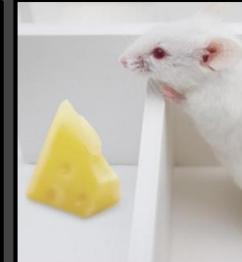
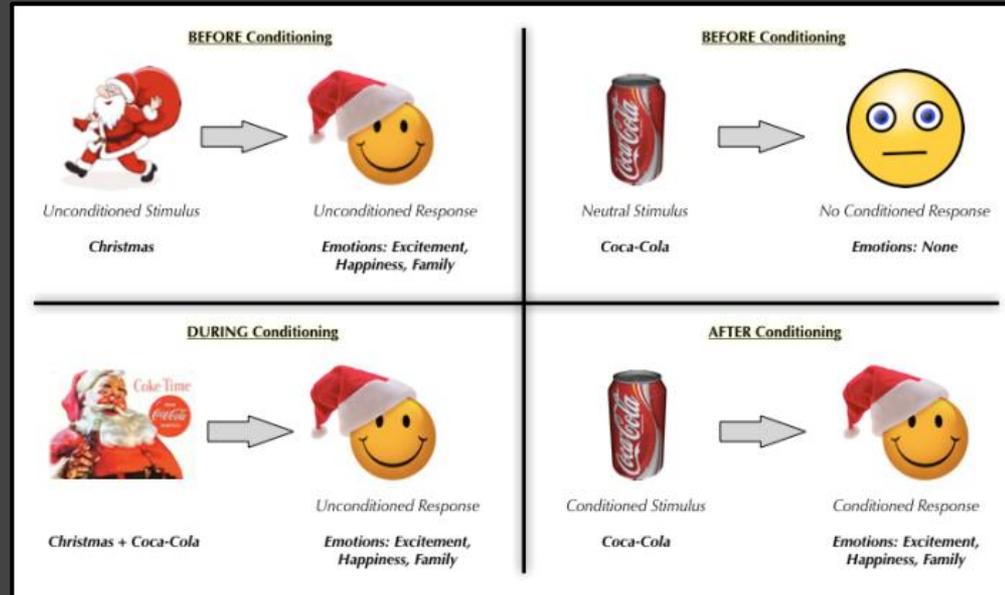
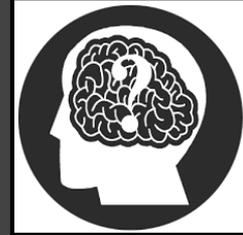
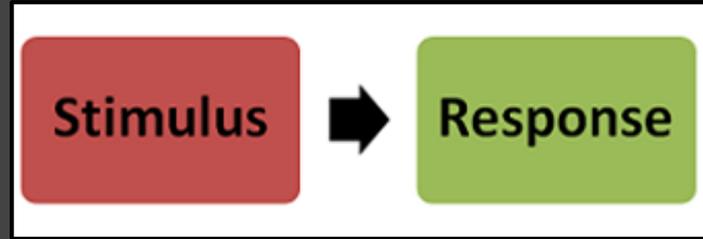


AP Psychology
Unit VI: Learning
Biological, Latent, Cognitive, & Observational Learning



Relatively recent recognition that: **An organism's biological heritage can limit or channel conditioning.**

Findings in recent decades have demonstrated that there are limits to the generality of conditioning principles imposed by an organism's biological heritage.



Conditioned Taste Aversion

Can be readily acquired even when a lengthy delay occurs between the CS & US.

Findings on conditioned taste aversion suggest **evolution** may have programmed some organisms to learn certain types of associations more easily than others.

Biological Objective: We do not want to die of food poisoning. Pass on genes.

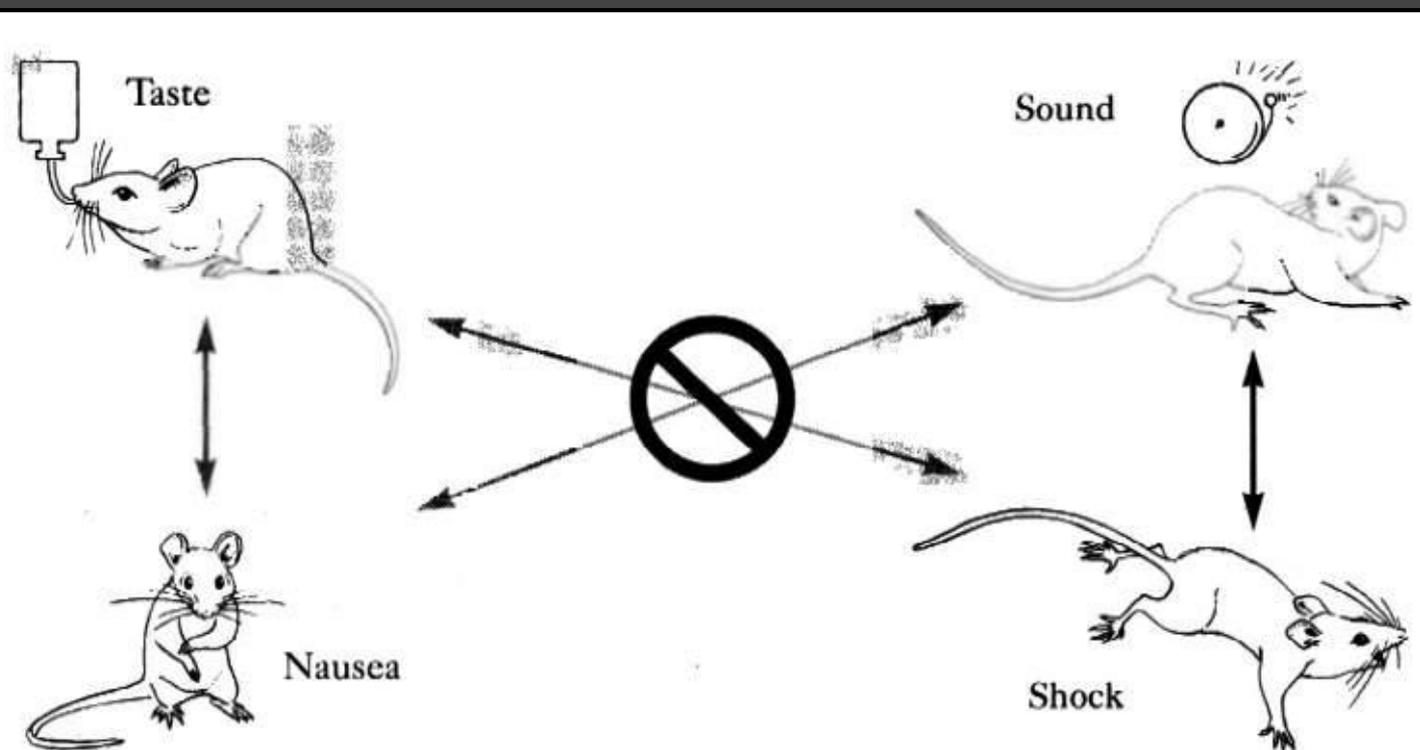
CTA: Can be STRONG & RAPID.





John Garcia

"Taste aversions do not fit comfortably within the present framework of classical or instrumental conditioning: These aversions selectively seek flavors to the exclusion of other stimuli. Interstimulus intervals are a thousandfold too long."



23 Biases in taste aversion learning. Although white rats can easily learn that certain taste cues will be followed by sensations of nausea and that certain sounds will be followed by skin pain caused by shock, they have great difficulty forming learned associations between taste and consequent skin pain or between sound and subsequent nausea. *Source: Garcia et al. [423].*

Taste aversion does not require cognitive awareness to develop.

Subject does not have to consciously recognize a connection between perceived cause (taste) & effect (negative feeling).

In fact, the subject may hope to enjoy the substance, but **the body handles it reflexively.**

Conditioned taste aversion illustrates the argument that in classical conditioning, a response is elicited.



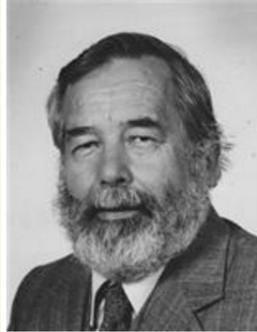
Also, taste aversion generally only requires 1 trial.

Experiments of Ivan Pavlov required several pairings of the NS with the UCS before the NS elicited a response.

With taste aversion, after 1 association between sickness & a certain food, the food may thereafter elicit the response.

The tendency to blame food for illness, even if the food had nothing to do with the illness, is called the Garcia Effect.

JOHN GARCIA(1917 - 2012)



Dr. John Garcia, of La Conner, led the great American life. He was a first generation American, the son of Spanish immigrants: Sara Casasnovas y Unamuno and Benigno Garcia y Rodriguez.

John was born a farm worker June 12, 1917 near Santa Rosa, California, and died a world-renowned member of the National Academy of Sciences, October 12, 2012. Along the way he was a farmer, a cartoonist, a ship fitter, an Air Corps Cadet, an amateur boxer, a high school teacher and a college professor, as well as a research scientist at Harvard Medical School and the Brain Research Institute at UCLA. During World War II he built submarines for the US Navy, and then enlisted in the Army Air Corps.

In 1943, he married the love of his life, Dorothy Inez Robertson. They were married 69 years, living the last 28 years in Skagit County, first on Pleasant Ridge, then 9 years in La Conner.

After the war, John used the G.I. Bill to go to UC Berkeley where he did radiation and brain research. Early on, he discovered that rats could detect and avoid low doses of radiation, lower than a dental x-ray. This led to sharp scientific battles with B.F. Skinner's Behaviorist Psychology and pro-nuclear members of the military industrial complex; a fight he eventually won. When sheep started dying en masse downwind from the nuclear test sites, it was members of his lab that identified the cause as radiation poisoning. He flew to Vienna with JFK to meet with the Russians; he testified before congress along with Dr. Martin Luther King Jr.

Through all this, he always thought of himself as a farm boy bringing real animals and real people into the cloistered world of academic debate; taking on not only the nuclear and scientific establishment, but also the IQ and SAT testers, and the bureaucratic inertia of the Environmental Protection Agency. He always insisted that science must conform to the real world, and the lives of ordinary people. His later work showed how taste aversion could be used to train wolves and coyotes, in the wild, not to prey on livestock. The "Garcia Theory" (of taste aversion) is named for him.

Intro to Psych Vid on YouTube: Taste Aversion

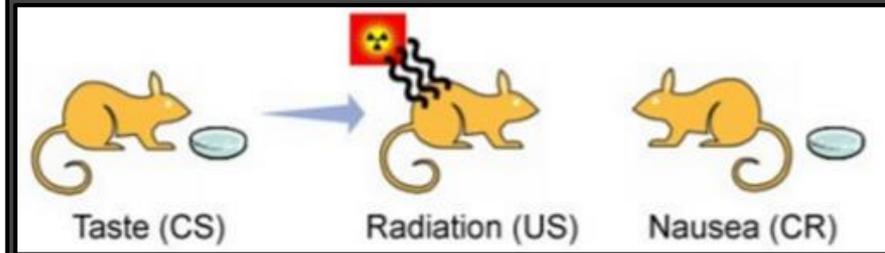
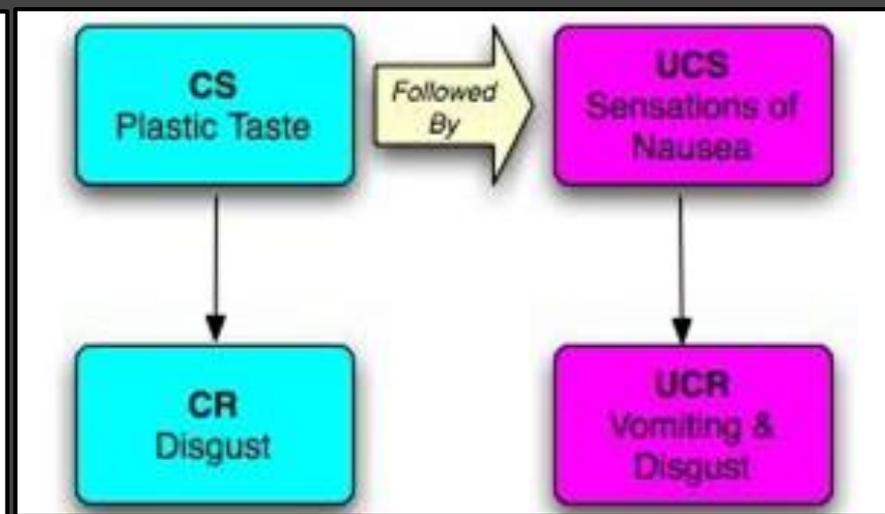


In addition, lab experiments generally require **very brief** (less than a second) intervals between NS & UCS.

With **taste aversion**, however, the hotdog a person eats at lunch may be associated with the vomiting that person has in the evening.

If the flavor has been encountered before the subject becomes ill, the effect will not be as strong or will not be present.

This quality is called latent inhibition.



John Garcia's lab experiment with rats & taste aversion.

Latent learning is a form of **learning** that is not immediately expressed in an overt response. It occurs without any obvious reinforcement of the behavior or associations that are learned.

Conditioned taste aversion: used in laboratories to study gustation & learning in rats.

Aversions can also be developed to odors as well as to tastes.

Concept of Biological Preparedness:

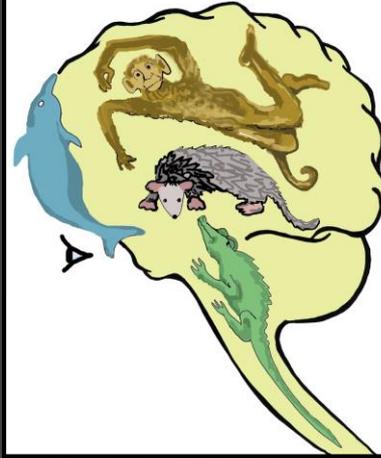
Organisms are biologically predisposed to create certain associations between certain stimuli. These associations are frequently essential for survival, so it is no wonder they form easily.

gus·ta·tion

/gəˈstāSHən/

noun formal

the action or faculty of tasting.

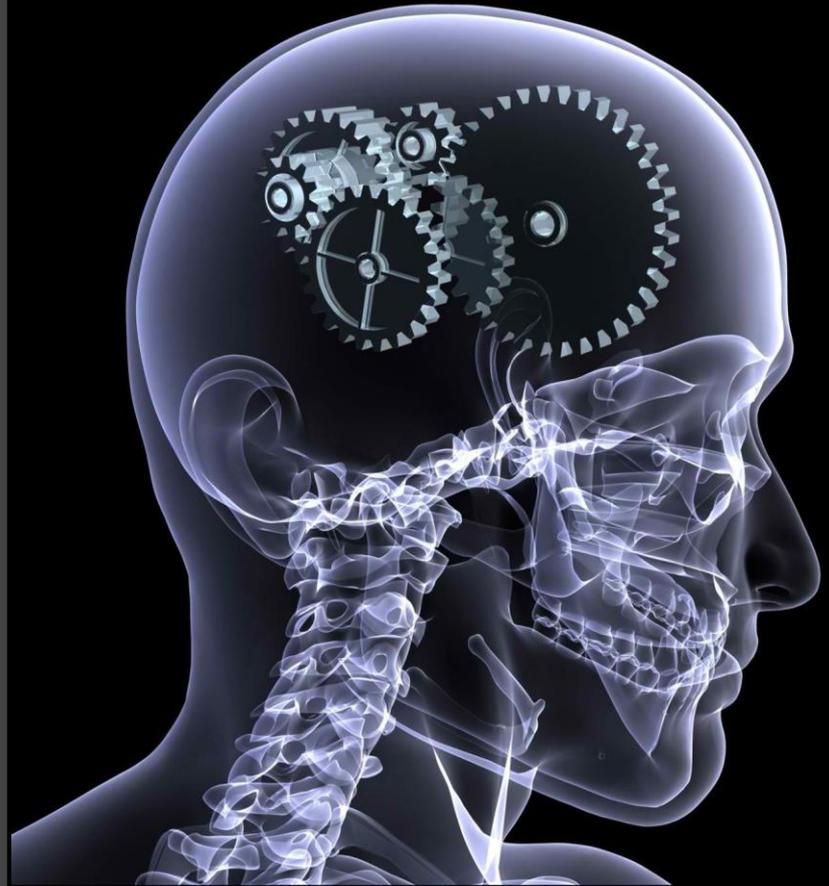


Recognizing

Latent Learning: Form of learning that is not apparent from behavior when it first occurs.

Not immediately expressed in an overt response

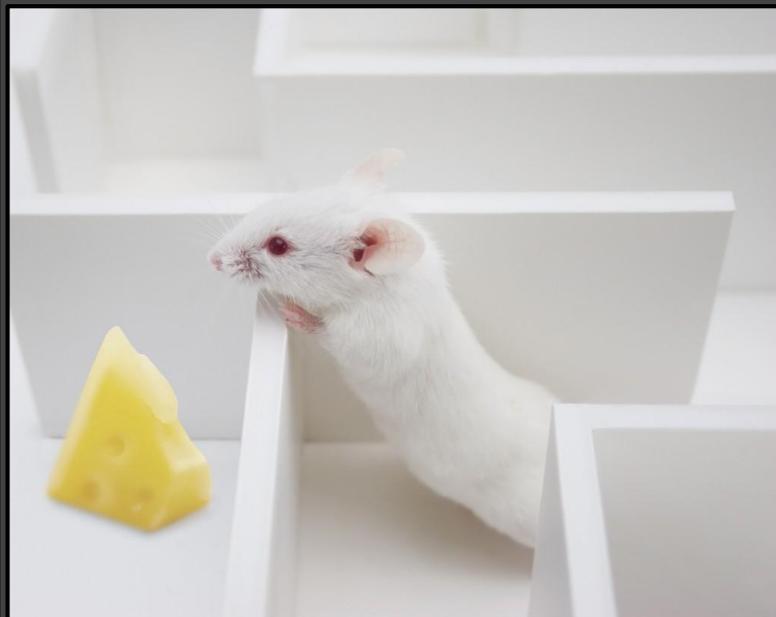
It occurs without any obvious reinforcement of the behavior or associations that are learned.



Classic study by Edward C. Tolman, 3 groups of rats were placed in mazes & their behavior observed each day for more than 2 weeks.

- ★ *Group 1 always found food at the end of the maze; quickly learning*
- ★ *Group 2 never found food, wandered in the maze but did not preferentially go to the end*
- ★ *Group 3 found no food for 10 days, but then received food on the 11th day. Then they quickly learned to run to the end of the day & did as well as Group 1 on the next day.*

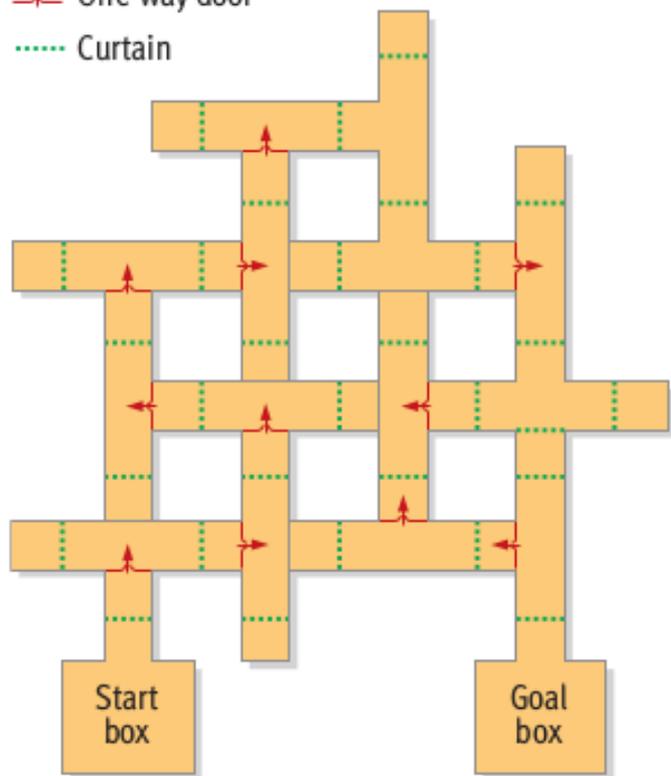
This showed that the Group 3 rats had learned about the organisation of the maze, but without the reinforcement of food.



(a)

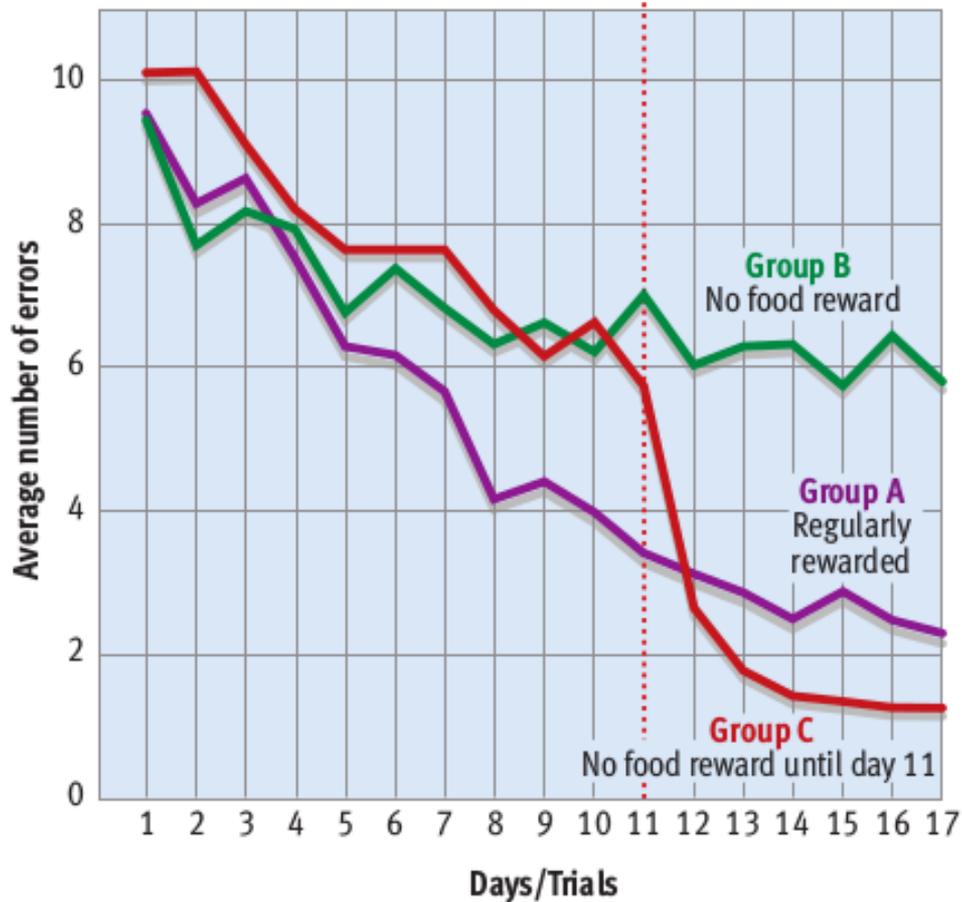
↑ One-way door

⋯ Curtain



(b)

Food reward begun
for Group C



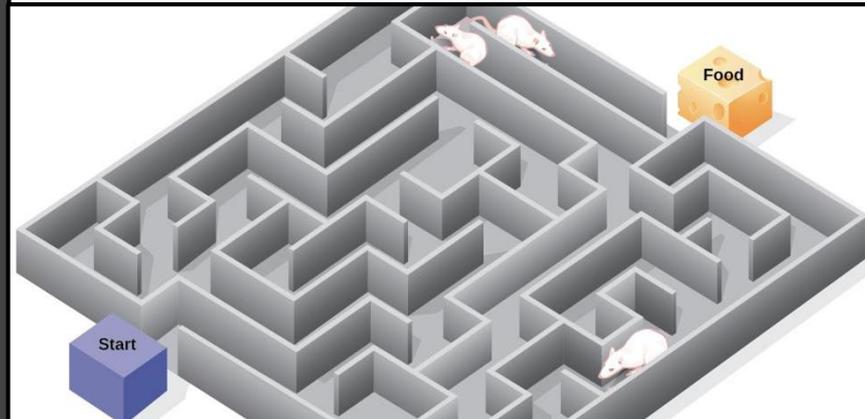
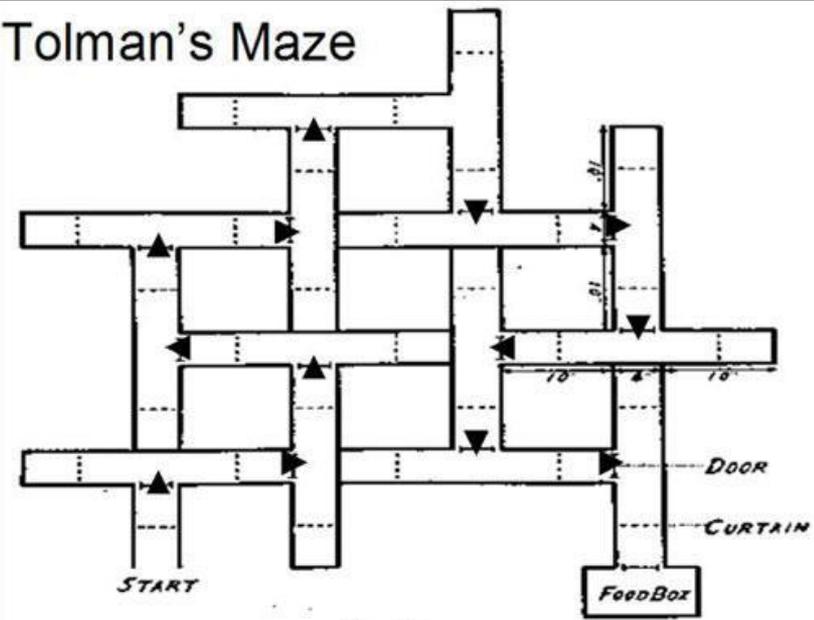
Until this study, it was largely believed that reinforcement was necessary for animals to learn such tasks.

Other experiments showed that **latent learning** can happen in shorter durations of time (3–7 days).

Also suggested that the **rats who displayed latent learning had formed a cognitive map of the maze** (*a mental representation of the spatial layout*) at a time when **cognitive processes were thought to be irrelevant** to understanding conditioning even in humans.

Tolman was challenging “Behaviorism” as the only true measure of behavior.

Tolman's Maze

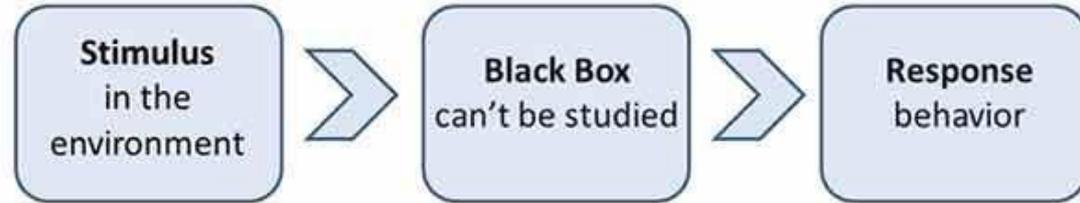


Tolman (1948) went on to conduct other studies that suggested cognitive processes play a role in conditioning.

But his ideas mostly attracted rebuttals & criticism from influential learning theorists of his era (Hilgard, 1987).

In the long run, however, Tolman's ideas prevailed, as models of conditioning eventually started to incorporate cognitive factors.

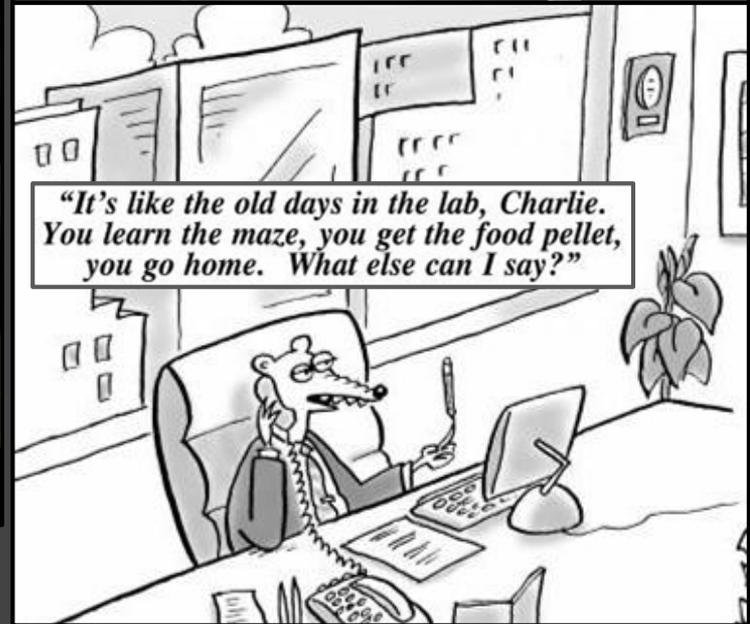
Behaviourist Model (only study observable / external behaviour)



Cognitive Model (can scientifically study internal behavior)



[YouTube: Do Lab Rats Dream of Running Mazes?](#)

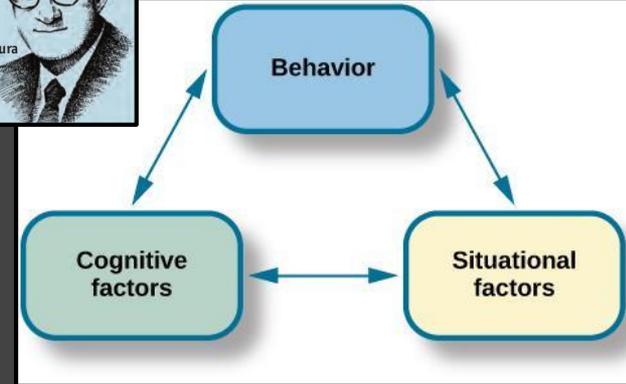
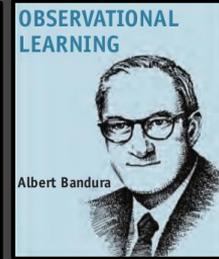


Classical & operant conditioning **does not** explain all forms of learning.

Observational learning:

An organism's responding is influenced by the observation of others, who are called *models*.

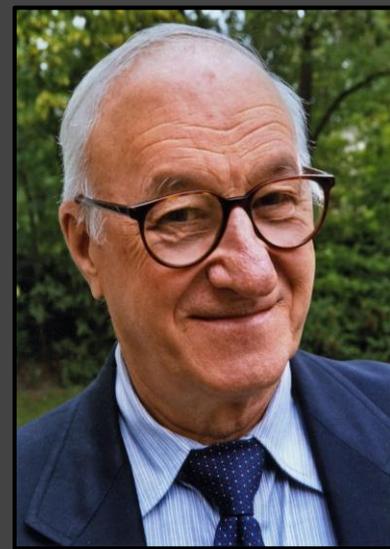
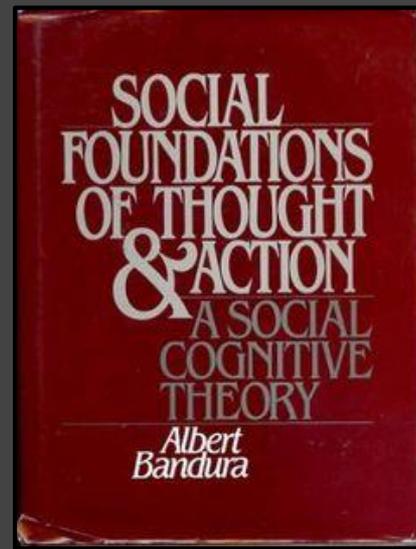
Albert Bandura: Psychologist behind many ground breaking theories in observational learning. He asserted that **observational learning** is not separate from **classical or operant conditioning**.



In **observational learning**, an *organism is conditioned vicariously by watching a model's conditioning.*

Both classical & operant conditioning can occur through observational learning, which extends their influence.

The principles of observational learning have been used to explain why physical punishment increases aggressive behavior.



Albert Bandura

“Most human behavior is learned by observation through modeling.”

YouTube: Bandura's Experiment Emotions & Bobo Doll



1961 Bandura's Bobo doll

Experiment: Study patterns of behavior, at least in part, by social learning theory, & that similar behaviors were learned by individuals shaping their own behavior after the actions of models.

Experiment was criticized by some on *ethical grounds*, for **training children towards aggression**.

Bandura's results from the Bobo Doll Experiment changed the course of modern psychology, & were widely credited for helping shift the focus in academic psychology from pure behaviorism to cognitive psychology.

The experiment is among the most lauded and celebrated of psychological experiments.

YouTube: Khan Academy - Bandura's Experiment

Albert Bandura - Bobo Doll Experiment



Learning-Performance Distinction

Bandura's Social Cognitive Theory

Attention
Memory
Imitation
Motivation



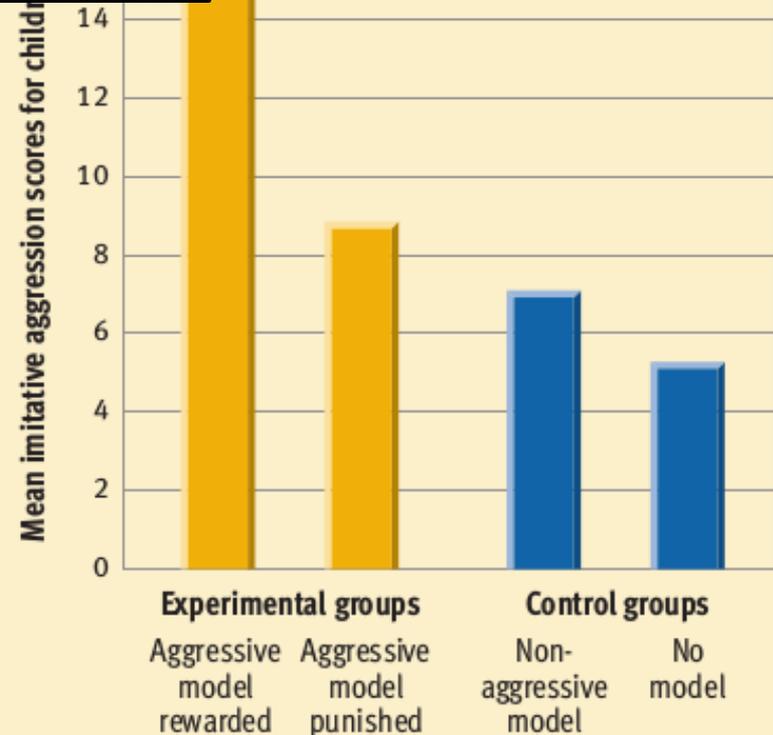
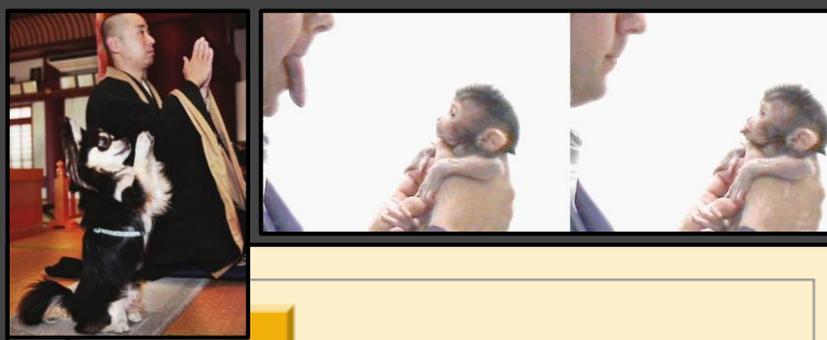
An explanation of the Bobo Doll Experiment, how it demonstrated learning performance distinction, and resulted in Bandura's Social Cognitive Theory. *By Jeffrey Walsh.*



Observational learning depends on the processes of **attention**, **retention**, **reproduction**, & **motivation**.

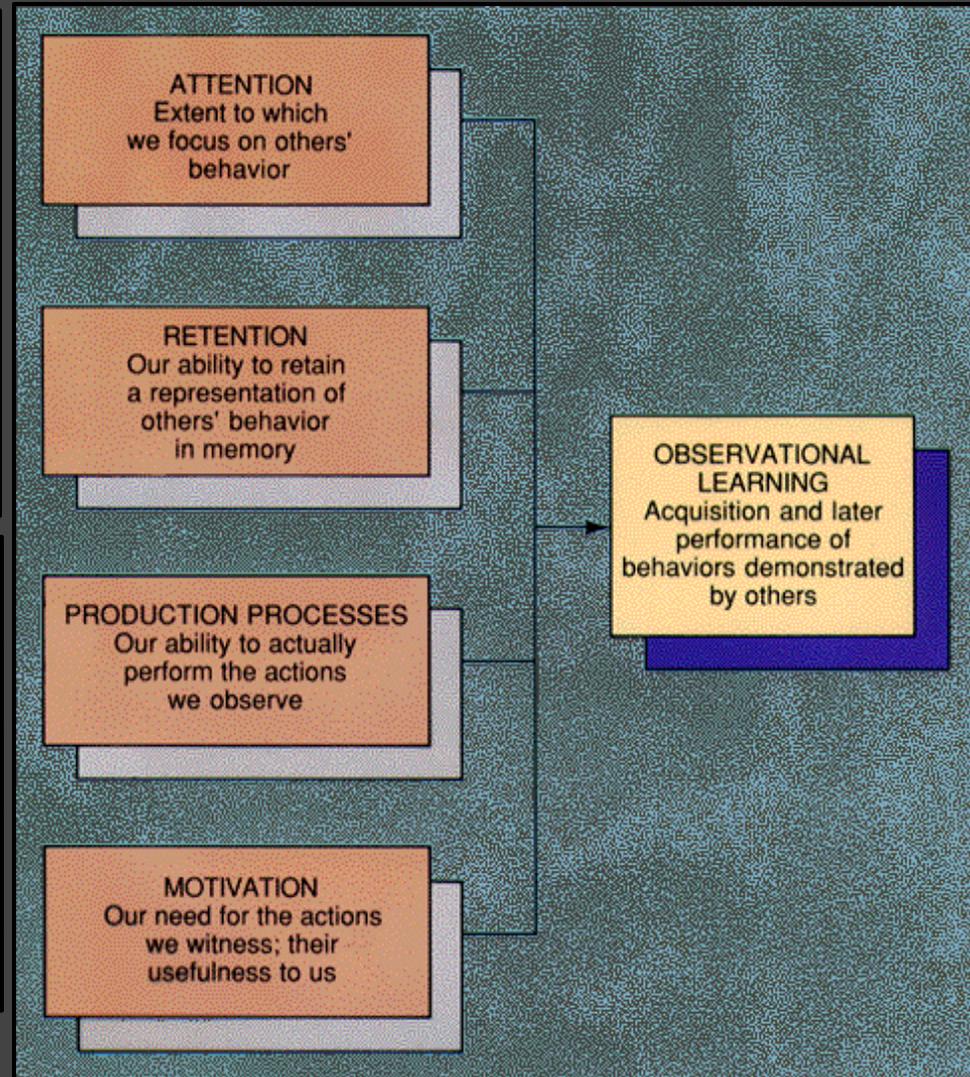
Even animals can learn through observation.

In a landmark study, Bandura and colleagues demonstrated that exposure to aggressive TV models led to increased aggression in children, especially when the TV models were reinforced for their aggression.



- Attention.

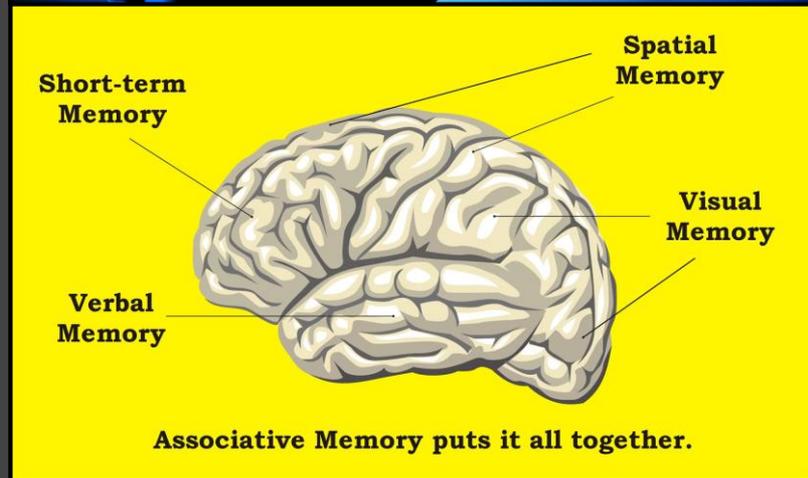
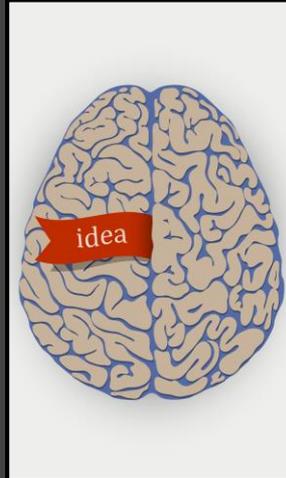
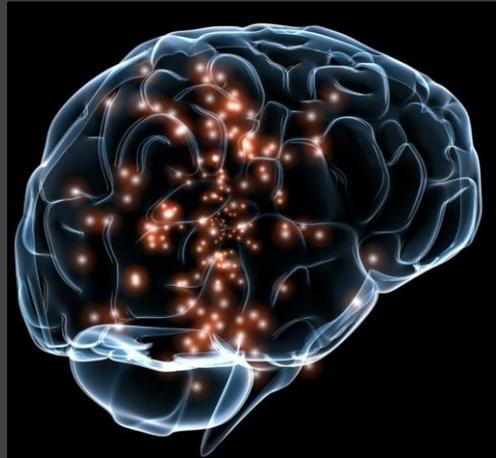
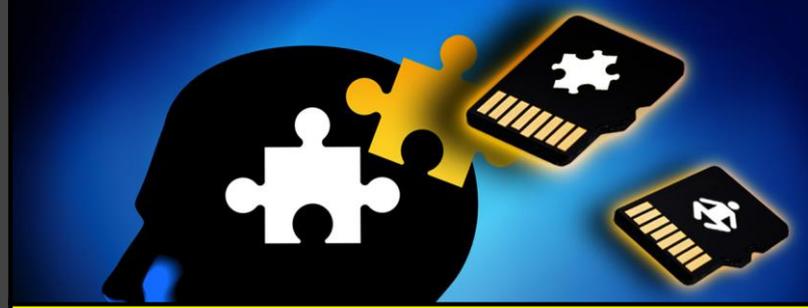
To learn through observation, you **must pay attention to another person's behavior & its consequences.**



• Retention.

You may not have occasion to use an observed response for weeks, months, or even years.

Thus, you must store a mental representation of what you have witnessed in your memory.



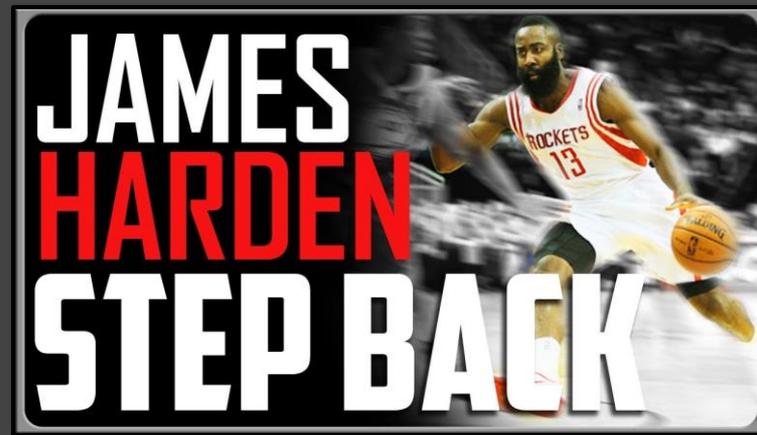
- Reproduction.

To enacting a modeled response: Ability to reproduce the response by converting your stored mental images into overt behavior.

This step may not be easy for some responses.

For example:

Most cannot execute a “step back 3-point shot” after watching James Harden do it in a Rockets game.



• Motivation.

Finally, you are unlikely to reproduce an observed response unless you are motivated to do so.

Your motivation depends on whether you encounter a situation in which you believe that the response is likely to pay off for you.

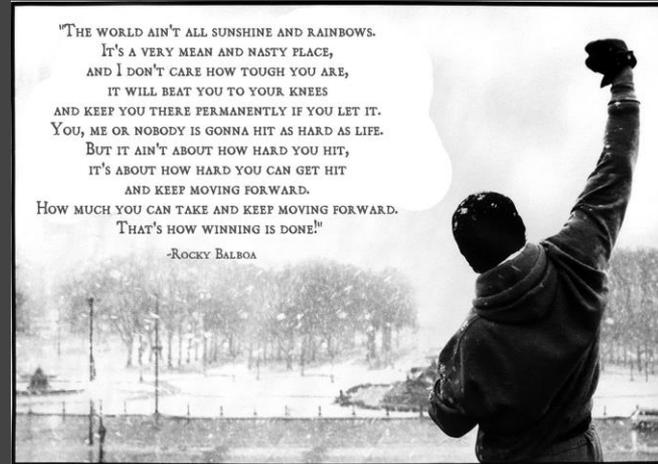


MOTIVATION



"THE WORLD AIN'T ALL SUNSHINE AND RAINBOWS.
IT'S A VERY MEAN AND NASTY PLACE,
AND I DON'T CARE HOW TOUGH YOU ARE,
IT WILL BEAT YOU TO YOUR KNEES
AND KEEP YOU THERE PERMANENTLY IF YOU LET IT.
YOU, ME OR NOBODY IS GONNA HIT AS HARD AS LIFE.
BUT IT AIN'T ABOUT HOW HARD YOU HIT,
IT'S ABOUT HOW HARD YOU CAN GET HIT
AND KEEP MOVING FORWARD.
HOW MUCH YOU CAN TAKE AND KEEP MOVING FORWARD.
THAT'S HOW WINNING IS DONE!"

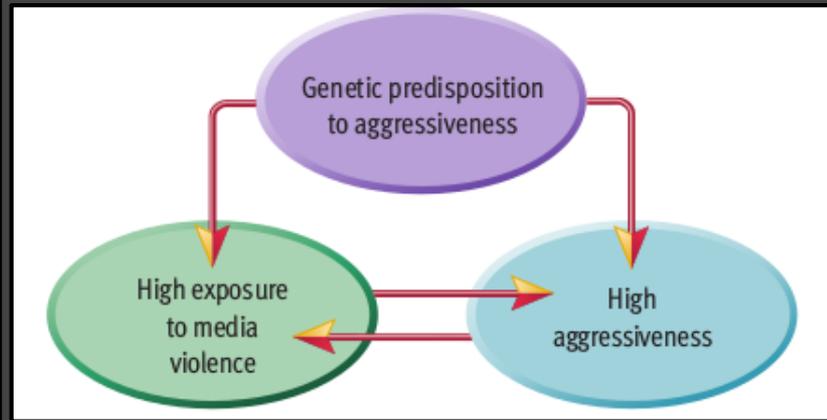
-Rocky Balboa



Research on observational learning has played a central role in the **debate** about the effects of media violence for many decades.

Both experimental & correlational studies suggest that **violent TV shows, movies, & video games** contribute to increased aggression among children & adults & desensitization to the effects of aggression.

There is not one key factor that leads to a person acting out in aggression. Yet, the research shows viewing violence can contribute.



August 13, 2015

APA Review Confirms Link Between Playing Violent Video Games and Aggression

Finds insufficient research to link violent video game play to criminal violence

WASHINGTON — Violent video game play is linked to increased aggression in players but insufficient evidence exists about whether the link extends to criminal violence or delinquency, according to a new American Psychological Association task force report.

“The research demonstrates a consistent relation between violent video game use and increases in aggressive behavior, aggressive cognitions and aggressive affect, and decreases in prosocial behavior, empathy and sensitivity to aggression,” says the report of the APA Task Force on Violent Media. The task force’s review is the first in this field to examine the breadth of studies included and to undertake multiple approaches to reviewing the literature.

“Scientists have investigated the use of violent video games for more than two decades but to date, there is very limited research addressing whether violent video games cause people to commit acts of criminal violence,” said Mark Appelbaum, PhD, task force chair. “However, the link between violence in video games and increased aggression in players is one of the most studied and best established in the field.”

“No single risk factor consistently leads a person to act aggressively or violently,” the report states. “Rather, it is the accumulation of risk factors that tends to lead to aggressive or violent behavior. The research reviewed here demonstrates that violent video game use is one such risk factor.”

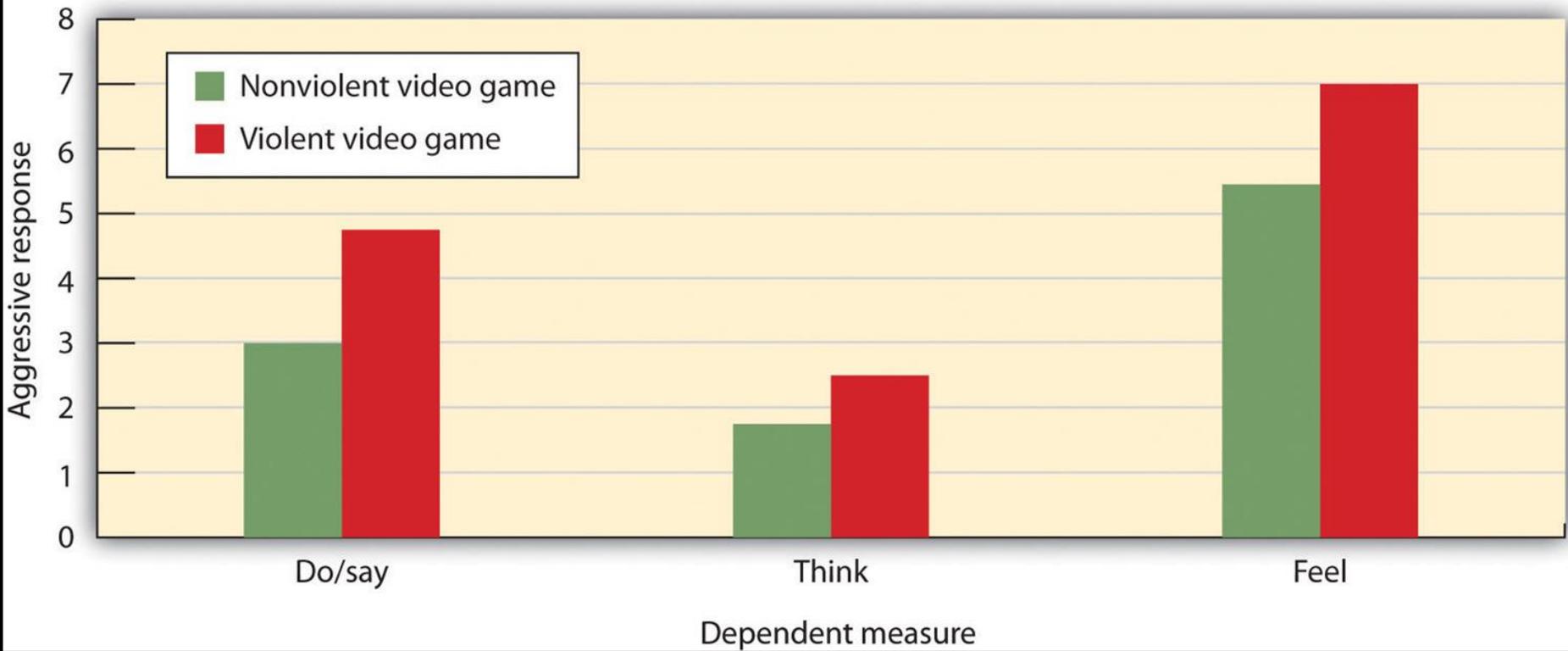


A dose of violent gaming makes people act a little more rudely than they would otherwise, at least for a few minutes after playing.

It is far harder to determine whether cumulative exposure leads to real-world hostility over the long term.

“I don’t know that a psychological study can ever answer that question definitively,” said Michael R. Ward, an economist at the University of Texas, Arlington. *“We are left to glean what we can from the data and research on video game use that we have.”*

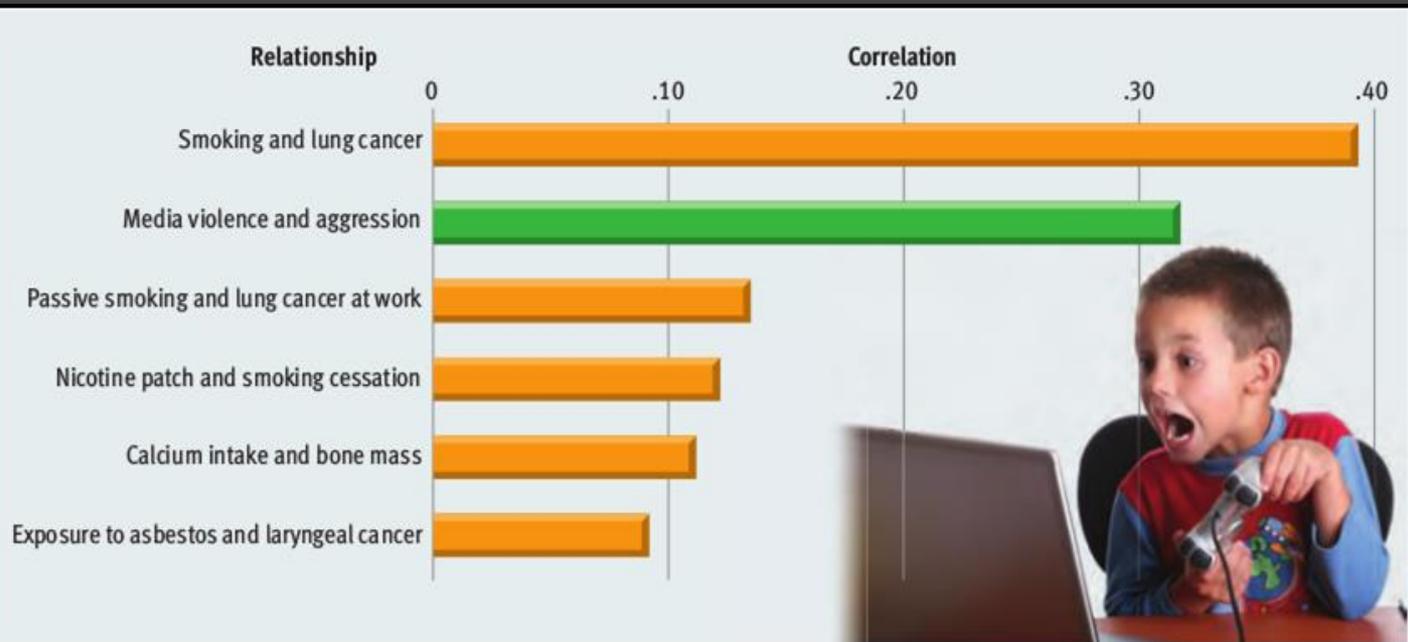




“None of these extreme acts, like a school shooting, occurs because of only one risk factor; there are many factors, including feeling socially isolated, being bullied, and so on,” said Craig A. Anderson, a psychologist at Iowa State University. *“But if you look at the literature, I think it’s clear that violent media is one factor; it’s not the largest factor, but it’s also not the smallest.”*

Many studies have found a correlation between exposure to media violence & aggression.

Bushman & Anderson (2001): The average correlation in studies of media violence & aggression is .31. This association strong by comparison to others.



How Video Games Change Your Brain



entorhinal cortex

larger entorhinal cortex

logic
puzzle
platform

smaller entorhinal cortex

action
role-playing

