The background features a light gray gradient with several realistic water droplets of various sizes scattered across the top and bottom edges. In the center, a large, horizontal purple oval with a slight gradient and a soft shadow contains the text.

# **Unit 4 : Theory of Learning**

- 1. Classical Conditioning Learning Theory**
- 2. Operant Conditioning Learning Theory**
- 3. Thorndike Connected Theory**
- 4. Insight Learning Theory**
- 5. Social Learning Theory**



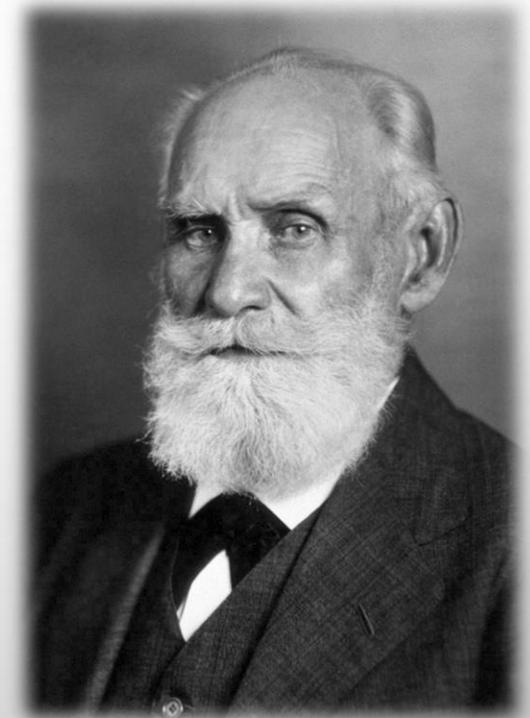
# Classical Conditioning Theory

By Ivan Pavlov

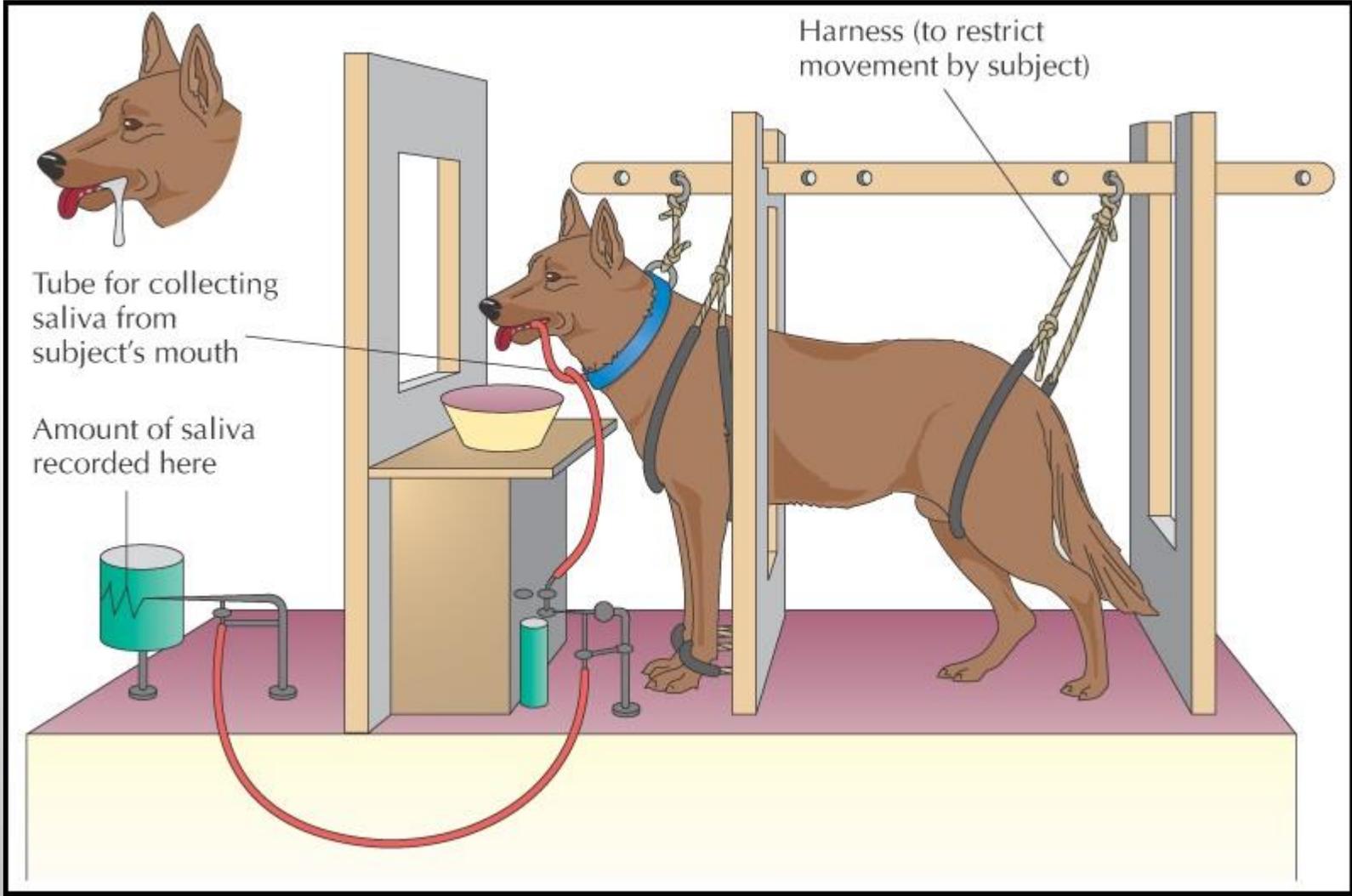


## What Is Classical Conditioning Theory?

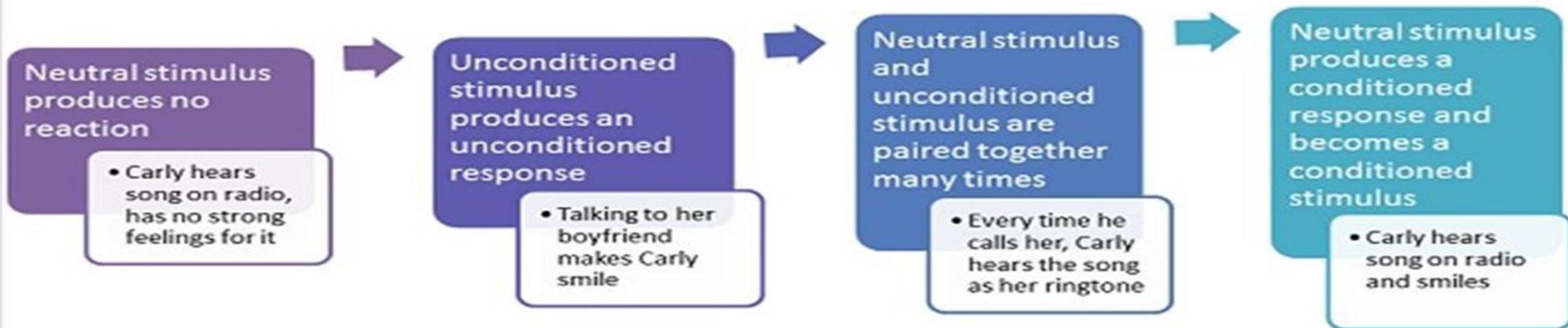
Classical conditioning theory states that behaviors are learned by connecting a neutral stimulus with a positive one, such as Pavlov's dogs hearing a bell (neutral) and expecting food (positive). The learned behavior is called a conditioned response. Normal processes, like salivating when you smell food, is what's called an unconditioned response.



Ivan Pavlov



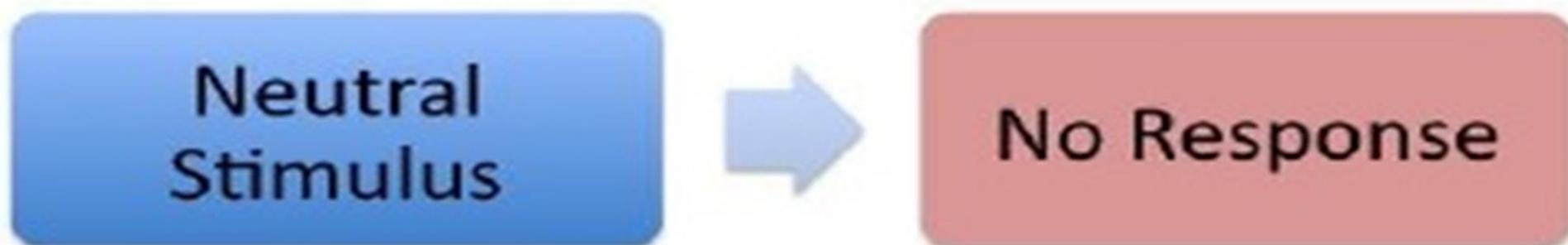
# Classical Conditioning: The Process



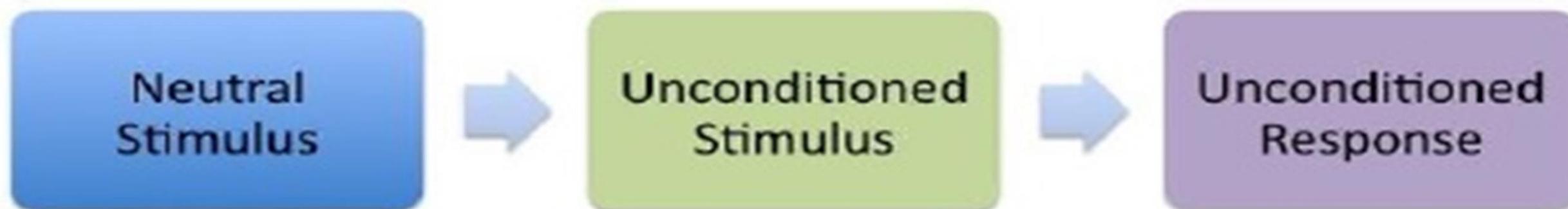
- **Neutral stimulus**
- **Unconditioned stimulus (US)**
- **Unconditioned response (UR)**
- **Conditioned stimulus (CS)**
- **Conditioned response (CR)**

# Classical Conditioning

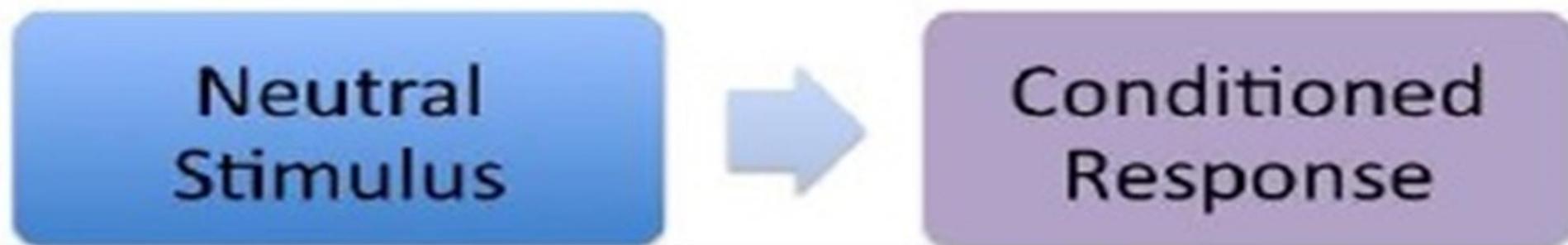
**Before Conditioning**



**During Conditioning**



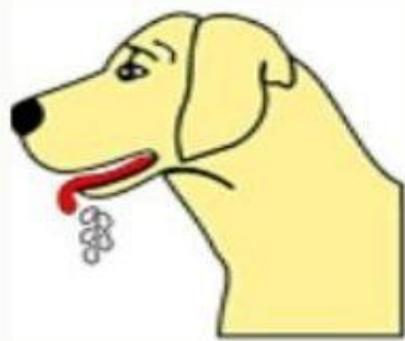
**After Conditioning**



# Before Conditioning



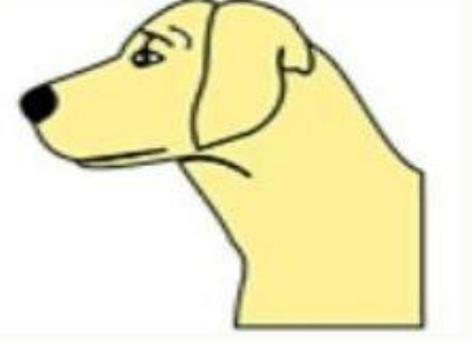
Unconditioned Stimulus



Unconditioned Response (Salivation)



Neutral Stimulus



No Response

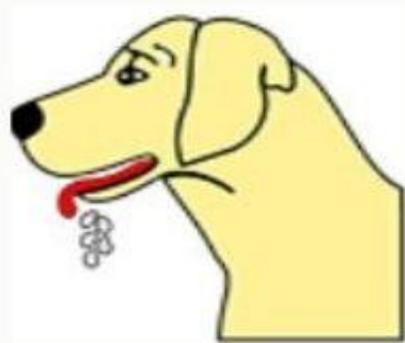
## During Conditioning



+



Conditioned Stimulus



Unconditioned Response

## After Conditioning



Conditioned Stimulus



Conditioned Response

## Classical Conditioning Example

US - warm and nurturing teacher

UR - students feel connected

CS - going to school

CR - students feel good going to school



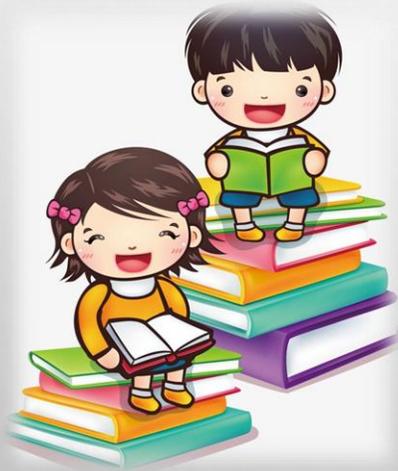
# Operant Conditioning Learning Theory

by B.F. Skinner



## What Is Operant Conditioning?

- ❖ Actions that are followed by reinforcement will be strengthened and more likely to occur again in the future.
- ❖ Operant conditioning is a method of learning that occurs through rewards and punishments for behavior. Through operant conditioning, an association is made between a behavior and a consequence for that behavior.
- ❖ It is sometimes referred as instrumental conditioning.



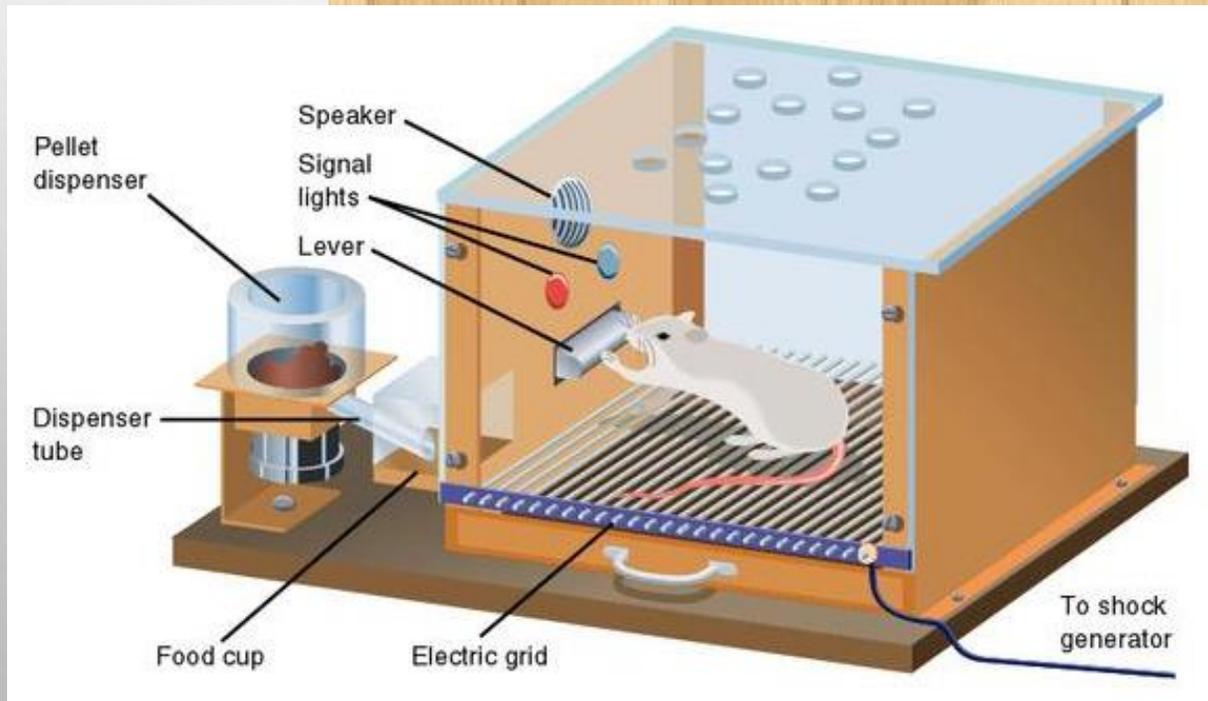
- three-phase model of operant conditioning as informed by B.F. Skinner: positive and negative reinforcement, response cost, punishment and schedules of reinforcement
- applications of operant conditioning: shaping, token economies
- comparisons of classical and operant conditioning in terms of the processes of acquisition, extinction, stimulus generalisation, stimulus discrimination, spontaneous recovery, role of learner, timing of stimulus and response, and nature of response (reflexive/voluntary)

**= A form of learning for which the likelihood of a particular response occurring is determined by the consequences of that response.**

**A response that has a desirable consequence will tend to be repeated and a response that has an undesirable consequence will tend not to be repeated.**

# The Skinner Box

Skinner's operant conditioning chamber (also called a Skinner Box) was designed to teach rats how to push a lever. This behavior is not natural to rats, so operant conditioning with positive and negative reinforcement were performed in order to teach the behavior.



*Positive Reinforcement:*  
A rat was awarded with food when he pressed the lever.

*Negative Reinforcement:*  
A rat was able to turn off electric shocks produced by the floor by pressing the lever.

# Operant Conditioning

## Reinforcement

Positive  
(stimulus presented)  
+

Behavior  
increases

Negative  
(stimulus removed)  
-

Behavior  
increases

## Punishment

Positive  
(stimulus presented)  
+

Behavior  
decreases

Negative  
(stimulus removed)  
-

Behavior  
decreases

**Positive**  
Applies Stimulus

**Negative**  
Removes Stimulus



**Reinforcement**  
Increases the  
frequency of  
desirable  
behavior



**Positive**  
Reinforcement

**Negative**  
Reinforcement

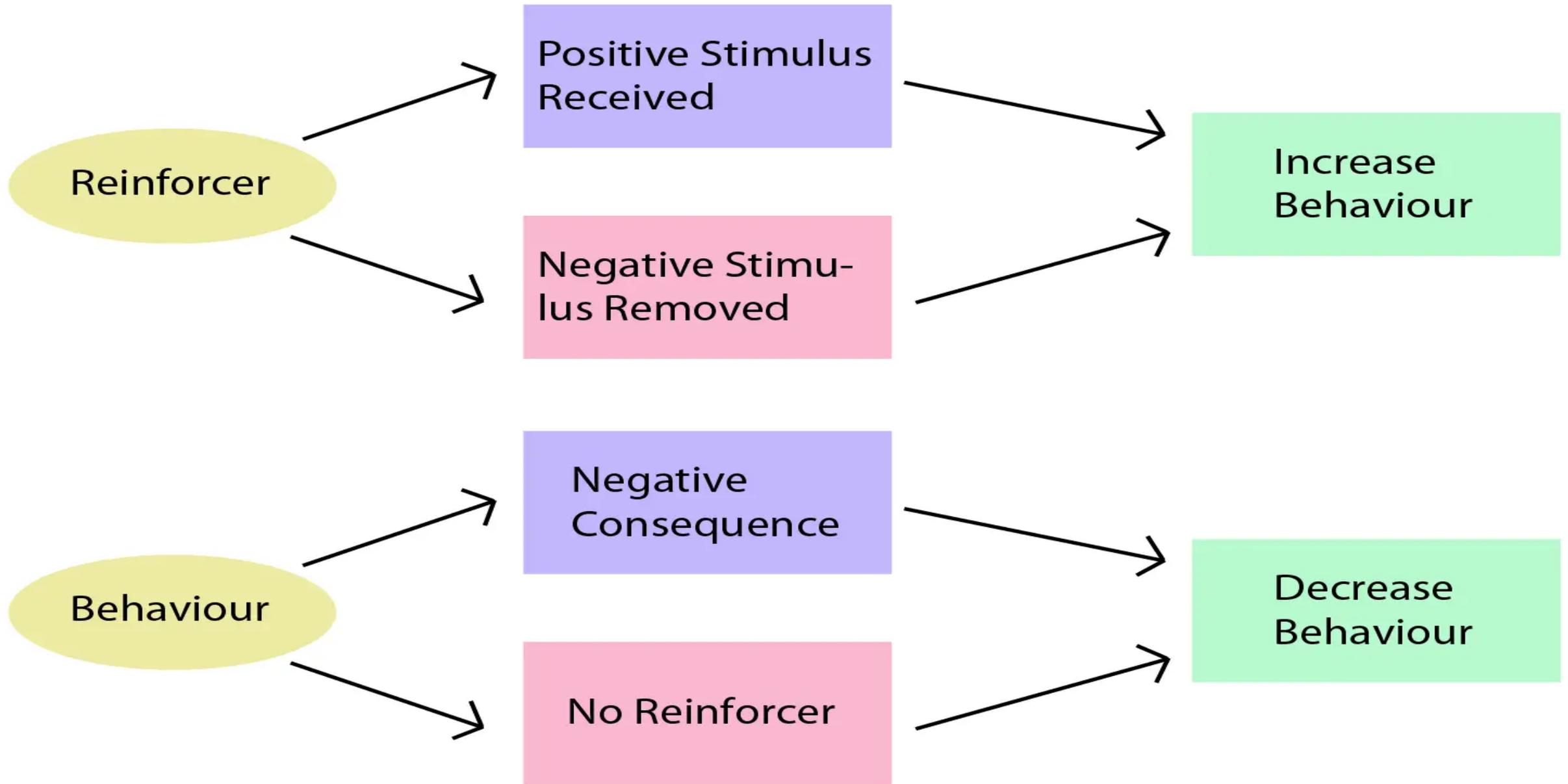
**Punishment**  
Decreases the  
frequency of  
undesirable  
behavior



**Positive**  
Punishment

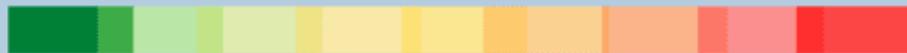
**Negative**  
Punishment

# Types of Operant Conditioning



# Schedules of Reinforcement

HIGH  
response  
rate



LOW  
response  
rate



Schedule	Description	Result	Example
Continuous reinforcement	Reinforcement is delivered for every occurrence of the behavior	HIGHEST rate of responding	Vending machines
Variable ratio	Reinforcement is delivered after an unpredicted # of responses	HIGH and steady response rate	Gambling
Fixed ratio	Reinforcement is delivered after a predicted # of responses	HIGH response Rate with pauses after reinforcement	After collecting 5 tokens, a door opens on a video game
Variable interval	Reinforcement is delivered after unpredictable time intervals	Moderate and steady response rate	Checking social media
Fixed interval	Reinforcement is delivered after predictable time intervals	Significant pauses after reinforcement delivered	Studying for finals

# Thorndike Connected Theory

By Edward L. Thorndike



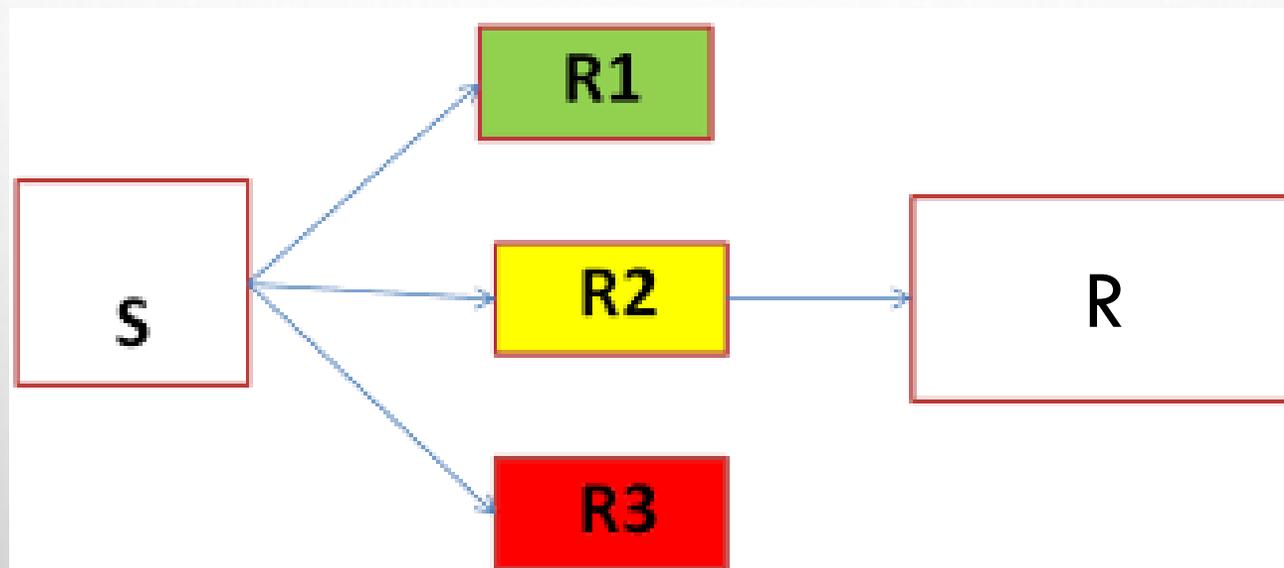
- Edward Thorndike in 1910 introduces his famous set of principles, known as **Thorndike's Laws**. According to these Laws, learning is achieved when an individual is able to form associations between a particular stimulus and a response. These associations are known as "habits", and can either be encouraged or deterred by external parameters and the frequency an individual is exposed to the stimulus and the response.



## Thorndike's "Puzzle Box"

- Classic Example of S-R theory (Stimulus and Response theory).
- The lever acts as the stimulus.
- The response is the door being opened from the lever.





## The Law of Learning

### Law of Effect

- Emotional reaction of the learner
- Positive outcomes = repeat behaviour

### Law of exercise

- Encourage repetition to acquire skills
- Practice makes perfect

### Law of readiness

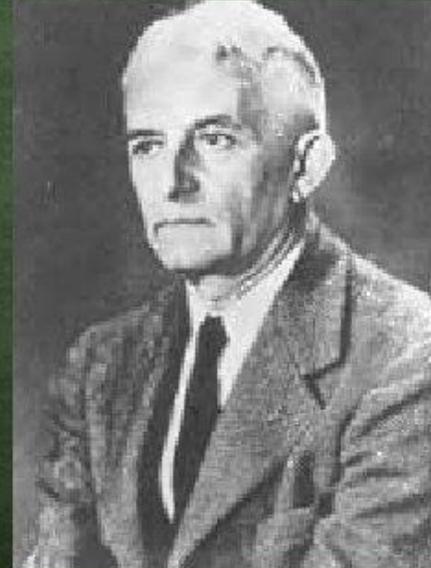
- Physical, mental and emotional state of the learner
- Cold room = negative learning experience



# INSIGHT LEARNING THEORY

## WOLFGANG KÖHLER (1887–1967)

- Most prolific promoter of the Gestalt movement
- Books became the standard works of Gestalt psychology
- Suggested that Gestalt theory was a general law of nature that should be extended to all the sciences
  - Spent seven years studying the behavior of chimpanzees



## **What Is Insight Learning**

**Insight learning is a process that leads to a sudden realization regarding a problem. Often, the learner has tried to understand the problem, but steps away before the change in perception occurs. Insight learning is often compared to trial-and-error learning, but it's slightly different.**

**Rather than just trying different random solutions, insight learning requires more comprehension. Learners aim to understand the relationships between the pieces of the puzzle. They use patterns, organization, and past knowledge to solve the problem at hand.**

Such insight may reasonably be inferred to be demonstrated by one of Kohler's apes deliberately piling up boxes to get at out-of-reach bananas

## Köhler's chimps 1



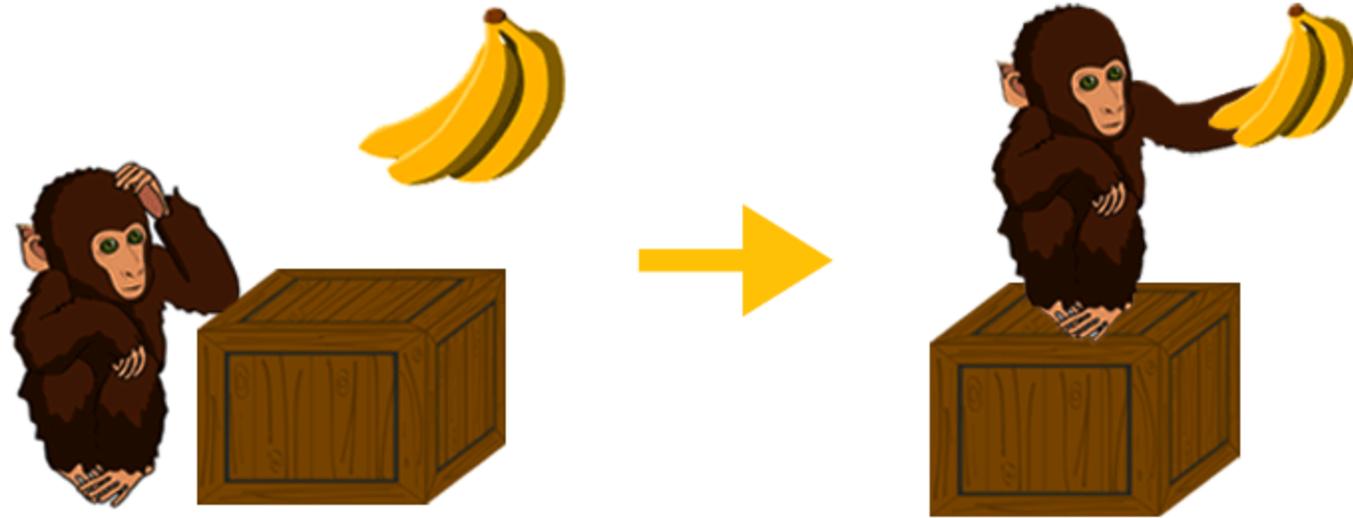
# Insight Learning

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- Insight learning
  - solve complex problems by combining simpler, previously learned responses
  - Problem-solving occurs through sudden reorganization of perceptions
- Placed bananas higher up – neither previously learned solutions sufficient to get the fruit



The ability to solve problems  
using past experiences,  
also called reasoning



insight learning

GameSmartz

# **Social Learning Theory**

**By Albert Bandura**

# ALBERT BANDURA



- Born on December 4, 1925
- Canadian, American
- Studied at University of British Columbia and University of Iowa.
- Researched and taught at Stanford University
- Elected president of American Psychological Association in 1974
- Famous for research on social learning theories.

“..most learning is gained by people’s perception and thinking about what they experience. They learn by copying the examples of others around them.”

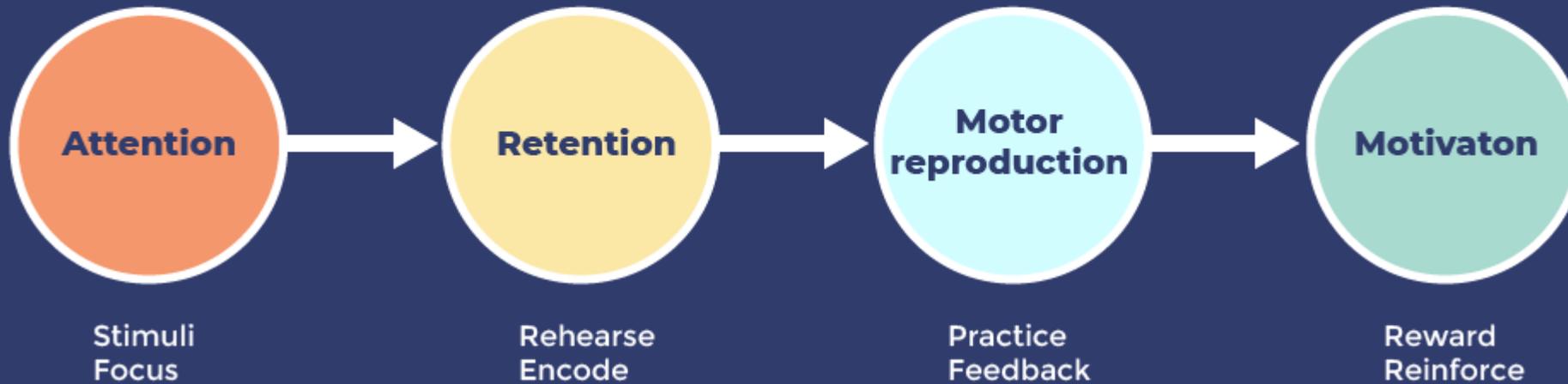
- Albert Bandura



**Social learning theory, proposed by Albert Bandura, emphasizes the importance of observing, modelling, and imitating the behaviors, attitudes, and emotional reactions of others. Social learning theory considers how both environmental and cognitive factors interact to influence human learning and behavior.**



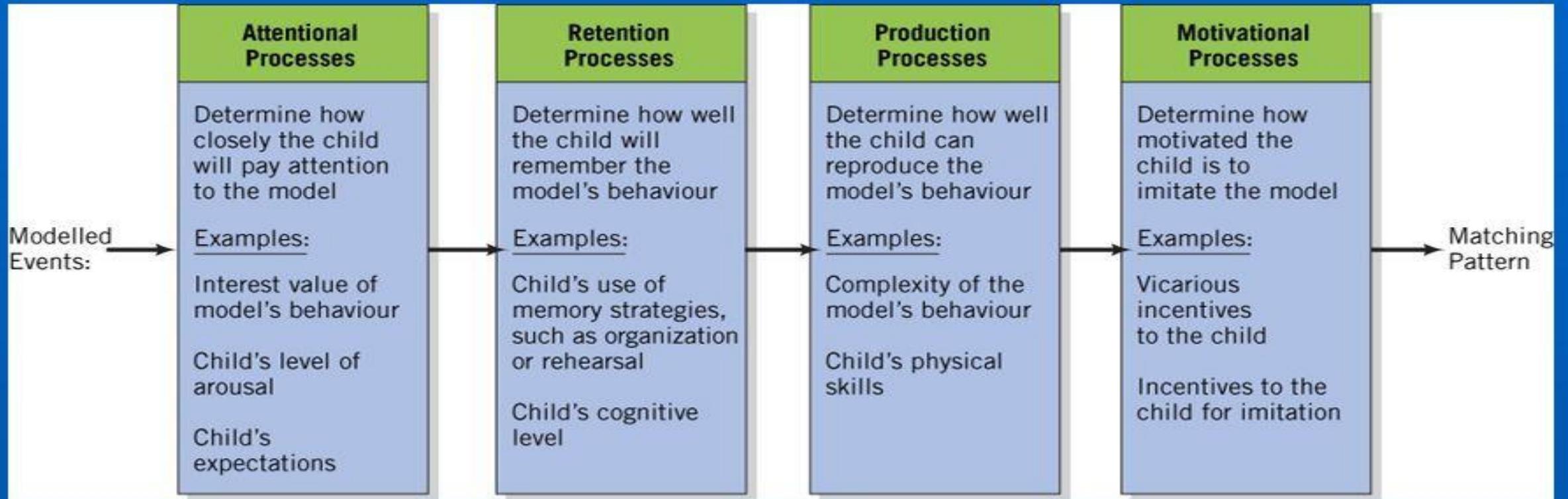
# Social Learning Theory



gerardfriel.com

# Social-Learning Theory

## Bandura's Theory of Observational Learning



**Figure 1.2** Bandura's model of observational learning. Adapted from Albert Bandura, *Social Learning Theory*, © 1977, p. 23. Reprinted by permission of Prentice-Hall, Inc., Upper Saddle River, New Jersey.

# What Is Social Learning Theory?

## A Behaviorist + Cognitive Hybrid Model

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### Observation

A stimulus is given attention and/or observed. This can be in real-time, reflection, predictive, or imagined.

### Internalization

Initial meaning is created in the mind of the observer.

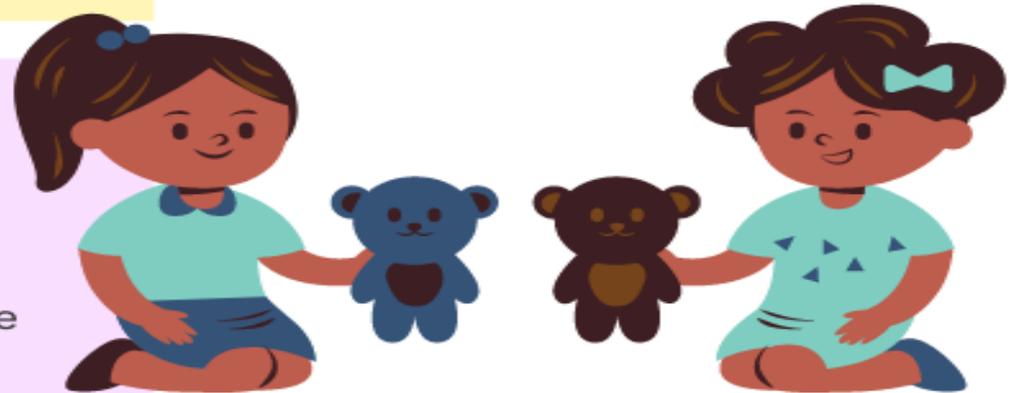
**Definition: Social learning theory is a behavioral theory that posits that new behaviors can be learned by observing and imitating others.**

### Imitation

Some form of imitation of that behavior--in part or its entirety--occurs. This reproduction deepens internalization and elicits evaluation by imitator.

### Feedback

Feedback loop: ongoing motivation is decided by reflection and perceived relative 'success' (e.g., the effects) of the behavior.



*Thank  
you !*