

PSYC 337 LEARNING

Session 13 – Learning and Behaviour Change – Part Two

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Session Overview

- This session is a continuation of the discussion on how learning principles can be used to effect behavior change.
- The focus in this session is the application of some of the learning theories discussed earlier: Classical Conditioning, Operant Conditioning and Observational Learning.



Session Objectives

At the end of this session, students will be able to:

- Explain the various Behavioural Therapies based on Classical Conditioning
- Discuss Behavioural Therapies based on Operant Conditioning
- Understand and explain Therapies based on Observational Learning or Modelling

Session Outline

- The key topics to be covered in the session are as follows:
 - Topic One: Behavioural Therapies based on Classical Conditioning I
 - Topic Two: Behavioural Therapies based on Classical Conditioning II
 - Topic Three: Behavioural Therapies based on Operant Conditioning
 - Topic Four: Therapies based on Observational Learning or Modelling

Reading List

- Relevant text/chapters and reading materials are available on Sakai



Topic One

BEHAVIOURAL THERAPIES BASED ON CLASSICAL CONDITIONING I



Classical Conditioning Re-visited

- As discussed earlier, classical conditioning occurs when an unconditioned stimulus is paired with a neutral stimulus
- So that after several pairings the neutral stimulus becomes conditioned (conditioned stimulus) to elicit a response (conditioned response) similar to the response elicited by the unconditioned stimulus (unconditioned response).
- So, if conditioning occurs as a result of an association between two stimuli
 - Then the most obvious way of removing a classically conditioned connection will be through extinction or by pairing the same CS with a different UCS for the desired response
 - that is **counter-conditioning**.

Classical Conditioning Re-visited

- Behavioural therapies based on classical conditioning are:
 - Counter-conditioning,
 - Systematic desensitization
 - Flooding
 - Aversive conditioning
 - Technique to stop bedwetting.

Counter-Conditioning

- Counter conditioning is the process of eliminating a classically conditioned response by
 - pairing the CS with an UCS for a response that is stronger than the CR and that cannot occur at the same time with the CR.
- In other words:
 - it is a conditioning procedure for weakening a CR by associating the fear-provoking stimulus with a new response incompatible with fear.
- Counter-conditioning is also called **de-conditioning**

Counter-Conditioning

- In an experiment , Mary Jones (1924) used counter-conditioning to remove a fear of rabbits in a young child called Peter by
 - pairing ice cream with presentations of the rabbit.
- In Jones (1924) experiment, Peter had a fear of rabbit so to eliminate this fear, a rabbit was brought into his view but kept far away enough from him not to upset him.
- At this same time Peter was fed ice cream.
- On each successive day, the rabbit was gradually brought closer and closer as Peter ate his ice cream.
- Eventually, Peter reached the point where he would eat the ice cream with one hand and pet the rabbit with his other hand.
- **The feeling of pleasure produced by the snacks became incompatible with the fear of rabbits.**
 - **So the fear is extinguished through counter-conditioning!**

Systematic Desensitization

- Systematic desensitization is a form of exposure technique developed by Joseph Wolpe in 1958.
 - It is based on counterconditioning and it works on the principle that it is impossible to feel fear and be relaxed at the same time.
- With this, the stimulus that evokes fear (phobic stimulus) is treated as a conditioned stimulus and it is paired with a new response (unconditioned stimulus) that is incompatible with the fear.

Systematic Desensitization

- The idea is to counter-condition the phobic conditioned stimulus so that the new response replaces the fear response.
- Wolpe most often used muscle relaxation as the response to pair with the phobic conditioned stimulus
- Because muscle relaxation is presumably incompatible with the autonomic and skeletal reactions that accompany fear.
- So the idea here is to replace fear with relaxation.

Systematic Desensitization

Steps:

- Systematic desensitization procedure involves three steps which are as follows:
 1. The client is first taught to relax his or her muscles, to the point where s/he masters it and can do it quickly.
 2. An ascending series of graded imaginal stimuli related to the fears (ranging from less, to more fearful items) is constructed.
 - The items are actually prompts for scenes the clients are suppose to imagine.
 - For example, the hierarchy for fear of snake might start with
When I see a snake on a television show, I am able to relax and breathe normally.
When I see a snake on a television show, I am able to relax and breathe normally.

Systematic Desensitization

- 3) The counter conditioning phase involves pairing items from the fear hierarchy with instructions to relax.
- The least fearful scenes are imagined first and paired with relaxation, followed by progressively more fearful scenes as they become tolerated.
- The client cannot be anxious and relaxed at the same time, because these are incompatible responses.
- **The aim of systematic desensitization is therefore to have relaxation dominate over the tension and eventually replace it.**

Systematic Desensitization

- Below is another example of an anxiety hierarchy for a person with a **fear of flying in an aeroplane.**
 - Being handed a letter by your boss for a training programme abroad in the next two weeks.
 - Going to the travel agency to collect your ticket
 - Packing your language two days before your trip
 - Being driven to the airport on the day of the travel
 - Checking in at the airport
 - Waiting for the announcement to board the aeroplane
 - Walking towards the aeroplane to board it
 - Boarding the aeroplane
 - Hearing the announcement to fasten seat belts for take-off
 - The aeroplane taking off

Systematic Desensitization

- Note: Systematic desensitization is not confined to imaginary stimuli only; it can also be used with real stimuli.
- It has proved to be an effective treatment for phobias, anxiety disorders, fear of sexual contact, etc.
- Research has shown that being able to cope with anxiety-provoking situations in an imaginative way is related to a reduction in anxiety when the situation is encountered in real life.
- So the reduction in anxiety generated by imaginal desensitisation tends to generalise to real life situations (Wolpe 1961).

Topic Two

BEHAVIOURAL THERAPIES BASED ON CLASSICAL CONDITIONING II



Flooding

- Flooding is another technique that was developed by Joseph Wolpe used to treat many of the same anxieties as systematic desensitization
- It involves real and not imaginary situations, although imaginary situations can be used in conjunction with actual exposure.
- It works on the principle that
 - the fear and anxiety that the individual experiences cannot last indefinitely
 - with time the client will become relaxed and pair the relaxation and nothing unpleasant happening with the phobic situation

Flooding

- During flooding, the client is
 - exposed to an extremely fear-provoking situation with no opportunity to escape.
- Initially the client is
 - **overwhelmed with the fear and anxiety** but with time the fear starts to subside and so there is a reduction in fear if the client remains in the situation for quite some time.
- This means that the client is forced to confront his/her fear without being able to avoid it and this eventually leads to the **fear symptoms subsiding.**

Flooding

- For example, if a person has snake phobia, the therapist will put that person in a room with **snakes in a cage** and let the person stay there until the fear subsides.
- Flooding takes less time to implement but it involves considerably more discomfort for the client.
- It requires the client to be **flooded** with high levels of fear for prolonged periods of time.

Flooding

Duration:

In a single session that can last for 2-8 hours and the session is not terminated until the fear response is extinguished.

Ethical Issues:

- It produces very high levels of fears and this can be very disturbing to the individual.
- It can cause the person to withdraw from the treatment early and may increase levels of fear and make the phobia worse.

Aversive Conditioning

- Aversive conditioning is a technique used to help people break unwanted habits by associating the habits with very unpleasant stimuli.
- To change emotional responses: the individual is exposed to stimuli that elicit undesirable responses, accompanied by aversive stimuli such as electric shock or nausea-producing drugs.
 - It attaches negative feelings to stimulus situations that are initially appealing, so that the person will no longer want to approach them.
- This is also known as **aversive therapy**.

Aversive Conditioning

- In aversive conditioning there are stimulus situations and associated behaviours that are attractive to the client, but which both the client and therapist regard as undesirable.
- Such stimuli and behaviour are therefore associated with an unpleasant UCS, such as a nausea inducing drug or an electric shock.
- Aversive conditioning has been used in cases of alcoholism, substance abuse, smoking, and sexual deviants.

Aversive Conditioning

- For instance, an attractive stimulus such as alcohol is paired with an obnoxious UCS, and a person acquires a learned taste aversion so that the actual smell and taste of alcohol becomes repellent.

Aversive Conditioning

- By pairing the unpleasant effects with alcohol it aims to produce avoidance behaviour.
- After these two have been paired a few times, the alcohol alone becomes associated with the vomiting and loses its appeal.
- Thus, the attractive stimulus becomes repellent and what typically happens is that just the sight or smell of alcohol triggers the aversive reaction.

Aversive Conditioning

- On the other hand, a person who responds sexually to inappropriate stimuli such as picture of small children (a paedophile) might be treated through repeated exposure to an electric shock paired with the stimuli that elicit the undesirable sexual response; child's pictures.
- Note that aversive therapy has ethical drawbacks as well.
- For instance the use of electrical shock may not be ethically right.

Technique for Stopping Bedwetting

- Classical conditioning can be used to treat the problem of bed-wetting as well.
- In such a situation an alarm bell with a pad is attached or put under the individual whilst he/she is asleep.
- The bell rings whenever any moisture reaches the pad and the individual then wakes up.
- With time, the person comes to associate the full bladder with waking up, so a time comes when he/she wakes up as soon as his/her bladder is full even before the alarm goes off.
- He/she does not urinate in bed to wet the pad for the alarm to go off before waking up.

Topic Three

BEHAVIOURAL THERAPIES BASED ON OPERANT CONDITIONING



Operant Conditioning Re-visited

- In operant conditioning: There is learning in which a voluntary response is strengthened or weakened, depending on its positive or negative consequences.
- The basic principle:
 - if a given behaviour is repeatedly followed by outcomes that are pleasing to the learner, the act is likely to be performed more often under similar conditions.
 - On the other hand, if the behaviour is followed by an unpleasant consequence, it is less likely to be repeated.
- Behaviour is thus shaped and changed by its consequences.

Operant Conditioning Re-visited

- So, If an undesirable behaviour is recurring because that behaviour is being reinforced, then the behaviour can be reduced or extinguished once it is no longer followed by reinforcers.
- That is, undesirable behaviours can be eliminated by eliminating the reinforcers, and desirable behaviour are reinforced to increase them.

Operant Conditioning Re-visited

- In therapy based on operant conditioning
 - desirable behaviours are reinforced immediately and appropriately using the suitable reinforcer,
 - undesirable behaviours are decreased by punishment and extinction.
- It has been used effectively with many different problem behaviours:
 - to teach new skills and
 - to increase the frequency of people's adaptive behaviour in a wide variety of settings.

Operant Conditioning Re-visited

- With this, the treatment approaches used to help change behaviour are also termed as **behaviour modification techniques**.
- Behaviour therapies based on operant conditioning that are:
 - Token economy,
 - Contingency contracting,
 - Behavioural self-control,
 - Social skill training and
 - Biofeedback.

Token Economy

- It is a form of behaviour therapy used to increase desirable behaviours and decrease undesirable behaviours, with the use of **tokens**.
 - The tokens function as money does in our economy, they can be exchanged for items.
- The first therapeutic use of a token system was by Avendano Carderana in 1859 but this system of reward was later popularised by Ayllon and Azrin (1968).
- Ayllon and Azrin (1968) devised a programme where appropriate behaviours were reinforced with tokens.

Token Economy

- **Tokens** were therefore **secondary reinforcers** that could be exchanged for **primary reinforcers** such as food.
- The **tokens** could also be exchanged for privileges.
- Although **token economy** is most frequently employed in institutional settings for individuals with relatively serious problems, it is just like what parents do when they give their children money for being well behaved.
- Money that they can later exchange for something they want.

Token Economy

- A person is rewarded with a token like some kind of play money for a desired behaviour.
- Example of such behaviours:
 - keeping oneself tidy
 - personal grooming
 - interacting with other people.
- This technique is effective in institutions such as mental institutions and prisons.

Contingency Contracting

- With this procedure a **written agreement** is drawn up between a therapist and a client or a teacher and a student or a parent and a child.
- The contract states a series of behavioural goals that the person hopes to attain.
 - It also specifies the consequences for the individual (with the undesirable behaviour)
 - if the goals are reached, usually some explicit reward such as money or additional privileges could be allowed.

Contingency Contracting

- The contract also states negative consequences if the goals are not met.
- Both parties agree on exactly what behaviour each desires from the other and the behaviour along with rewards and sanctions are stipulated in the contract which all parties sign.
- This technique is particularly useful in the solution of marital and family conflicts. It can also be used in mental institutions as well.

Social Skill Training

- Social skill training is used by teachers, therapists and trainers to help persons who have difficulties relating to other people.
- Social skills training help individuals to learn how to act appropriately in the company of other people in a variety of different situations.
- The assumption is that
 - when people **improve their social skills** or change certain behaviours, they will raise their self-esteem and increase the likelihood that others will respond favourably to them

Social Skill Training

- It can be done on **individual** or **group basis**, using
 - discussion and role play.
- They tend to appear shy, awkward and odd and have difficulties expressing their feelings.
- A major goal of this technique:
 - teaching people who may or may not have emotional problems about the verbal and nonverbal behaviours involved in social interactions.

Social Skill Training

- Role playing is used, sometimes where the therapist and the client act as if they are people in a problematic social situation.
- Clients are made to practice and they are given feedback on how effective they are and how they can improve.

Social Skill Training

- The therapist provides positive reinforcement in the form of praises for good aspects of the client's social behaviour and suggests ways to improve inappropriate aspects.
- Examples of outcomes:
 - maintaining eye contact
 - starting and ending a conversation
 - speaking audibly
 - staying at comfortable physical distance when interacting with people
 - developing more effective ways of building friendship and relationships (especially intimate ones) etc.

Social Skill Training

- Some of the disorders treated with social skills training
 - shyness, adjustment disorders, marital and family conflicts, anxiety disorders, attention-deficit/hyperactivity disorder, social phobia, depression, obsessive-compulsive disorder etc.
- It can be used to help clients increase assertiveness and improve their general conversational skills

Biofeedback

- Biofeedback is a treatment technique in which individuals are trained to improve their health and wellbeing by using signals from their own bodies.
- With this, a person learns to control internal physiological processes such as blood pressure, heart rate, respiration speed, skin temperature, sweating and constriction of certain muscles (Yates, 1980).
- This is done through training with electronic devices that provide continuous feedback on the physiological responses in question.

Biofeedback

- The individual receives feedback in the form of lights, clicks, changes in sound volume or displays on a screen.
- Thorndike's Law of effect states that practice of behaviour with feedback produces learning.
- In the same way, biofeedback techniques used by therapists to control physiological processes of clients by providing continuous feedback on the physiological responses

Biofeedback

- These include emotional problems (anxiety, depression, phobia, tension, headache, etc), medical problems with psychological components (high blood pressure, back pain, asthma, ulcers, etc.) and some physical problems (curvature of spine, etc.).
- Physical therapists use biofeedback to help stroke victims regain movement in paralyzed muscles while psychologists use it to help tense and anxious clients learn to relax.

Behavioural Self-Control

- With this, an individual is trained to manage his/her own behaviour.
- S/he is made aware of the factors that control his/her behaviour (eg. positive reinforcement for an undesirable behaviour) and is made to set goals and try and achieve them.
- Goals are set, and if they are achieved, the individual reinforces himself/herself.
- However, if the person goes contrary to the set goals he/she punishes himself.

Behavioural Self-Control

- An example is setting a goal to stop drinking alcohol.
 - If iŷ a || eek Lbu doŷt touĐh the d'ottle, Lbu ãeiŷfodĐe this by buying yourself a special gift, (something you really want) or giving yourself a special treat.
 - if Lbu falted aŷd dđiŷk alĐohol, Lbu doŷt dúLJ LbuĐself anything or do anything rewarding for yourself.
- In behavioural self control it is important that you remove cues that cause you to put up the undesirable behaviour.
- Other areas: Quit smoking, reduce excessive weight, etc

Topic Four

THERAPIES BASED ON OBSERVATIONAL LEARNING OR MODELLING



Observational Learning Re-visited

- According to Bandura (1977), observational learning is learning through observing and imitating the behaviour of another person termed a model.
- People can benefit from vicarious learning by observing what other people do and noticing the consequences.

Observational Learning Re-visited

- Behaviour therapists use modelling to
 - establish new, more appropriate behaviours such as social and work-related skills.
 - eliminate some forms of phobia.
 - assertiveness training

Use of Modelling to Treat Phobia

- Behaviour therapists have used modelling to systematically teach people new skills and ways of handling their fears and anxieties.
- It has been particularly effective in the treatment of phobias (Rosenthal & Bandura, 1966).
- Bandura and Rosenthal (1966) argued that, fear may be learned from watching others being fearful.
 - therefore it can also be treated through modelling.

Use of Modelling to Treat Phobia

- Modelling can also be used to treat certain phobias such as fear of the dark, fear of dogs, dental phobia, etc.
- When modelling is used to treat fear of the dark, the client observes other people entering the dark with no adverse effect.
- The use of modelling to treat phobias may be done in real life or it may be done through the watching of movies or video tapes.

Using Modelling to Teach New Skills

- Role playing can be used for behaviour rehearsal where the client is asked to take on and act out a part which illustrates another point of view than his/her own.
- This helps the client to take on the role of another personality, a more appropriate one.

Assertive Training

- Assertiveness training is used in therapy to
 - help individuals develop more effective ways of
 - showing both negative and positive reactions views and attitudes towards others.
- Social skill problem of non-assertiveness can also be handled:
 - A person is assertive when he/she stands up for his/her rights in such a way that the rights of others are not violated.
 - He/she can express personal likes and interests spoŷtaŷeouslŷ disagree || i th soŷeoŷe opeŷilŷ saŷŷo_ when he/she wants to, etc.

Assertive Training

- Unfortunately, many people have a difficult time:
 - In expressing their true feelings
 - asking questions
 - disagreeing
 - standing up for their rights.
- Sometimes, these individuals continuously hold their feelings in and let others take advantage of them, partly because other people do not know what they want.

Assertive Training

- Non-assertive people may keep their feelings inside until
 - they become so angry that they pour it out in an aggressive tantrum.
 - become stressed.
- Assertiveness training is therefore used to develop assertive skills rather than aggressive ways of expressing feelings to others.
- This is usually done by the therapist **role playing** with the client as is done in other forms of social skill training.