

USING REINFORCEMENT AND PUNISHMENT IN MANAGING BEHAVIORS

Dr. Koay Teng Leong

WORKSHOP OUTLINE

Aims of Workshop

What is behavior modification

Steps in behavior modification

Applied behavior analysis (ABA)

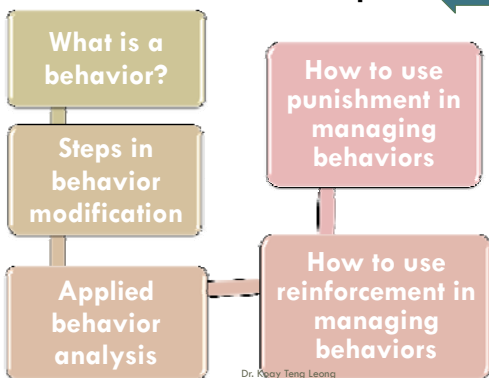
Using reinforcement in managing behaviors

Using punishment in managing behaviors

Concluding remarks

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Aims of Workshop



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What is a behavior modification?

- What is a Behavior
 - An action, what we do and say: e.g. reading, writing, spelling, counting
 - Can be observed, described, and measured
- What is Modification?
 - To change
 - Increase (strengthen) or decrease

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- What is meant by a target behavior?
 - A behavior identified for change

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Task 1

- a) List five (5) common behaviors of pupils of your class
- b) Classify the behaviors into:
 - Appropriate behaviors
 - Inappropriate behaviors

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Types of behaviors

- **Respondent** – cannot be controlled (involuntary) e.g. salivation, knee jerk, fluttering of eyelid
- **Operant** – can be controlled by its consequences: if the consequence to the behavior results in happy/positive feelings, the behavior is strengthened and vice versa

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- Most behaviors are operant, i.e. can be modified/changed:
 - ▣ Increased (strengthened)
 - ▣ Decreased (reduced)

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Problem behavior must be defined **precisely** so it is **observable**

- Definition should consist of:
Client name, behavior, and context
 - ▣ Ali talked to Dollah when Cikgu Fatimah was teaching maths
 - ▣ Ahmad leaves his seat during individual seatwork

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Task 2: Can you observe these behaviors?

- Siti didn't do well in class
- He is shouting more often
- She seems restless lately
- Kassim is careless in his maths
- Oh, its just his rudeness

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Functions of behaviors



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Task 3: Identify the function of the following behaviors

1. Aisah cries loudly. Her mother picks her up and feeds her
2. Dollah submits his assignment late, saying that he had to go home to see his sick mother. He also missed his test. Dr. Tan accepts his essay without any penalty and allows him to take his test a week later

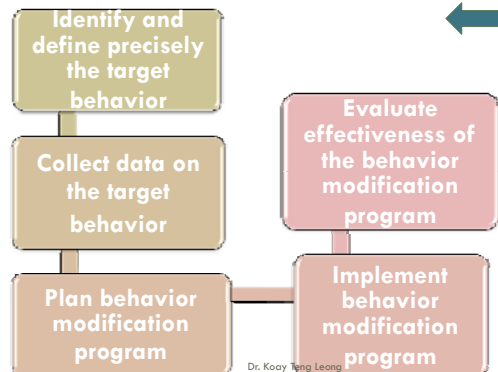
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Task 3: What is the function of the following behaviors

3. Ahmad, a five year old autistic boy cries and bangs his head on the table when his teacher is helping other students. Cigku Fauziah, his teacher stops what she is doing and picks Ahmad up and comforts him. She tells Ahmad to calm down, assures him that everything is all right, gives him a hug and often let him sit on her lap.

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Steps in Behavior Modification



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Principle of reinforcement (Skinner, 1953)

- Skinner's principle of reinforcement holds that organisms tend to repeat those responses that are followed by favorable consequences, or reinforcement.
- Skinner defined reinforcement as when an event following a response increases an organism's tendency to make that response.

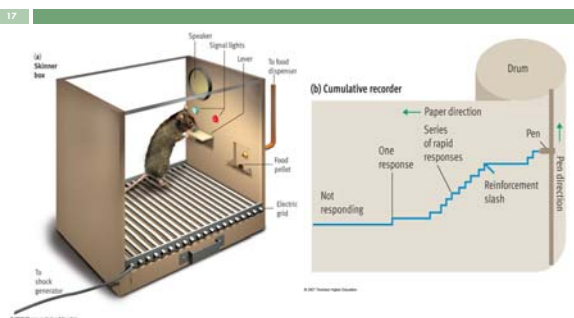
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Principle of reinforcement (Skinner, 1953)

- Skinner created a prototype experimental procedure, using animals and an operant chamber or "Skinner box." This is a small enclosure in which an animal can make a specific response that is recorded, while the consequences of the response are systematically controlled. Rats, for example, press a lever to get food.

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Skinner Box



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Skinner box : Lever-pressing



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Successive approximations:

- ❑ The rat moves to the side where the lever is located.
- ❑ The rat faces the lever.
- ❑ The rat approaches the lever.
- ❑ The rat touches the lever.
- ❑ The rat presses the lever.

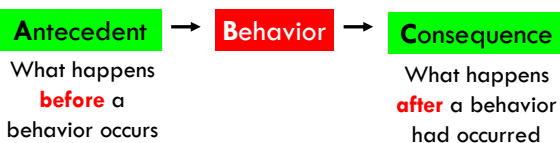
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Operant Conditioning

- ❑ Learning takes place when the learner recognizes the connection between a behavior and its consequences
- ❑ Individuals learn to *operate* on their environment, to behave in certain ways to achieve desirable consequences or avoid undesirable consequences
- ❑ An operant behavior is strengthened by the process of reinforcement
- ❑ A reinforcer is a consequence that strengthens an operant behavior

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A-B-C Model of Behavior Modification



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Applied Behavior Analysis (ABA)

- ❑ functional relationship between a manipulated event (environment) and a reliable change in the target behavior
- ❑ Procedures identified and described in detail and clearly
- ❑ Procedures replicable

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Areas of Application

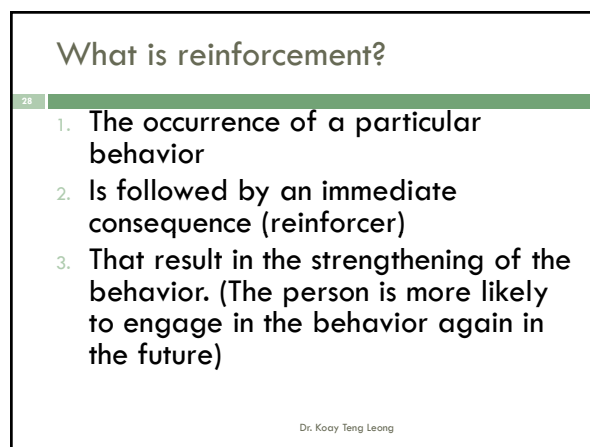
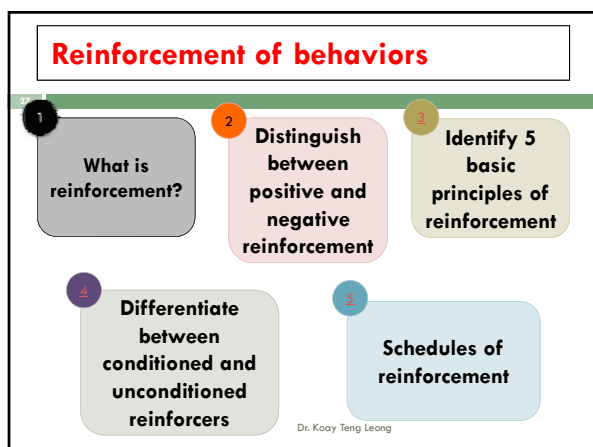
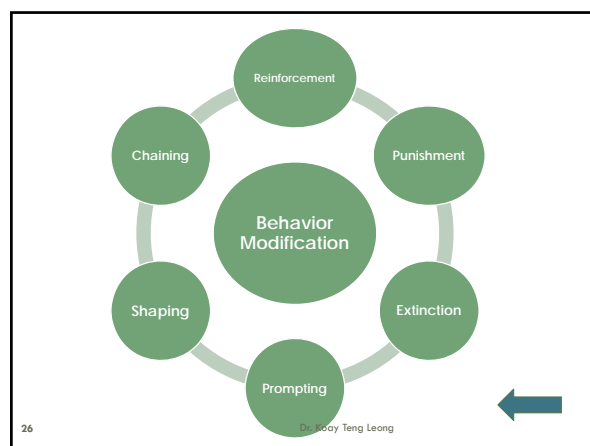
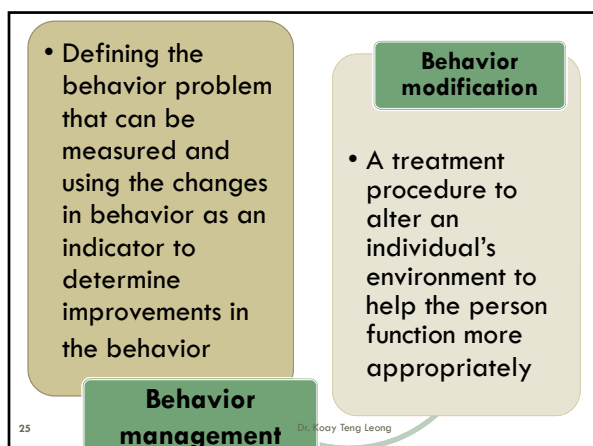
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| <ul style="list-style-type: none"> ❑ Education <ul style="list-style-type: none"> ❑ Improve teaching methods ❑ Reduce behavior problems ❑ In higher education, improve instructional techniques, student learning | <ul style="list-style-type: none"> ❑ Special Education <ul style="list-style-type: none"> ❑ Develop teaching methods ❑ Control behavior problems ❑ Improve social and functional skills ❑ Promote self-management ❑ Training teachers |
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Common Targets for Intervention

- | | |
|--|--|
| <ul style="list-style-type: none"> ❑ Labeling/naming ❑ Asking/requesting ❑ Social skills ❑ Independent leisure ❑ Self-help skills ❑ Completing homework ❑ Doing chores ❑ Academic skills ❑ Money skills | <ul style="list-style-type: none"> ❑ Aggression ❑ Self-injurious behavior ❑ Anger management ❑ Non-compliance ❑ Impulse control ❑ Poor judgment ❑ Yelling ❑ Property damage ❑ Anxiety |
|--|--|

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Activity Reinforcers



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Tangible Reinforcers



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Social Reinforcement



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Reinforcement

- **Reinforcement:** Increasing the probability a desired behavior will occur again in the future by applying consequences to the behavior in question.
- **Positive Reinforcement:** The administration of positive consequences to individuals who perform desired behaviors.
 - Pay, promotions, interesting work, praise, awards
- **Negative Reinforcement:** The removal of negative consequences when individuals perform desired behaviors.
 - Nagging, complaining

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POSITIVE REINFORCEMENT

1. The occurrence of a behavior
2. Is followed by the addition of a stimulus (a reinforcer)
3. Which results in the strengthening of the behavior

NEGATIVE REINFORCEMENT

1. The occurrence of behavior is followed by the removal of a stimulus, (**aversive stimulus**)
2. Which result in the strengthening of the behavior

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Quiz

- Jane cries at night and her Mom, Susan come to her room to comfort her



- Mary gets down from a bus and opens her umbrella when it rains



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Task 4: Quiz

- Chef Wan cooks well done steak which creates smoke. He turns the exhaust fan on to suck the smoke out of the kitchen



- Cikgu Rahim smiles at Muthu and praises him when he stays in his seat and pays attention in class

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Task 4: Quiz

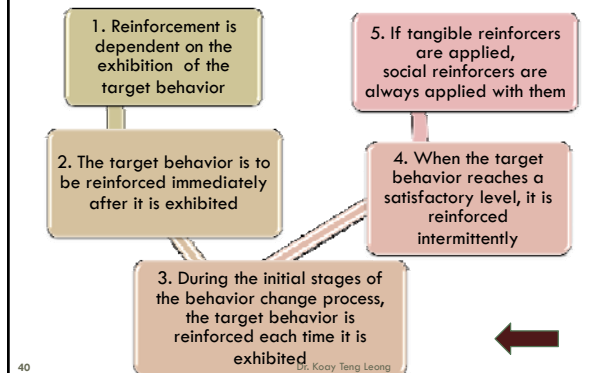
- In a laundry shop, instead of paying workers by the hour, Mrs. Chan pays them according the number of shirts they iron.
- James has a tantrum (crying and screaming) at the supermarket when he demands candy and his mom, Cindy says no. To avoid the stares from other people, Cindy buys him the Candy and James stops crying.

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Operant Behavior	Reinforcer	+ve or -ve Reinforcement
Jane crying at night	Susan cuddle and comfort her	Susan's attention +ve reinforced Jane's crying. Cessation of crying is -ve reinforced Susan giving attention to Jane
Mary opens umbrella	Keeps rain from falling on her	-ve reinforcement. Opening umbrella is removes adverse stimulus (getting wet)
Turning on the fan	Removes smoke from kitchen	-ve reinforcement. Turning on the fan removes smoke (adversive stimulus)
Muthu remains seated	Cikgu Rahim smiles and praises him	+ve reinforcement. Teacher smiles and praises Muthu
Employee irons shirts	Earn more money	+ve reinforcement. Money is a +ve reinforcer for ironing more shirts
James tantrum	Gets candy	+ve reinforcement for Jame's tantrum
Cindy gives James candy	Tantrum stops	-ve reinforcement for Cindy's behavior

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The Principles of Reinforcement



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Two variations of negative reinforcement

Avoidance conditioning

Escape conditioning

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Avoidance conditioning

- Occurs when a behavior **prevents** an aversive stimulus from starting or being applied.

Escape conditioning

- Occurs when behavior **removes** an aversive stimulus that has already started.

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Everyday Examples of Escape and Avoidance Behavior



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Social Vs Automatic Reinforcement

Social Reinforcement

- Is a process when a behavior produces a reinforcing consequence through the **actions of another person**.

Automatic Reinforcement

- Is a process when the behavior produces a reinforcing consequence through **direct contact with the physical environment**.



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Schedule of Reinforcement

- Has a significant effect on the behavior change process.
- The common types of reinforcement schedules are:
 - continuous**
 - fixed ratio**
 - variable ratio**
 - fixed interval**
 - variable interval**.



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Continuous schedule of reinforcement

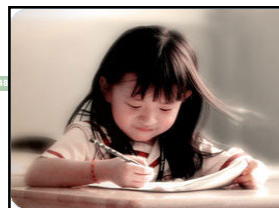
- Requires the presentation of the reinforcer immediately after each occurrence of the target behavior
- Applied during **initial stage of behavior change program**
- Will change the behavior rapidly in the desired direction.
- Not for long term use because individuals tend to satiate on this schedule, unrealistic and artificial procedure for classroom application.

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Comparison of reinforcement schedules

	Ratio	Interval
Fixed	Child completes 20 problems to receive 10 minutes of free time	Child rewarded for remaining in seat for 5 minutes
Variable	Teacher rewards child, on an average, every third time child raises hand	Teacher gives child individual attention, on an average, every 15 minutes in response to acceptable behavior during the time period

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The **fixed ratio** schedule usually results in a high rate of response. Consequently, it is most effectively and appropriately applied during the beginning phase of the behavior change process.

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Variable Ratio Schedules

- Is designed to **sustain** the **level of response** to reinforcement once the acceptable level of behavior has been attained by means of continuous or fixed ratio schedules.
- When the variable ratio is applied, the ratio of the reinforcement presentation varies around the response mean or average.
- This variability is instrumental in sustaining the appropriate level of response

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Example



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Fixed Interval Schedules

- A specified period of time must elapse before the reinforcer is presented.
- The reinforcer is presented immediately *after the first response* after the specified time has elapsed.



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Variable Interval Schedules.

- Similar to the variable ratio schedule.
- Presentation of the reinforcer is based on a behavioral response mean average.
- The individual whose behavior is being changed is not aware of when reinforcement will occur.
- However, the individuals does know that he or she will be reinforced for exhibiting a certain behavior.

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1st time after 9 mins,
2nd time after 4 mins,
3rd time after 14 mins,
4th time after 13 mins.
(based on a variable interval with a mean or average of 10 mins)

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Task 5 – In groups of 10, brainstorm and find answers to this Case Study. Report in 15 minutes

- Ali, a Darjah 4 pupil shouts out answers, sings and make inappropriate noises. His teacher, Cikgu Siti reminds him to raise his hands before answering. He rarely complexes his classwork.
- What environmental factors might be antecedents and consequences to Ali's behaviors?
- what teaching strategies, curriculum adaptations and physical classroom designs could be included in Ali's behavior modification plan

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Summary

- Reinforcement should occur immediately after the desired behavior
- At the beginning of a behavior management program, reinforced a behavior every time it occurs
- Once the behavior reaches a satisfactory level, it should be reinforced only intermittently

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Punishment of behaviors

1 What is punishment?

2 Distinguish between positive and negative punishment

3 Differentiate between conditioned and unconditioned punishers

4 Factors affecting effectiveness of punishment

5 Issues with punishment

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What is punishment

- Punishment consists of three parts:
 - A behavior occurs
 - A consequence immediately follows the behavior
 - The behavior is **less likely** to occur again in the future (Behavior is weakened).
- A **punisher** is also called an aversive stimulus.
- It is a consequence that makes a particular behavior less likely to occur in the future.

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Positive and negative punishment

- The differences between those two punishment is determined by the **consequence** of the behavior.
- Positive punishment** is defined as:
 - The occurrence of a behavior
 - Is followed by the **presentation of an aversive stimulus**,
 - And as a result, the behavior is less likely to occur in the future.



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- Negative punishment** is defined as:

- The occurrence of a behavior
- Is followed by the **removal of a reinforcing stimulus**,
- And as a result, the behavior is less likely to occur in the future.

- Examples of **negative punishment** are **time-out** and **response cost**.

- Both involve the loss of a reinforcing stimulus or activity after the occurrence of a problem behavior.

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Task 6: Quiz

- Ahmad reached over the fence to pet his neighbor's dog. At once, the dog growled, bared its teeth, and bit his hand. After this, Ahmad won't pet the dog.
- When Yusof was in the day care program, he sometimes hit the other kids if they played with his toys. Yusof's teacher made him quit playing and sit in a chair in another room for 2 minutes each time he hit someone. As a result, Yusof stopped hitting the other children.

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Task 6: Quiz

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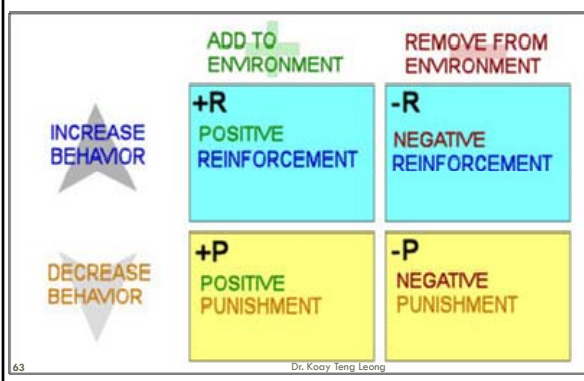
- Rizal rode his bike and looked down at the ground. All of a sudden he hit the back of a parked car, flew off the bike, hit the roof of the car with his face and knocked his front tooth loose
- Arif is in a special class for children with behavioral disorders. His teacher removes a token from his box if he is out of seat without permission

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Operant Behavior	Punisher	+ve or -ve Punishment
Ahmad pets dog	Dog bit his hands	+ve reinforcement. Being growled and bitten by the dog is painful.
Yusuf hit the kids who played with his toys	Removal from playgroup	-ve reinforcement. Loss of opportunity to play with his toys and friends
Rizal looked down when riding his bike	Hit the back of a parked car	-ve reinforcement. Painful experience of hitting roof of car and knocked his front tooth loose
Arif out of seat	Tokens removed	-ve reinforcement. Consequence was removal of tokens

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Comparing Reinforcement and Punishment



Task 5 – In groups of 10, brainstorm and find answers to these questions. Report in 10 minutes

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- Provide an example of punishment from your own life experience:
 - Is this an example of positive or negative punishment/outcome?
 - Explain why?

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Conditioned Vs Unconditioned punisher

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- Punishment is a **natural** process that affects human behavior. Such stimuli are called **unconditioned punisher**.
- Unconditioned punishers prevent us from dangerous behaviors that result in injury or death.
- We learn not to put our hands into a fire, look directly into the sun, touch sharp objects because each of these behaviors result in a naturally punishing consequence.

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Conditioned Vs Unconditioned punisher

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- **Conditioned punishers** are stimuli or events that function as punishers only after being paired with unconditioned punishers or other existing conditioned punishers.
- Any stimulus or event may become a conditioned punisher if it is paired with an established punisher.
- The word 'no' is a common conditioned punisher because it is paired with many other punishing stimuli; it eventually becomes a punisher itself.
- For example, if a child reaches for an electrical outlet and the parent says 'no', the child may be less likely to reach for the outlet in the future.

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Factors affecting effectiveness of punishment

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- It is similar to those that influence reinforcement.
- They include :
 - Immediacy,
 - Contingency,
 - Establishing operations,
 - Individual differences and magnitude.

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- A stimulus is more effective as a punisher when presented immediately after the behavior.
- For example, a student makes a sarcastic comment in class and the teacher immediately gave an angry look. As a result, the student is less likely to make a sarcastic comment in class.

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- A stimulus is more effective as a punisher when presented **contingent** to the behavior.
- The punishment is less effective when it is applied inconsistently – that is, when the punisher follows only some occurrence of the behavior or when the punisher is presented in the absence of the behavior.
- For example, If a hungry rat presses a lever in an experimental chamber and receives food pellets, the rat will continue to press the lever. However, if punishment is implemented and the rat receives an electric shock each time it presses the lever, the lever-pressing behavior will stop

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- Some **antecedent** events make a stimulus more effective as a punisher at a particular time.
- For examples, telling a child who misbehaves at the dinner table that dessert will be taken away as a result will not be an effective punisher if the child has had two or three helpings of the dessert already.

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- In the case of positive punishment, any event that enhances the aversiveness of the a stimulus events makes that event a more effective punisher, whereas events that minimize the aversiveness of a stimulus event make it less effective as a punisher.
- For example, some drugs (e.g. morphine) minimize the effectiveness of a painful stimulus as a punisher. Another examples like alcohol may reduce the effectiveness of social stimuli (e.g. peer disapproval) as punisher.

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Individual difference and magnitude of punisher

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- Punisher vary from person to person. In general, a more intense aversive stimulus is a more effective punisher.
- For examples, a mosquito bite is a mildly aversive stimulus for most people; the behavior of wearing shorts in the woods may be punished by mosquito bites on the legs



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Issues with punishment

- Potential problems associated with the use of punishment include:
 - emotional reactions to punishments
 - development of escape and avoidance behaviors
 - negative reinforcement for the use of punishments
 - modeling of the use of punishment
 - ethical issues

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- Student and teachers need to understand the definition of punishment which has definite meaning and many negative connotations
- So as a teacher, we have to consider the causes, outcomes, factors, potential problems before using this punishment for our students

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Summary

- Punishment is a basic principle of behavior.
- Its definition has three basic components:
 - Occurrence of a behavior,
 - Followed by an immediate consequence, and
 - Behavior is less likely to occur in the future.
- A common misconception about punishment is that it means doing harm to another person or exacting retribution on another person for that person's misbehavior
- Instead, punishment is a label for a behavioral principle devoid of the legal or moral connotations usually associated with the word

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Concluding remarks



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