

PSYC 337 LEARNING

Session 6 – Instrumental and Operant Conditioning – Part Two

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Session Overview

- This session continues with Instrumental and Operant Conditioning
- The focus in this session will be the mechanism by which behaviour is learned through reinforcement and punishment, and how to apply this to learning situations
- It will also look at comparison between reinforcement and punishment as strategies for effective use in shaping behavior completely

Session Objectives

- At the end of the session, students will be able to
 - Understand the various schedules of reinforcement
 - Explain Aversive Conditioning
 - Demonstrate skills in applications of Operant Conditioning in Everyday Situation



Session Outline

- The key topics to be covered in the session are as follows:
 - Topic One: Schedules of Reinforcement
 - Topic Two: Aversive Conditioning
 - Topic Three: Applications of Operant Conditioning in Everyday Situation

Reading List

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



Topic One

SCHEDULES OF REINFORCEMENT



What is a Schedule of Reinforcement?

- A schedule of reinforcement tells when and after what number of responses of desired behaviour to give reinforcement
- The procedure of giving reinforcement can be on a regular basis or an intermittent schedule
- Therefore, there are two main schedules of reinforcement:
 1. **continuous reinforcement**
 2. **partial reinforcement**

Continuous Reinforcement

- **Continuous reinforcement:** Here, the arrangement between response and consequence is such that reinforcement is provided after every desired or correct response
- With this arrangement learning occurs rapidly
 - In a similar vein, the behaviour becomes extinct rapidly when reinforcement does not follow the behaviour

Partial Reinforcement

- Here, reinforcement of a desired response occurs only part of the time
 - This makes learning occur slowly but it is however resistant to extinction
- Partial reinforcement can be divided into two:
 1. **Ratio schedule:** When reinforcement is given based on the number of desired response
 2. **Interval schedule:** When reinforcement is based on passage of time between the two events

Partial Reinforcement

- Based on these two main categories, many different types of partial reinforcement schedules can be derived.
 - Fixed Ratio (FR) Schedules
 - Variable Ratio (VR) Schedules
 - Fixed Interval (FI) Schedules
 - Variable Interval (VI) Schedules

Schedules of Partial Reinforcement

Ratio Schedules

- **Fixed Ratio (FR) Schedules**
- With this, behaviour is reinforced only after the behaviour occur at a specified number of times
 - This results in steady and a very high rate of responding because of consistency in the reward
 - E.g. people who get paid on commission are working on a fixed ratio schedule

Schedules of Partial Reinforcement

Ratio Schedules

- **Variable Ratio (VR) Schedules**
- Here, the desired behaviour is reinforced after an unpredictable number of times
 - Example of VR is seen in gambling and lottery staking lotto
 - There is no knowledge of the point at which they would win, but they anticipate that at least they can hit the jackpot
- Because VR is highly unpredictable it is very hard for the behaviour to extinguish
 - One reason people find it difficult to stop gambling!

Schedules of Partial Reinforcement

Interval Schedules

- **Fixed Interval (FI) Schedules**
- With this, a desired behaviour is reinforced only after a specified time has elapsed
 - An example is when babies or children are fed on regular intervals
 - Let's say, after every three hours you decided to breastfeed your baby
- The frequency of desired behaviour increases when the time for reward draws near

Schedules of Partial Reinforcement

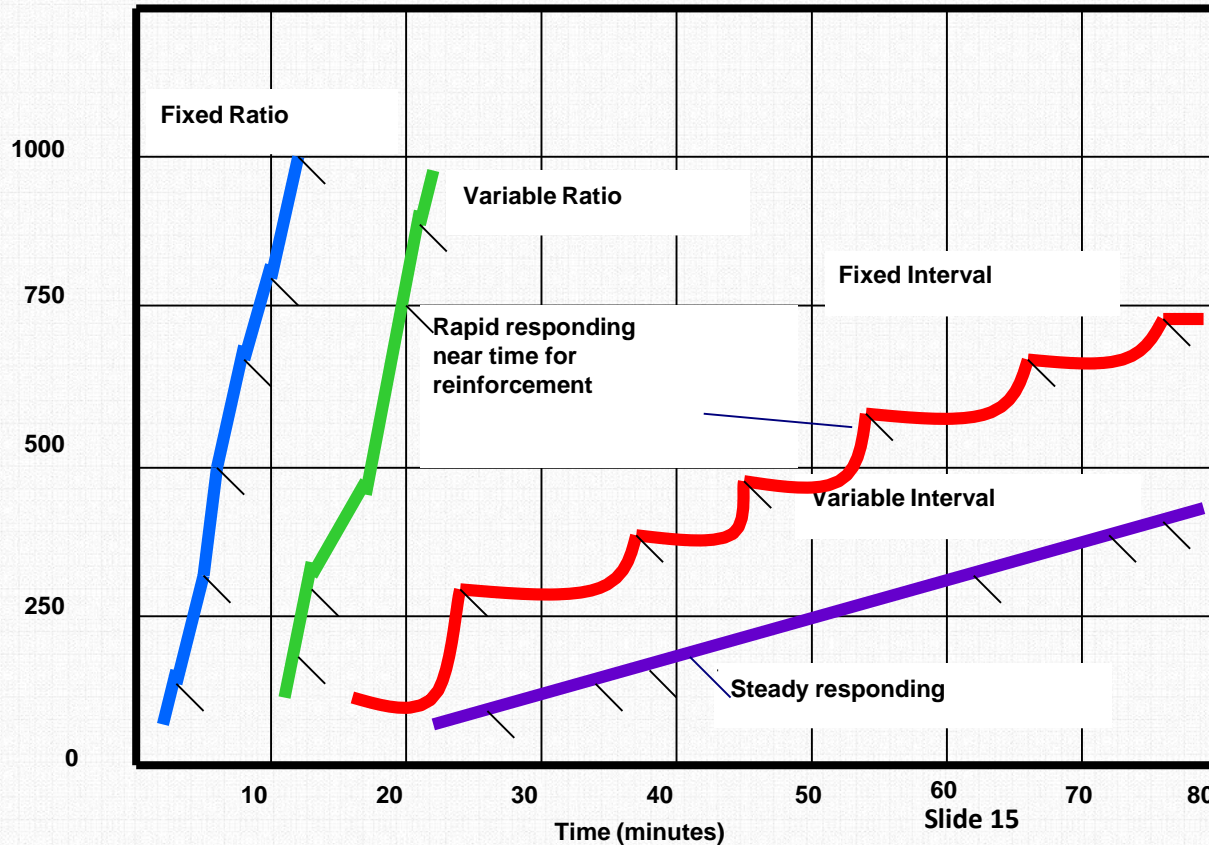
Interval Schedules

- **Variable Interval (VI) Schedules**
- With this schedule a desired behaviour is reinforced at unpredictable time intervals
- E.g., Fishing
 - Fishers may get a heavy catch early on, after which they may wait for so long, not knowing just when they will get a catch again
- Because the reward is unpredictable
 - VI lends itself to a slow but enduring pattern of behaviour

Schedules of Partial Reinforcement

- A graphic picture of the response rate of the schedules of partial reinforcement is shown below

Number of responses



Topic Two

AVERSIVE CONDITIONING



Escape Conditioning

- It is a type of learning in which an organism learns a response to **terminate** an aversive event.
- It is said to be escape because you experience the unpleasant or aversive event first, then you learn a behaviour that terminates it

Mechanism

- Under Escape conditioning, Skinner delivered shocks whenever the cat was in the box
 - Initially, the cat run around in the Skinner box until it accidentally presses the lever and escape from the shock
 - An example of escape conditioning in humans is when you learn to take a painkiller ;upon a Doctor's advice to remove your headache

Avoidance Learning

- Avoidance learning occurs when an organism learns a response that results in the **cancellation** of an **impending** aversive event
 - Thus, when an organism responds to the signal of an impending event in a way that permits its evasion.
- For example, upon seeing red fuel gauge, a Taxi drivers learn to fill up their fuel tanks in order to avoid running out of fuel.
- We also learn to wear your seatbelt to avert serious injury in case of an accident.

Learned Helplessness

- Sometimes neither avoidance nor escape conditioning can end an aversive event
- **Learned Helplessness:** The situation where one learns that there is an explicit lack of contingency between responses and an aversive outcome
- How does this apply in human situation?

Mechanism:

- Take a child who gets insulted for no apparent offense
 - He/she may try everything and yet the parents may continue punishment him/her
 - In time the child would become helpless, because he/she sees no relationship between her behaviour and the punishment or insults

Topic Three

PUNISHMENT



Punishment

- Punishment is a negative consequence that leads to a reduction in the frequency of the occurrence of behaviour that preceded it
- The main reason why people use punishment is to suppress behaviour
- Since punishment is an unpleasant consequence, it diminishes the likelihood that the target behaviour will be repeated.
- But psychologists have come to the realization that punishment, by itself, does not remove the behaviour it follows
 - At best all it does is to suppress it
- Note: Inappropriate use of punishment can also have some side effects

Side Effects of Punishment

1. The recipient begins to fear the person who administers punishment
2. Severe punishment can make a person become timid and loose self-confidence
3. Recipients may become used to punishment
4. Punishment, especially physical punishment, can lead to aggression
5. Punishment can cause physical mayhem to recipients

Making Punishments Work

Timing

- Punishment should be given right after an offence has been committed
- The reason is to make the person draw the link between the two events and thus know why s/he is being punished

Making Punishments Work

Consistency

- Punishment should be consistent
- Do not mix punishment with rewards
- Also, punishment should be aimed at the undesirable behaviour, not the person

Making Punishments Work

Intensity

- Punishment should be commensurate with the offence committed
 - This is to ensure that you do not over punish someone for a minor offence
 - Since the intensity depends on the mood of the person meting out the punishment
- It is important that the person who administers the punishment should be in the right frame of mind

Making Punishments Work

Duration

- The duration of punishment has effects much like intensity (Flaherty, 1985)
- So you want to make sure that the duration of punishment fits the crime
- This explains why our legal system has specified jail term duration for specific crimes.

Making Punishments Work

Teach Alternate behaviour

- Be sure to teach alternative behaviour prior to punishing a person
- It is advisable to give clear instructions as to what behaviour would be punished, and what will be rewarded

Topic Four

APPLICATIONS OF OPERANT CONDITIONING IN EVERYDAY SITUATIONS



Applications of Operant Conditioning in Everyday Situations

Operant Conditioning At Home

- Operant conditioning principles have proved useful in training children
 - For instance, parents can use shaping in toilet training
- Moreover, through the proper use of reinforcement in the form of praise and games, children can be helped to exhibit desirable behaviours such as table manners, etiquettes etc.

Applications of Operant Conditioning in Everyday Situations

Operant Conditioning in Education

- Operant conditioning principles are very important in education
- As a student your study habit is regulated by reinforcers such as scores, grades, etc
- Instructors also rely on reinforcement schedules in the way they offer praise to good students and reprimand when students go wrong

Applications of Operant Conditioning in Everyday Situations

Operant Conditioning in Industrial Organizations

- Industrial organizations benefit from operant conditioning by their use of reinforcement schedules that encourage productivity through:
 - Immediate Feedback
 - Training principles
 - Payments/remuneration
 - Discipline and other sanctions