PSY402
Theories of Learning

Chapter 7 (Cont.) – Punishment
Punishment

- Use of an aversive event contingent on the occurrence of an inappropriate behavior.
  - Used to suppress undesired behavior.

- If effective, frequency or intensity (or both) of behavior decreases.
Types of Punishers

- **Positive punishment** – use of a physically or psychologically painful event as a punisher.

- **Negative punishment** – loss of reinforcement as a consequence of an inappropriate behavior.
  - Also called *omission training* – reinforcement is provided when an undesirable behavior is withheld.
Positive reinforcement adds a good thing
Negative reinforcement removes bad thing

Behavior \[\rightarrow\] Consequences

Increases +

Response cost removes good thing

Punishment reduces -

Punishment adds a bad thing
<table>
<thead>
<tr>
<th>Positive Stimulus (Add)</th>
<th>Negative Stimulus (Subtract)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Positive Reinforcement</strong></td>
<td><strong>Negative Reinforcement</strong></td>
</tr>
<tr>
<td>Bonus for working hard leads to more hard work</td>
<td>Headache gone after aspirin leads to more aspirin use</td>
</tr>
<tr>
<td><strong>Positive Punishment</strong></td>
<td><strong>Negative Punishment</strong></td>
</tr>
<tr>
<td>Getting speeding ticket leads to less speeding</td>
<td>Missing dinner leads to less staying out late</td>
</tr>
</tbody>
</table>
Types of Negative Punishment

- **Response cost** – an undesirable behavior results in withdrawal of reward or failure to attain reward.
  - Example: loss of privileges

- **Time-out** – a period of time during which reinforcement is unavailable.
  - Example: being sent to room after misbehaving.
Does Punishment Work?

- Skinner showed that punishment only temporarily suppresses behavior.
- More recent studies show that it can permanently suppress behavior under some conditions.
- Under other conditions it has no effect or only temporarily works.
Punishment Works Temporarily

Figure 7.7  The effect of punishment on the extinction of the bar-press response. Punishment produced a temporary reduction in bar pressing, but by the end of the second day, punishment no longer had any effect.

Punished behavior returns
Severity of Punishment

- Mild punishment doesn’t work.
  - Example: Drunk drivers do it again.

- With mild punishment, any suppression is short-lived.

- The more severe the punishment, the longer it works.
  - Example: sale of cigarettes to minors.

- Must be severe to accomplish permanent behavior change.
Severity of Punishment

Figure 7.8 The mean suppression ratio decreases, or the level of suppression increases, with higher intensities of electric shock during punishment training.

Only higher shock levels work to suppress behavior.
Consistency of Punishment

- Punishment must be consistently administered.
  - Odds of a drunk driver being caught are 1 in 2000.
  - Suppression increases as the frequency of punishment increases.
  - Delinquent boys more likely to have parents who are inconsistent in their discipline.
Consistency of Punishment

Figure 7.9 This graph shows that the rate of bar-press responding for food reinforcement delivered on a 3-minute variable-interval schedule increases with higher fixed-ratio schedules of punishment. The short, oblique lines indicate when punishment was delivered.

FR-1 means each behavior is punished
FR-100 means 1 in 100 behaviors is punished
Delay of Punishment

- Punishment must be immediate in order to be effective.
  - Long delay between arrest and trial for drunk drivers.
Delay of Punishment

Figure 7.10  The mean percentage of responses increases with greater delay of punishment (in seconds). The control group did not receive electric shock, and the noncontrol (NC) group was given noncontingent shock.
Drawbacks to Using Punishment

- **Pain-induced aggression** – pain elicits anger which may motivate aggressive behavior.
  - An impulsive act energized by emotional arousal, not avoidance.

- **Modeling of aggression** – children may imitate a parent’s aggressive acts through observational learning.
  - Bandura’s Bobo doll study
Conditioning of Fear

- The aversive quality of punishment may condition a fear response to the person administering it.
  - Person will try to escape the punisher.

- Use of reinforcement together with punishment prevents this association.
  - Children do not learn to fear a behavior therapist who uses electric shock but also uses reinforcement.
More Drawbacks

- Suppressive effects may generalize from an undesirable behavior to other desirable behaviors.
  - Punishment may not generalize to similar undesirable behaviors.
- The person may not recognize the contingency between the behavior and the punishment.
Response Prevention & Flooding

- Phobias may be avoidance behavior motivated by fear.
- Flooding forces the person to experience the feared stimulus and associate the CS with the absence of the UCS, extinguishing fear.
- This leads to elimination of the avoidance behavior.
- Very effective, faster than other approaches.
Effectiveness of Flooding

**Figure 7.11** The client’s perceived level of anxiety prior to flooding, immediately after flooding, and 1 and 6 months after flooding.
More Applications of Punishment

- Widespread use of punishment (e.g., spanking) probably does no serious harm.

- Two applications:
  - Persistent vomiting decreased.
  - Chronic head-banging behavior suppressed.

- Use of such punishment may be preferable to ineffective methods.
Persistent Vomiting

**Figure 7.12** The photo on the left shows a 12-pound, 9-month-old child whose persistent vomiting left him seriously ill. The use of punishment suppressed vomiting within six sessions (one per day) and, as the photo on the right shows, enabled the child to regain normal health.
Head Banging Intervention

Figure 7.13  This graph shows the number of head bangings per minute by a 17-year-old girl (Donna) with profound mental retardation during baseline (BL), during the application of contingent electric shocks, and during the removal of the contingent shocks for head banging.
Tree Climbing Behavior

- 6-year old girl with hyperactivity
- Electric shock stopped the behavior during therapy but produced no change at home
  - Failure of generalization
- Use of the shock at home stopped the climbing at home.
- The mother felt this was more humane than repeated spankings, which didn’t work.
Controversies in Punishment

- Is spanking ever beneficial?
  - Many people were routinely spanked as kids.
  - Spanking, when combined with other punishment and positive reinforcement may not be harmful.
  - High levels of physical punishment in the home are associated with depression and conflict.
  - Use of corporal punishment to control behavior can result in aggression and antisocial behavior, anxiety, depression, but only 1 desirable outcome.
Response Cost

- Response cost is a form of negative punishment in which something is taken away for undesirable behavior.
- Capable of suppressing a wide variety of behaviors (smoking, thumb sucking, tardiness, aggressive behavior).
- May increase desirable behavior in the process (increased math accuracy, legibility).
Time-Out from Reinforcement

- Time-out is a loss of access to reinforcement for a period of time as a consequence of bad behavior.
  - The time-out must not be reinforcing – sending a child to his room is not punishment if it is full of toys.
  - 10 min or 3 min time-outs reduce disruptive behaviors in preschool kids, adolescents.
Which Punishment?

- Begin with the most socially acceptable and least intrusive (Alberto & Troutman).
- Level 1: differential reinforcement.
- Level 2: non-reinforcement
- Level 3: response cost, time-out
- Level 4: aversive stimuli (shock, paddling) or conditioned aversives (yelling, verbal warnings)
Ethical Use of Punishment

- Cruel and unusual punishments prohibited by 8th Amendment of US Constitution.
- Rights of individual must be safeguarded.
  - APA Ethical Principles of Psychologists
  - Least restrictive alternative
- Balance punisher pain against the resultant pain if the behavior is left untreated.