Chaining Behaviors

- Subjects are taught a number of responses successively in order to get a reward.

Is it shaping or chaining?

Shaping:

In shaping, the form of an existing response is gradually changed toward the desired target behavior by rewarding ***successive approximations*** of behavior. (Playing hot or cold – one target)

Chaining:

Involves reinforcing individual responses occurring in a sequence to ***form a complex behavior***. It is frequently used for training behavioral sequences (or "chains") that are beyond the current repertoire of the learner. (brushing your teeth – several, successive targets)

We must realize…

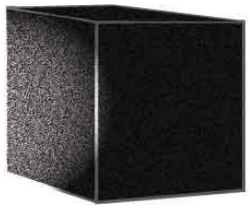
- Skinner came up with his theories about schedules by using rats in a box in a highly controlled environment.
- Humans are not rats, and our world is not a highly controlled environment. Therefore, we cannot always make the theories apply equally well with each example.
- There is room for interpretation with ***some*** of these examples….

SOCIAL LEARNING

2 types: Cognitive Learning and Observational Learning (Modeling)

Cognitive Learning

- Learning that depends on mental activity
- It is not directly observable
- It involves such processes as attention, expectation, thinking, and memory
  - Insight
  - Latent Learning
  - Learned Helplessness



Kohler and Insight

- Early behaviorists described the mind to a "black box" whose workings could not be observed directly
- Wolfgang Kohler wanted to look in the box
  - He believed that there was more to learning-especially learning to solve a complex problem-than responding to stimuli in a trial-and-error fashion

Kohler and Insight

- In a flash of **insight**, the chimp picked up the stick and maneuvered the banana within his grasp

  Insight: A sudden understanding

Insight learning – “A-ha!” moment

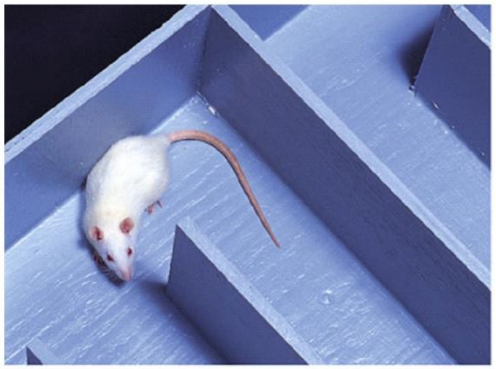
Latent Learning

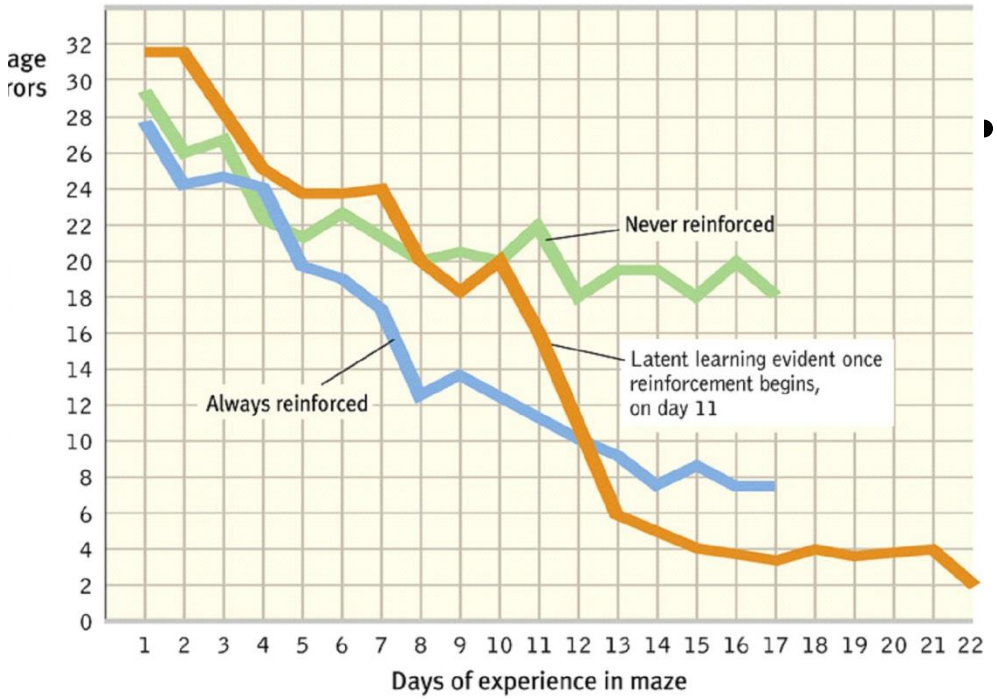
- Learning that is not demonstrated by immediate behavior
- Takes place w/o reinforcement but is not demonstrated until reinforcement takes place
- Cognitive Map:
  - A mental picture of spatial relationships

Tolman and Latent Learning

- Previous researchers suggested that rats learned mazes through trial-and-error rewards. (Skinner)
- Edward Tolman believed they underestimated the rat's cognitive processes.
- Rats placed in experimental mazes seemed to pause at intersections, as if they were deciding which route to take.

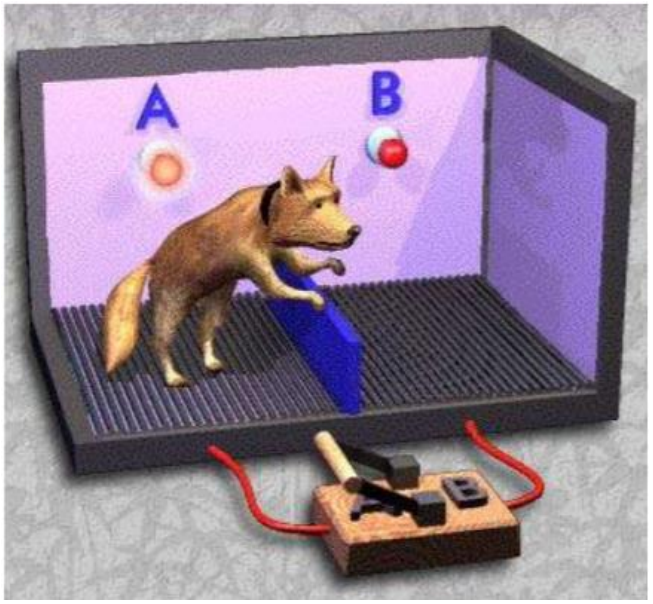
Tolman and Latent Learning





- Groups 1 and 3 were slow to learn the maze
- Group 2 showed fast, steady improvement
- When rewards were introduced to group 3, their learning of the maze quickly matched the performance of the group that had been reinforced the whole time

Learned Helplessness: Failure to continue exerting effort for an outcome because all previous attempts have failed.



Martin Seligman (1965)

Study was originally designed to study escape or avoidance learning.

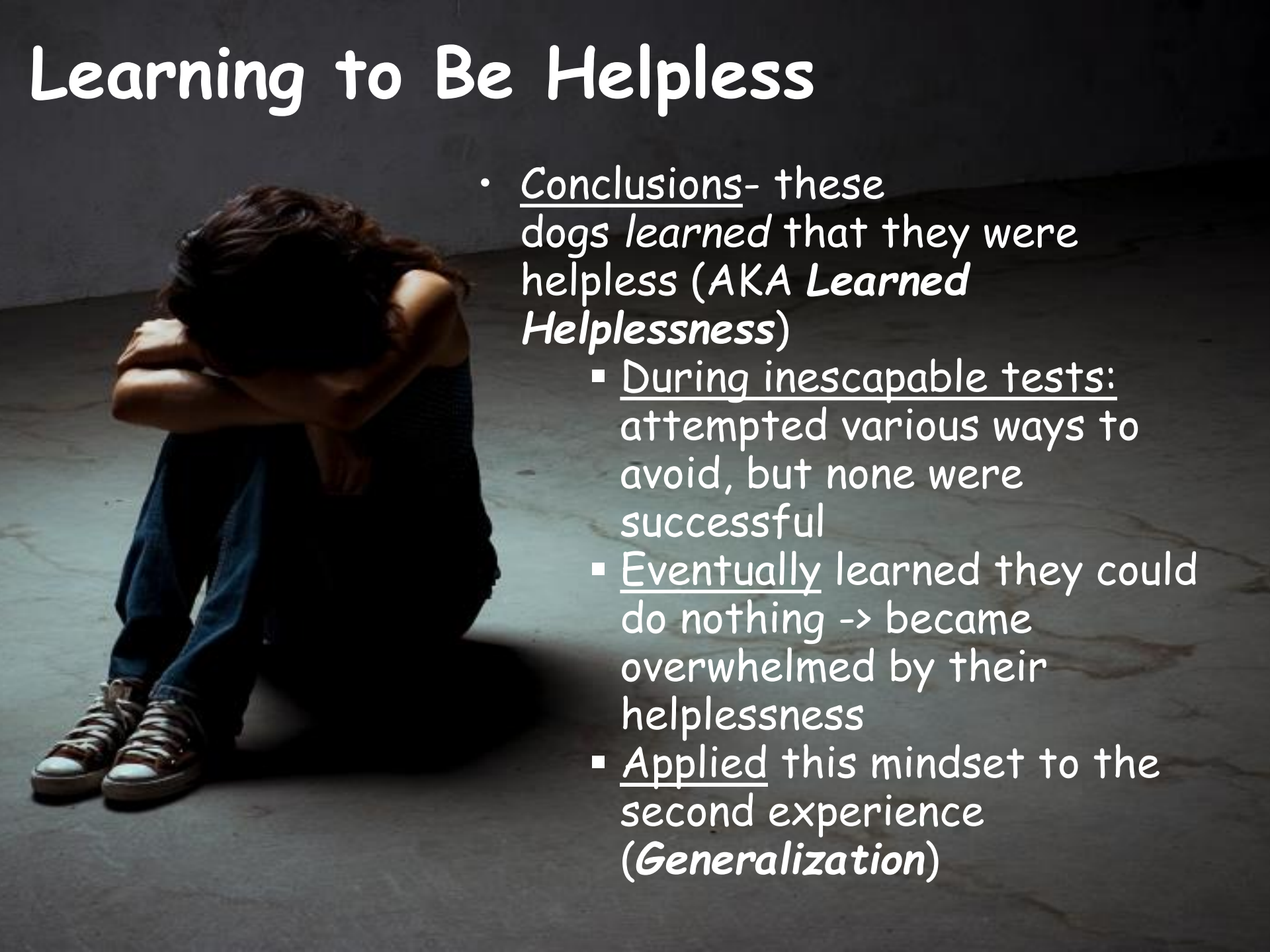
Findings were related to depression in human beings.

*** Fail a test in a class, decide you can't do it, drop the class.**

Learning to Be Helpless

- Seligman, 1967
- Harnessed dogs were subject to a series of shocks from which they could not escape
- Were then placed in an avoidance learning situation in which they could escape the shock -> jump over small wall.
- Results: dogs that did not experience the earlier shock training, leapt over to safety
    - dogs that did undergo inescapable shock - endured the shock, "quietly whined"

Learning to Be Helpless



- Conclusions- these dogs *learned* that they were helpless (AKA ***Learned Helplessness***)
  - During inescapable tests: attempted various ways to avoid, but none were successful
  - Eventually learned they could do nothing -> became overwhelmed by their helplessness
  - Applied this mindset to the second experience (***Generalization***)

Learning by Observation (Modeling)

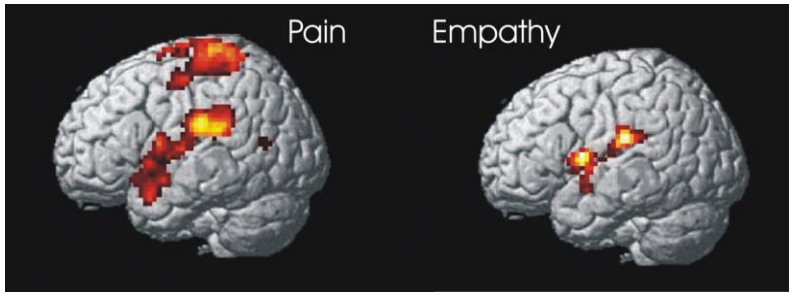
Higher animals, especially humans, learn through observing and imitating others.

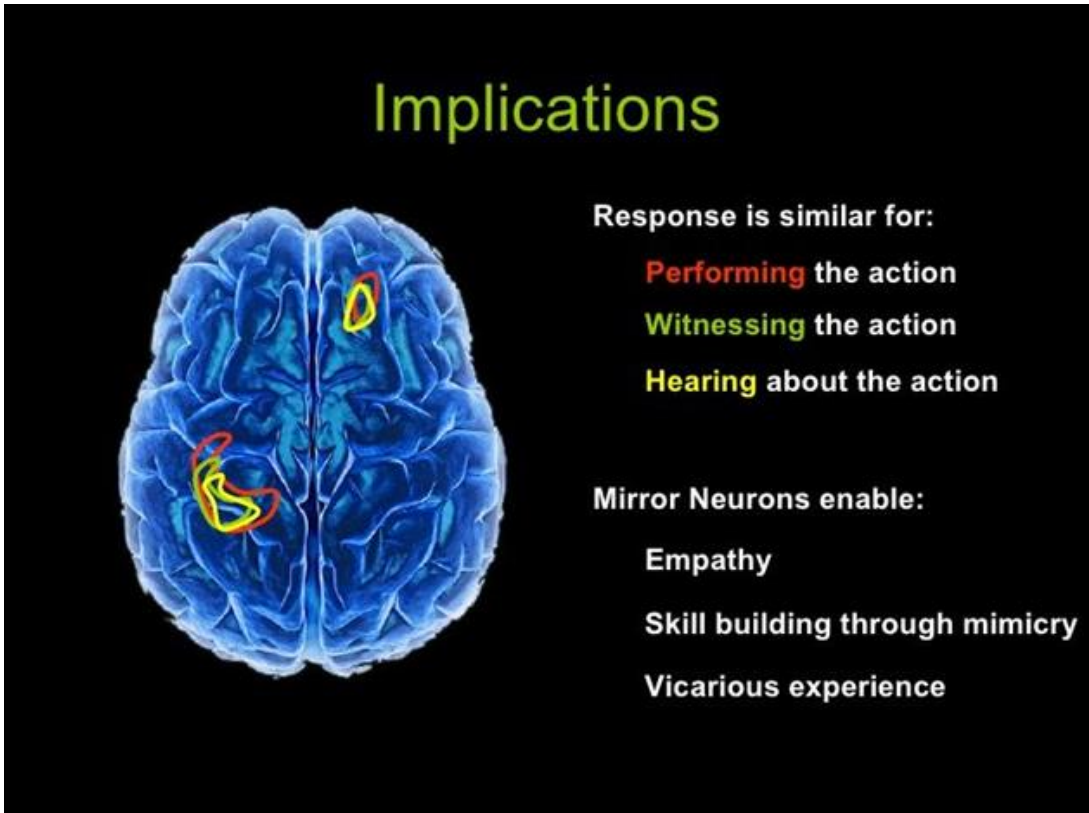
Observational Learning

Mirror Neurons

A mirror neuron is a neuron that fires both when an animal **acts** and when the animal **observes** the same action performed by another.

Thus, the neuron "**mirrors**" the behavior of the other, as though the observer were itself acting.





Mirror Neurons