

# CHAPTER 9: LEARNING— PRINCIPLES AND APPLICATIONS



# SECTION 1: CLASSICAL CONDITIONING

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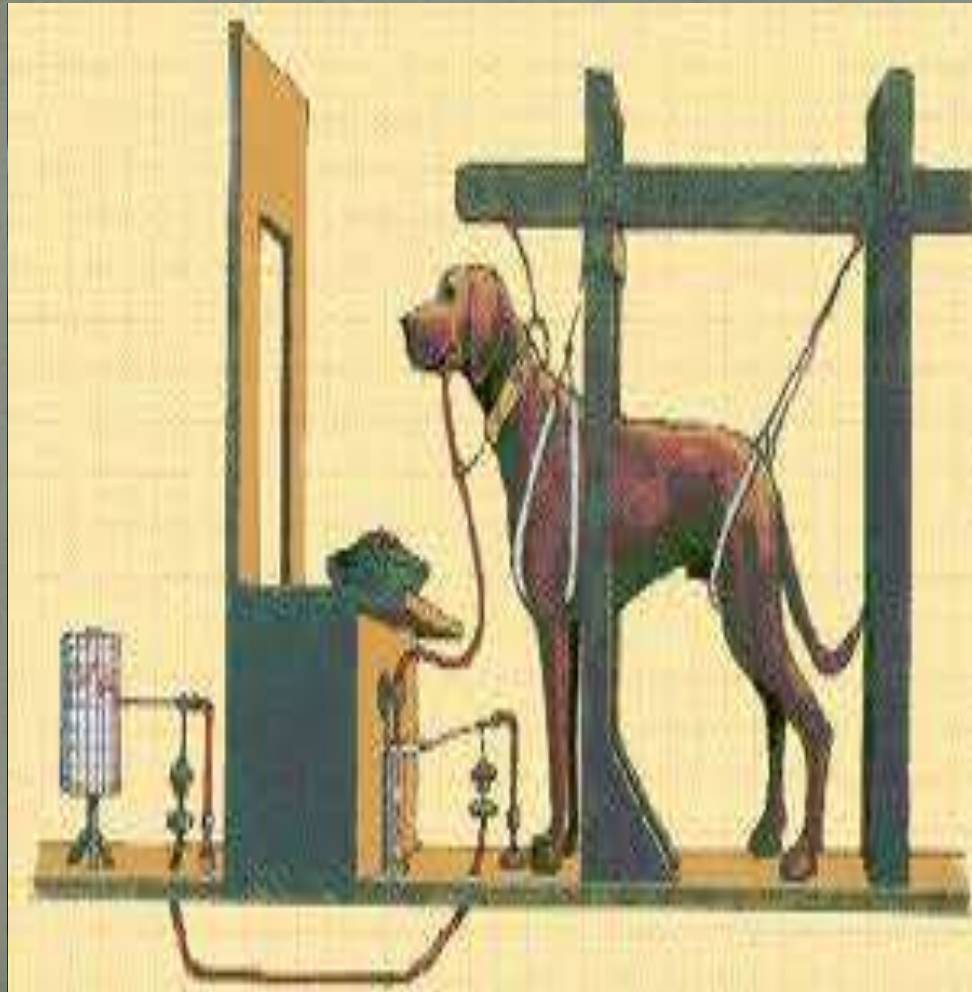
# LEARNING

- Def: a relatively permanent change in behavior that results from experience
- Classical Conditioning: learning procedure in which associations are made btwn a natural stimulus and a neutral stimulus

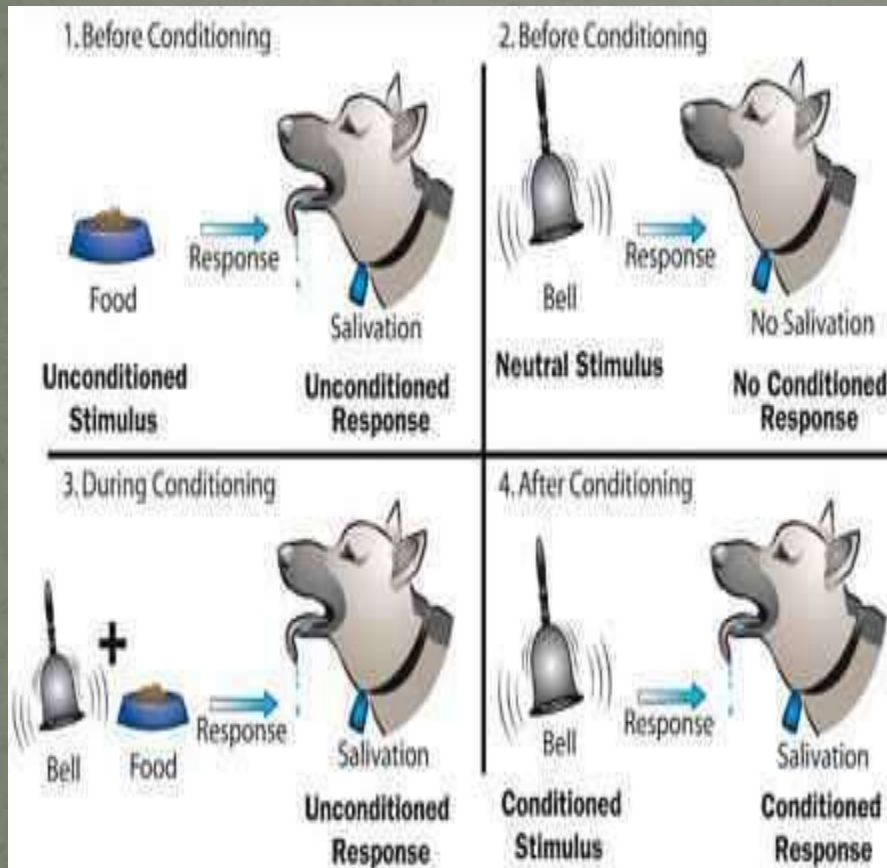




# PAVLOV'S EXPERIMENT



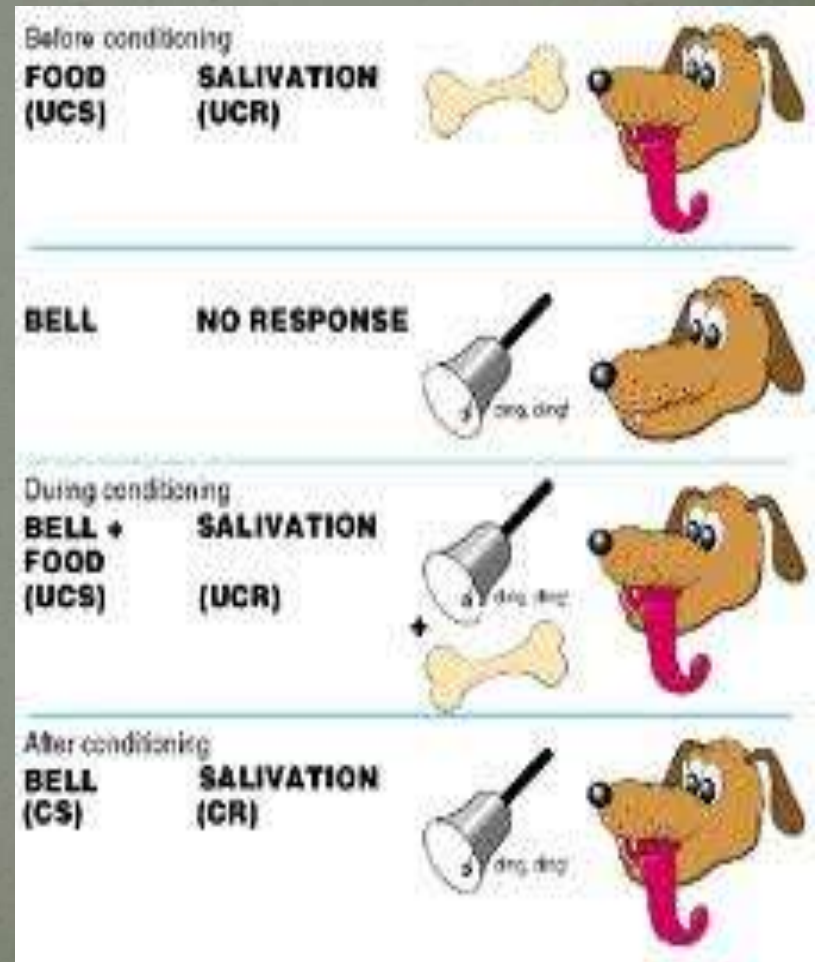
# CLASSICAL CONDITIONING



- **Neutral stimulus:** a stimulus that does not initially elicit a response (bell)
- **Unconditioned stimulus (UCS):** an event that elicits a certain predictable response without previous training (food)

# CC CONTINUED

- Unconditioned response (UCR): an organism's automatic/natural reaction to a stimulus (salivate)
- Conditioned stimulus (CS): a once-neutral event that elicits a given response after a period of training in which it has been paired with an UCS
- Conditioned response (CR): learned response to a CS





# Classical Conditioning Formula

- Pavlov gave his dog **food**= dog **drooled**

**Unconditioned Stimulus** **Unconditioned Response**

This is a naturally occurring reaction, the dog drooling when given food.

- Ring **Bell** + give **food**= dog **drools**

**Neutral Stimulus** **Unconditioned Stimulus**  
**Unconditioned Response**

# Classical Conditioning Formula

- The Bell doesn't mean anything to the dog. Pavlov pairs the bell with food (Unconditioned Stimulus)
- However, Pavlov keeps ringing the bell and giving food until

Pavlov rings **bell** = dog **drools**

**Conditioned Stimulus**      **Conditioned Response**





To help see this happening enjoy the following video clip

- [Dwight and the Altoid](#) from the Office

# GENERAL PRINCIPLES OF CLASSICAL CONDITIONING

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# ACQUISITION



- Learning the response to a CS
- Occurs gradually
- Timing of association btwn CS and UCS influence learning
- Most effective when CS is presented right before UCS



# GENERALIZATION AND DISCRIMINATION

- **Generalization**: responding similarly to a range of similar stimuli
- **Discrimination**: the ability to respond differently to similar but distinct stimuli
- Complementary processes



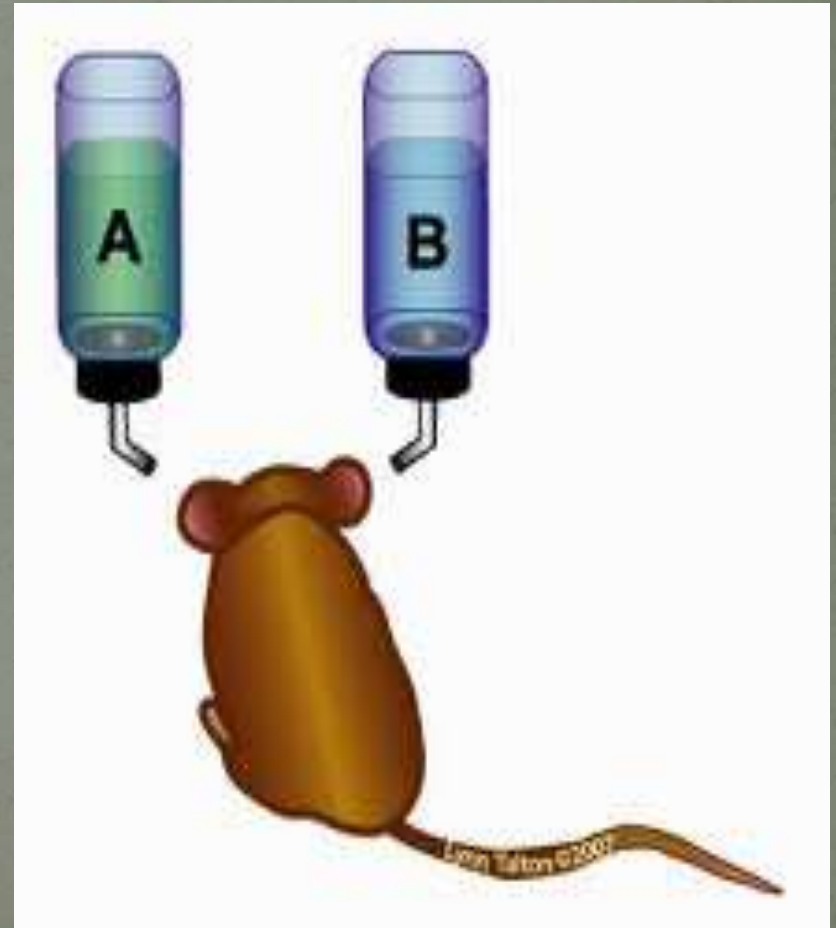
# EXTINCTION AND SPONTANEOUS RECOVERY



- Extinction: the gradual disappearance of a CR when the CS is repeatedly presented without the UCS
- Spontaneous recovery: when the CR reappears when the CS is presented but not followed by a UCS, after a period of extinction

# EXAMPLES OF CC

- Little Albert
- Bell and Pad—to train bedwetters
- Taste aversion





# REASON FOR CC



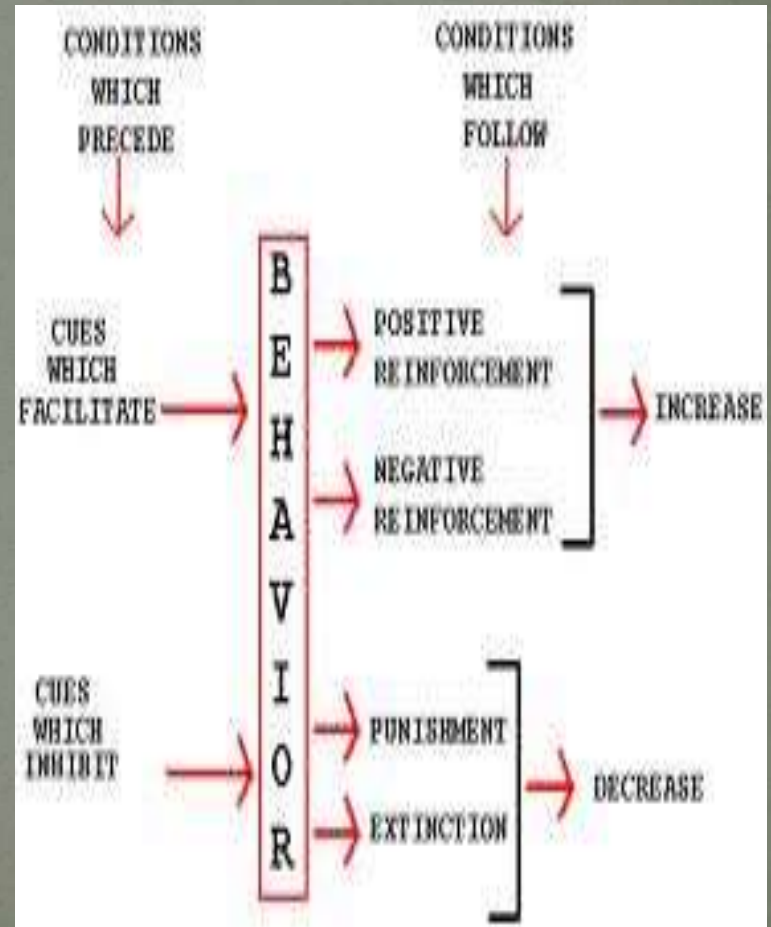
- Helps us predict---useful for survival
- Perfect example of behaviorist theory
- Shows how learners respond to their environment

# SECTION 2: OPERANT CONDITIONING

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# WHAT IS IT?

- Def: learning in which a certain action is reinforced or punished, resulting in corresponding increases or decreases in occurrence
- The study of how voluntary behavior is affected by consequences





# REINFORCEMENT



- B.F. Skinner
- Believed actions are based on history of reward and punishment
- Trained rats
- Reinforcement: stimulus or event that follows a response and increases the likelihood that the response will be repeated

# TYPES OF REINFORCEMENT

- *Positive reinforcement:* something that is added after an action
- *Negative reinforcement:* something unpleasant taken away after an action



"So, for every day that your math grade stays below a B, your father will post a video of himself on YouTube."



# REINFORCERS



- Primary reinforcer: stimulus that is naturally rewarding, such as food or water
- Secondary reinforcer: stimulus such as money that becomes rewarding through its link with a primary reinforcer



# SCHEDULES OF REINFORCEMENT

- *Continuous reinforcement*: reinforce every response
- *Partial reinforcement*: intermittent reinforcing—produces more stable and longer lasting

# PARTIAL REINFORCEMENT



- Four basic schedules based on:
- *Ratio*—number of correct responses btwn reinforcements
- *Interval*—amount of time elapsed before reinforcement is given
- *Fixed*—predictable
- *Variable*--unpredictable



# SCHEDULES OF REINFORCEMENT

- Fixed-ratio schedule: a specific number of correct responses is required before reinforcement can be obtained
- Variable-ratio schedule: an unpredictable number of responses are required before reinforcement





# SCHEDULES CONTINUED



- Fixed-interval schedule: a specific amount of time must elapse before a response will elicit reinforcement
- Variable-interval schedule: changing amounts of time must elapse before a response will obtain reinforcement

# SHAPING

- **Shaping**: technique in which the desired behavior is “molded” by 1<sup>st</sup> rewarding any act similar to that behavior and then requiring ever-closer approximations to the desired behavior before giving the reward



# CHAINING

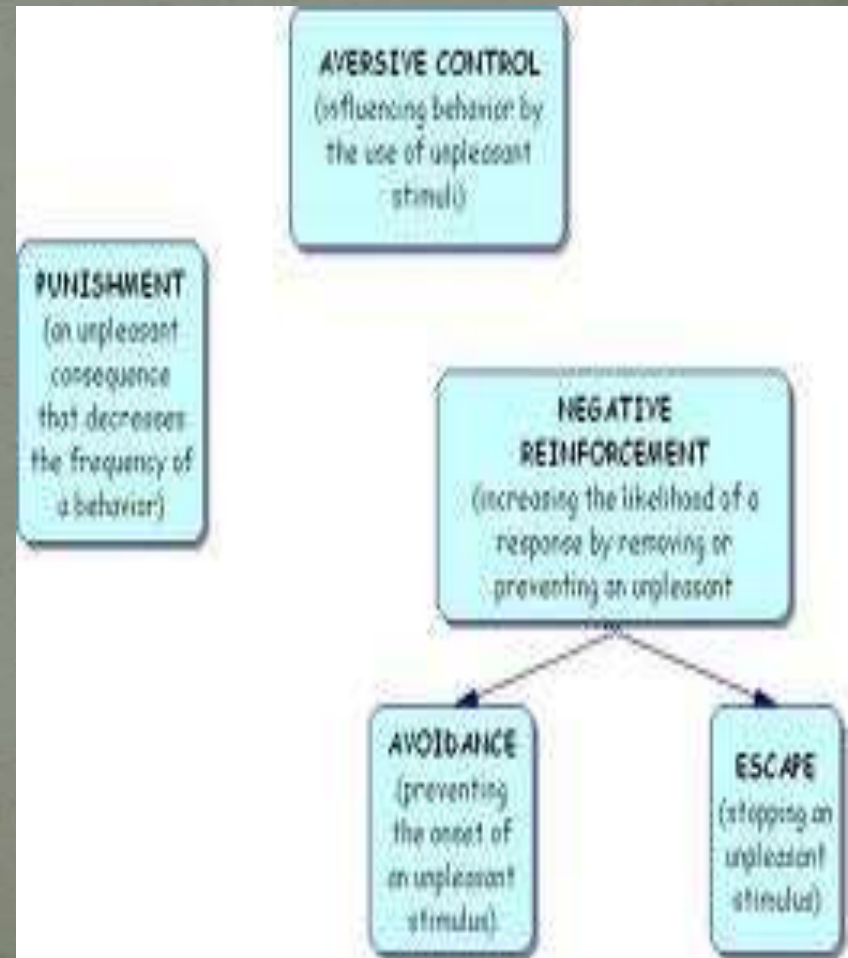


- Response chain: learned reactions that follow on another in sequence, each reaction producing the signal for the next
- Learning smaller skills to obtain a larger skill



# AVERSIVE CONTROL

- Def: process of influencing behavior by means of unpleasant stimuli
- 2 ways: negative reinforcement or punishers



# NEGATIVE REINFORCEMENT



- Def: increasing the strength of a given response by removing or preventing a painful stimulus when the response occurs
- 2 uses: escape conditioning and avoidance conditioning

# ESCAPE CONDITIONING

- Def: training of an organism to remove or terminate an unpleasant stimulus





# AVOIDANCE CONDITIONING



- Def: training of an organism to withdraw from or prevent an unpleasant stimulus before it starts

# PUNISHMENT

- Meant to decrease an undesired behavior
- Punishment may be what a child wants
- It could reinforce a need for attention



# DISADVANTAGES OF PUNISHMENT

- Could produce unwanted side effects
- Rage, aggression, fear
- People learn to avoid the person delivering the punishment
- Does not teach acceptable behavior
- Positive coaching and modeling are needed



# Operant Conditioning Formula

- 1- Ask yourself, “What is the behavior?”
- 2- Decide: “Do I want to INCREASE or DECREASE the behavior?”

INCREASE



REINFORCEMENT

DECREASE



PUNISHMENT  
(YOU ARE DONE)

# OPERANT FORMULA

- 3. If it is REINFORCEMENT, what kind is it?



## **POSITIVE**

**Present/give a reward after a desired behavior.**

## **NEGATIVE**

**Take away an unpleasant circumstance after desired behavior occurs**

# Punishment

- This is not the same as negative reinforcement.
- This is an unwanted event that when applied decreases the frequency of the behavior they follow.
  - You are removed from your sports team because of bad grades.

Most Psychologists believe that it is preferable to reward desirable behavior than punish unwanted.



# Problems with Punishment

- 1) does not teach acceptable behavior
- 2) only works when guaranteed
- 3) try to leave situation rather than change
- 4) anger and hostility created
- 5) imitated as a way to solve problems
- 6) accompanied by benefits that make behavior more likely.

# SECTION 3: SOCIAL LEARNING

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# SOCIAL LEARNING

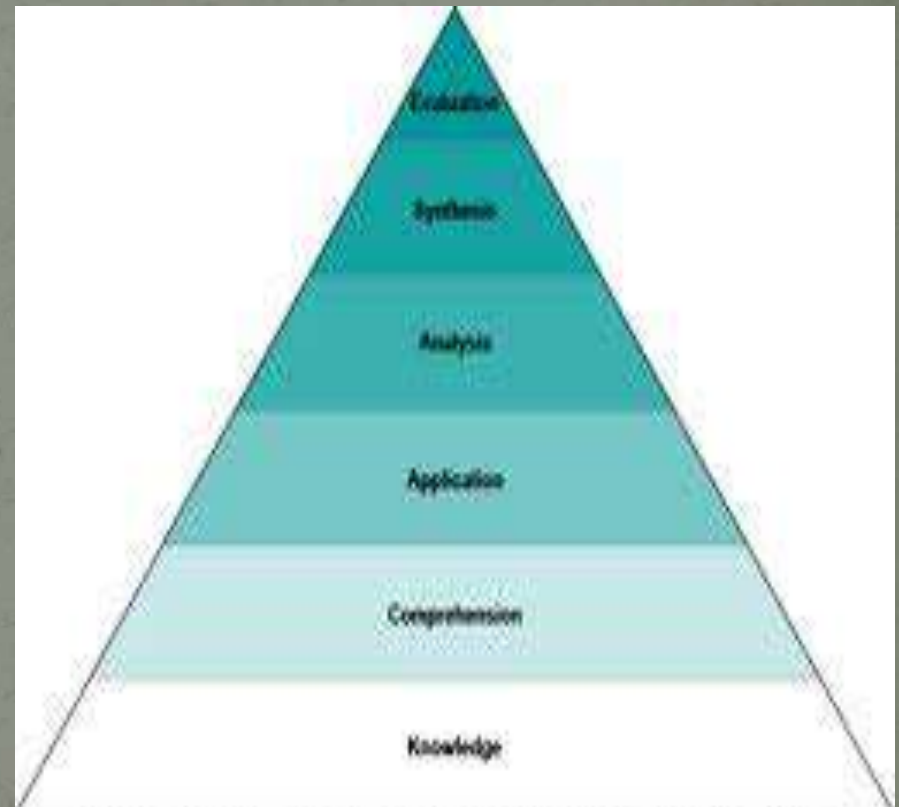


- Def: process of altering behavior by observing and imitating the behavior of others
- 2 types: cognitive learning and modeling



# COGNITIVE LEARNING

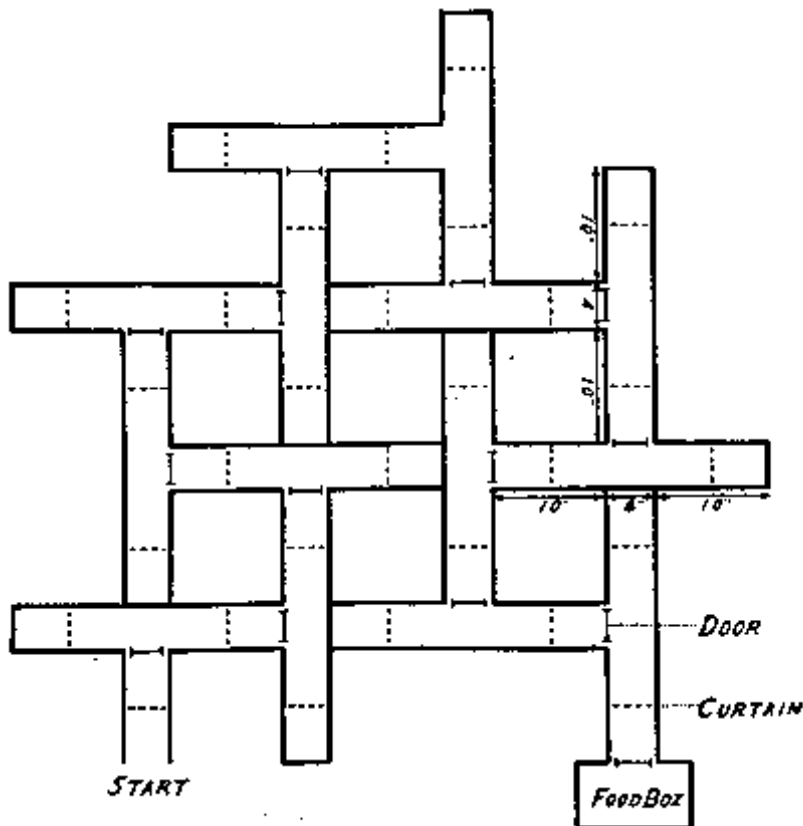
- Def: form of altering behavior that involves mental processes and may result from observation and imitation
- Ex: latent learning and learned helplessness



Bloom's Taxonomy of learning. Adapted from: Bloom, B.S. (Ed.) (1956). Taxonomy of educational objectives: The classification of educational goals. Handbook I, cognitive domain. New York ; Toronto: Longmans, Green.

# COGNITIVE MAPS

- Def: a mental picture of spatial relationships or relationships between events
- Introduced by Edward Tolman in the 1930s
- Rat maze



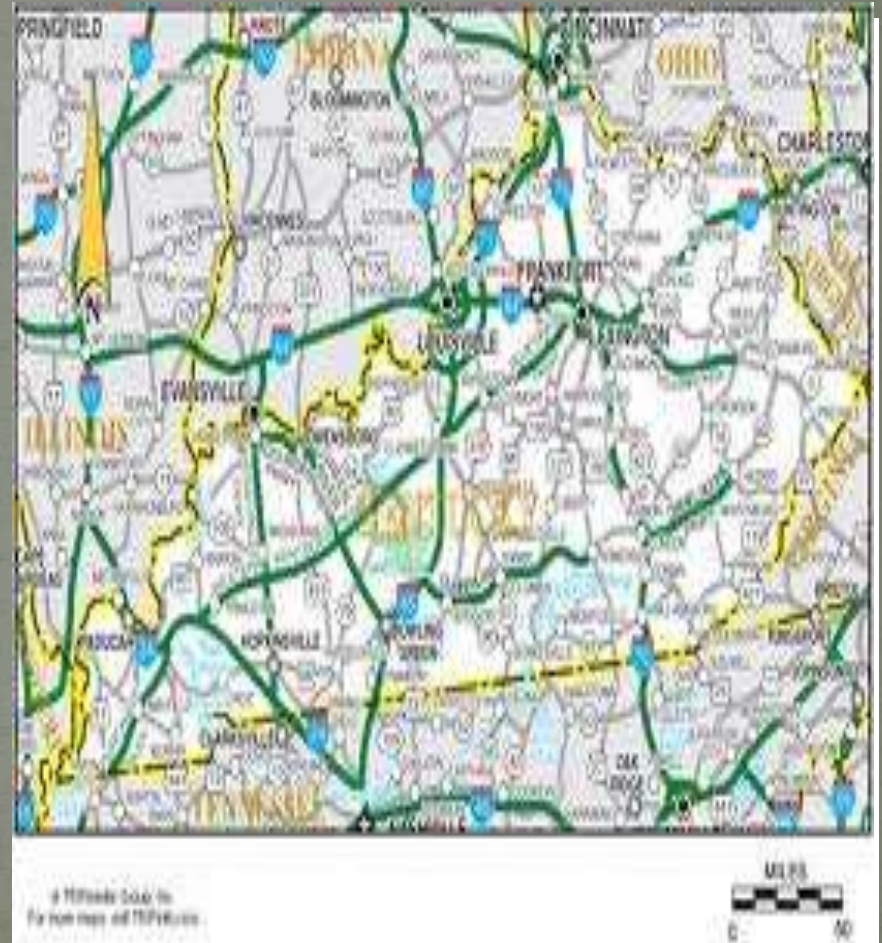
Plan of maze  
14-Unit T-Alley Maze

FIG. 1

(From M. H. Elliott, The effect of change of reward on the maze performance of rats. *Univ. Calif. Publ. Psychol.*, 1928, 4, p. 20.)

# LATENT LEARNING

- Def: alteration of a behavioral tendency that is not demonstrated by an immediate, observable change in behavior
- Occurs in the absence of a reinforcer





# LEARNED HELPLESSNESS



- Def: condition in which repeated attempts to control a situation fail, resulting in the belief that the situation is uncontrollable
- Martin Seligman believes this is a root cause of depression

# LEARNED HELPLESSNESS

- Seligman: 3 elements of LH
- 1) *Temporary vs. stable:*
- 2) *Specific vs. Global*
- 3) *External vs. Internal:*



# MODELING



- Def: learning by imitating others; copying behavior
- 3 basic types of modeling:
  - 1) behavior of others increases chances of you performing the behavior
  - 2) *Observational learning*: mimicking
  - 3) *Disinhibition*: observe someone engaged in dangerous activity without being punished, you will find it easier to engage in that behavior later

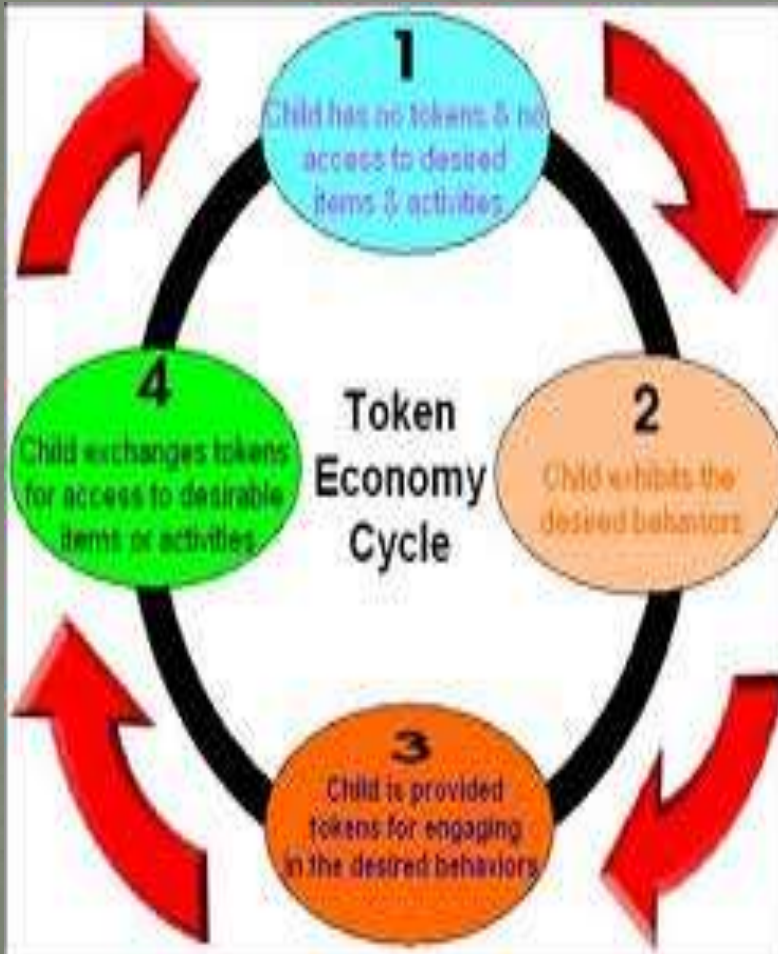


# BEHAVIOR MODIFICATION

- Def: systematic application of learning principles to change people's actions and feelings
- Use classical conditioning to overcome fears
- Modeling to teach desired behaviors
- Operant conditioning applied to everyday problems



# TOKEN ECONOMIES



- Token economy: conditioning in which desirable behavior is reinforced with valueless objects, which can be accumulated and exchanged for valued rewards

# SELF-CONTROL

- Steps:
- 1) Define the problem
- 2) Set up a behavioral contract
- 3) Honestly self-monitor



**SELF-CONTROL**

This guy is a master

VERY DEMOTIVATIONAL .JPG



# IMPROVING STUDY HABITS



- Stop when feeling distracted
- Study in new areas
- Apply all 3 major learning styles (CC, OC, SL)