Operant Conditioning

SUPA Psychology

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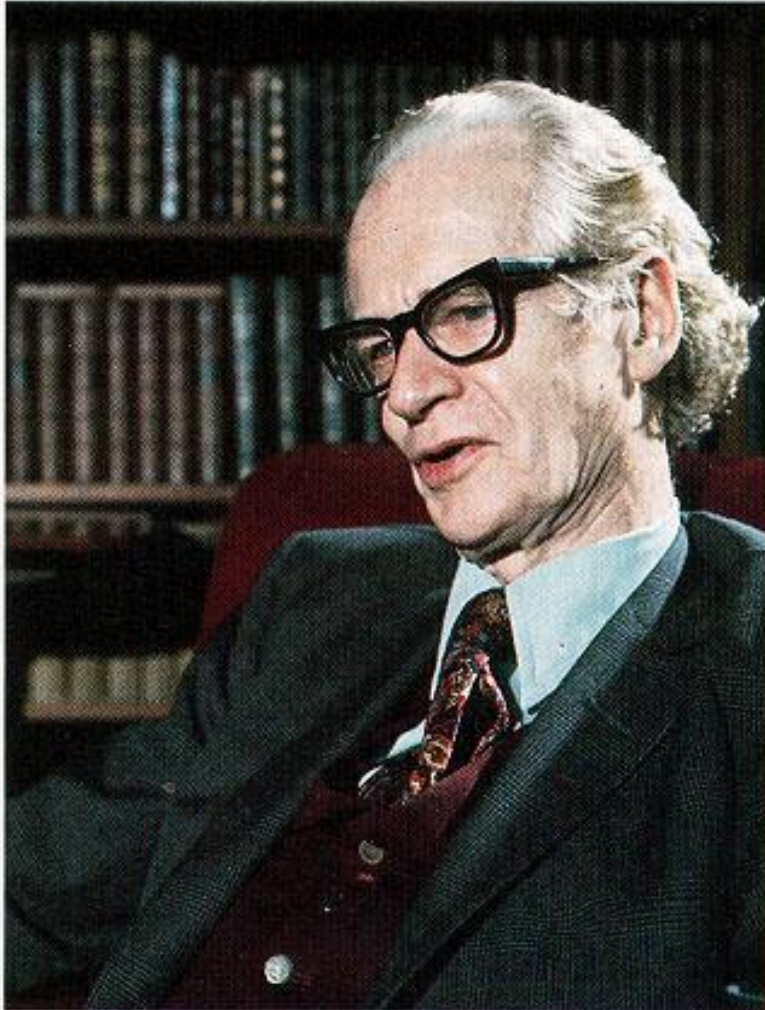# A Review of Classical Conditioning...

Two and Half Men

Thorndike's Law of Effect

- Rewarded behavior is likely to recur.

- Behavior followed by a negative consequence is less likely to recur.

    --E. L. Thorndyke

Operant Conditioning

- B.F. Skinner (1904-1990)
  - Elaborated on Thorndike's Law of Effect
  - Developed concept of Operant Conditioning:
    - learning in which behavior is strengthened if followed by reinforcement and weakened if followed by punishment

A Reinforcer Increases the Probability of the Behavior It Follows

- The fundamental principle of behaviorism is that rewarded behavior is likely to be repeated.

- This is known as **reinforcement** in operant conditioning.

- It also states the positive side of Thorndike's Law of Effect.

An Illustration...

- http://www.youtube.com/watch?v=-63ysqT5nuo&feature=related

A Reinforcer Increases the Probability of the Behavior It Follows

Positive reinforcer: increases the probability of a behavior by presenting a positive stimulus after a response

Example: study for test, earn a good grade; work, earn paycheck

Negative reinforcer: increases the probability of a behavior by removing an aversive stimulus after a response

Examples: worry about a test, study to relieve guilt; have headache, take pain reliever

A Punisher Decreases the Probability of the Behavior It Follows

- Punishment: The process by which a consequence *decreases* the probability of the behavior that it follows.

- To be effective in reducing unwanted behaviors:
  - The punishment must be prompt,
  - It must be relatively strong, and
  - It must be consistently applied.

- Alternative to punishment of undesirable behavior:
  - Allow undesirable actions to continue without either positive or negative consequences until they are extinguished.

Positive vs. Negative Consequences

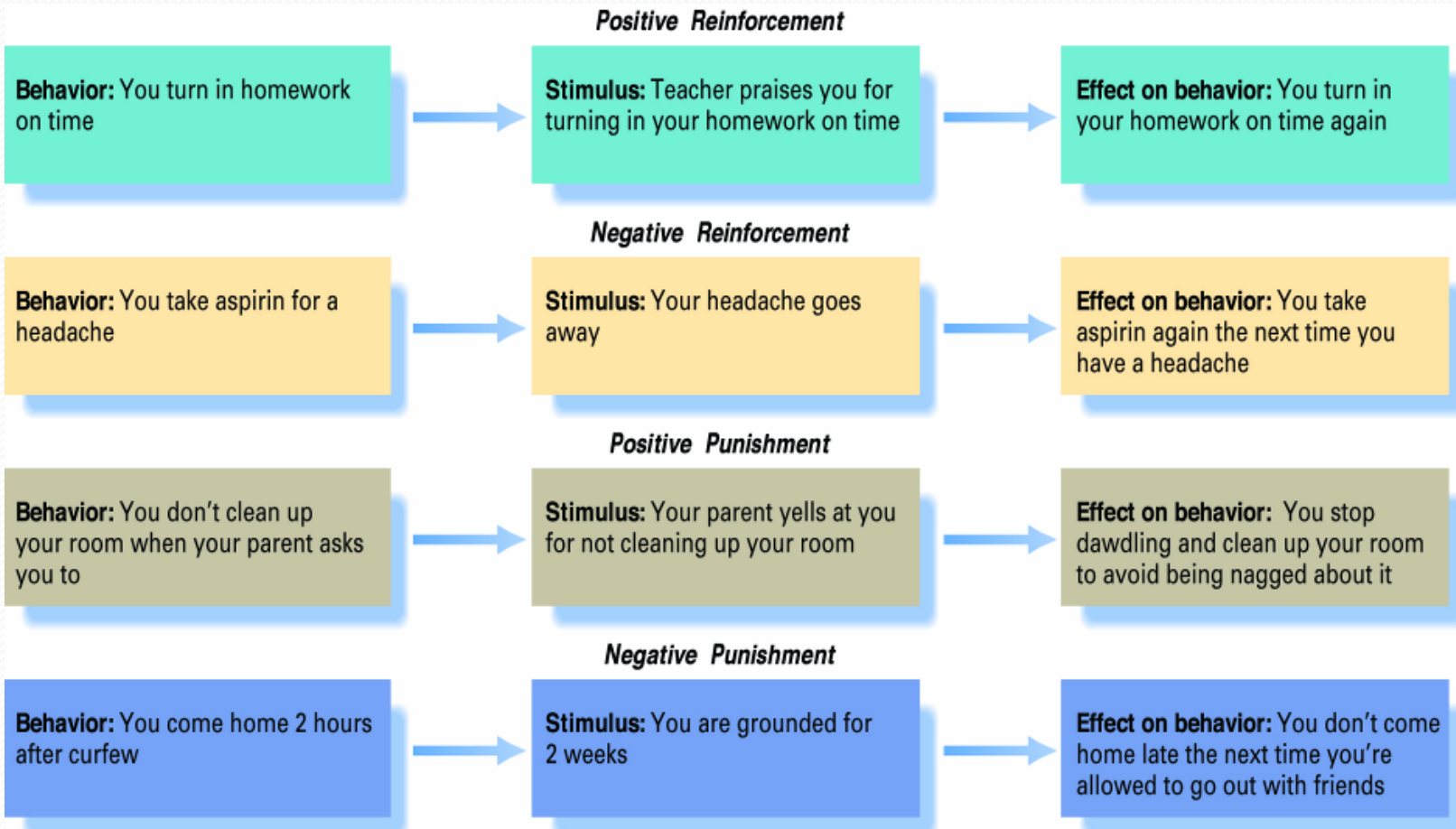|	Add or Subtract Stimuli	
	Add (+)	or Subtract (-)
Reinforcer (Strengthens)	Money	Waive Chores
Punisher (Weakens)	Spanking	Time Out/Grounding

Positive and Negative Reinforcement, Positive and Negative Punishment

Positive Reinforcement

Behavior: You turn in homework on time → **Stimulus:** Teacher praises you for turning in your homework on time → **Effect on behavior:** You turn in your homework on time again

Negative Reinforcement

Behavior: You take aspirin for a headache → **Stimulus:** Your headache goes away → **Effect on behavior:** You take aspirin again the next time you have a headache

Positive Punishment

Behavior: You don't clean up your room when your parent asks you to → **Stimulus:** Your parent yells at you for not cleaning up your room → **Effect on behavior:** You stop dawdling and clean up your room to avoid being nagged about it

Negative Punishment

Behavior: You come home 2 hours after curfew → **Stimulus:** You are grounded for 2 weeks → **Effect on behavior:** You don't come home late the next time you're allowed to go out with friends

Shaping Reinforces Closer Approximations to Desired Behavior

- Shaping (or the *method of successive approximations*): teaching a new behavior by reinforcing closer and closer approximations to the desired behavior
- http://www.youtube.com/watch?v=k2QMnNcDd5k
- Shaping Activity (if time)

Different Reinforcement Schedules Lead to Different Learning and Performance Rates

- Continuous reinforcement leads to the fastest learning.

- The biggest problem with continuous reinforcement is that when it ends, extinction occurs rapidly.

- Partial reinforcement has an important effect on your continued performance because being reinforced only once in a while keeps you responding vigorously for longer periods of time than does continuous reinforcement.

Different Reinforcement Schedules Lead to Different Learning and Performance Rates

- Fixed-interval schedules: reinforce the first response after a fixed-time interval has elapsed

- Fixed-ratio schedules: reinforce a response after a specified number of nonreinforced responses

- Variable-interval schedules: reinforce the first response after a variable-time interval has elapsed

- Variable-ratio schedules: reinforce a response after a variable number of nonreinforced responses

Schedules of Reinforcement
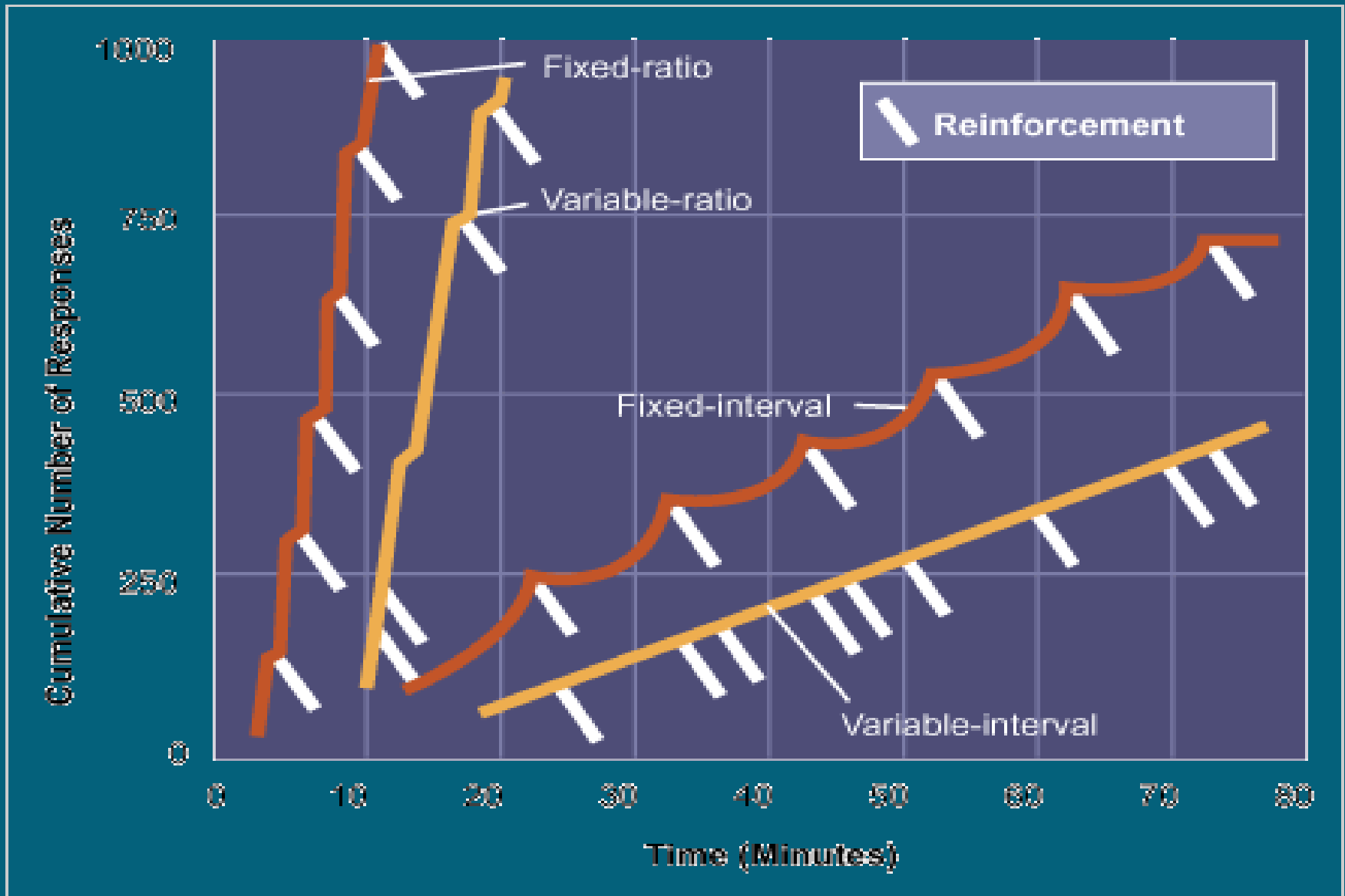
Accidental Reinforcement Can Cause Superstitious Behavior

- <u>Superstitions Video #1</u>
- Superstitious behavior: learned because it happened to be followed by a reinforcer, even though this behavior was not the cause of the reinforcer.

- Skinner trained superstitious behavior in hungry pigeons.
  - He reasoned that when reinforcement occurred, it would be paired with whatever response the pigeons had just performed.

  - Instances of accidental reinforcement triggering superstitious behavior is common among people.
- <u>Superstitions Video</u> #2

Criticisms of Operant Conditioning Theory: Overlooks Cognitive Processes

- Latent learning: learning that occurs without apparent reinforcement and is not demonstrated until sufficient reinforcement is provided.

- Learning can occur without any reinforcement, something that the theory of operant conditioning assumed was not possible.

- Learned helplessness: the passive resignation produced by repeated exposure to aversive events that cannot be avoided.

Applications of Operant Conditioning

- Structure and feedback in learning – immediate reinforcement

- Defined performance goals and immediate reinforcement at work

- Parenting – reward good behavior, ignore whining, time-out

Observational Learning

Learning by observing and imitating the behavior of others

- The others whom we observe and imitate are called *models*.

- Observational learning helps children learn how to behave in their families and in their cultures without requiring direct experience.

Social Learning Theory:
Albert Bandura

- Social learning theory says that people learn social behaviors mainly through observation and cognitive processing of information, rather than through direct experience.

- Learning the consequences of an action by observing its consequences for someone else is known as **_vicarious conditioning._**

Children Can Learn Aggressive Behavior through Observation

- Bobo doll studies: the first set of experiments demonstrating the power of observational learning in eliciting aggression.

- Research demonstrates that children are less likely to imitate the actions of punished aggressors.

Children Can Learn Aggressive Behavior through Observation

- Bandura believes children observe and learn aggression through many avenues, but the three principal ones are:

  - Families: where adults use violence

  - Communities: where aggression is considered to be a sign of manhood, especially among males

  - Media: principally television and the movies

Children Can Learn Aggressive Behavior through Observation

Research indicates that aggressive behavior in children is significantly reduced when they spend less time watching violent television shows and playing violent video games.