its most distinctive components.

We use this process when we discriminate properties of something for conceptualization.

Ex. When we use the word bird, first we think of wings legs and a body with had. For most people no other details comes to the mind. Unless you have a particular relation with a bird.

WE ALSO USE ABSTRACTION TO MOVE ALONG AND BETWEEN THE CONCEPTUAL CATEGORIES

TREE

APPLE TREE

ABSTRACTION AND THE IMAGES IN THE BRAIN

When we take images in to our brain we abstract them.

People ABSTRACT at the different levels.

Abstraction allows our brains to function quicker and more creatively.

Some autistics have a photographic memory but only little or no creativity. why?

Generalization ENABLES us to respond to stimuli that are similar to the stimulus that was present during training.

This is the whole point of studying a subject in the school.

We learn relevant information to be able to transfer this, to the real life situations and solve the similar problems.

A psychology graduate does not solve engineering problems.

however, transfer might sometimes work in both ways.

Positive Transfer

Positive transfer occurs when training and learning helps to solve similar new problems. It is highly desirable. This is the main aim of the any kind of training.

Also important in developed rehabilitation or treatment interventions. Patients expected to transfer their acquired abilities to the similar problematic situations.

Ex. When a therapist helps his patients to solve his relationship problem. It is expected and desired that patient will be able to solve a similar problem if it arises again.

Ex.

James can not say no when his colleague gives extra work .

Negative Transfer

Negative transfers happens when person need to give a different response in a usual situation or to a similar stimuli.

Ex. James in the previous example is quite confident at saying no to his colleagues when they demand extra work.

An undesirable thing here would be negative transfer where patient says no to his boss when he asks for some extra work.

It is not desirable. This phenomenon hinder the solution of some problems.

People may need to inhibit the habitual response and come up with a new behavioral response after considering the new situation.

People need to change their mental set to be able to solve this problems.

MENTAL SET

Mental set is a concept that describes the habitual responses that a person learn to make during solving a particular problem.

Subject need to make the correct responses at the correct place and correct time to be able to keep the mental set to be able to solve a problem.

When negative transfer occurs, that simply means that subject was not able to change his mental set according to the changing conditions.

The ability to change mental set in the face of the changing conditions is called mental flexibility.

Perseveration

The difficulty in changing the mental set is called perseveration.

Subject sometimes sees that the current mental set is not useful in solving the problem no more but he still can not change his behaviors.

He have difficulty in transforming his behaviors to comply with the changing conditions to be able to solve the problem.

Ex. Ahmet was rude to all of his lovers.