

# Motivation

## Lecture 27

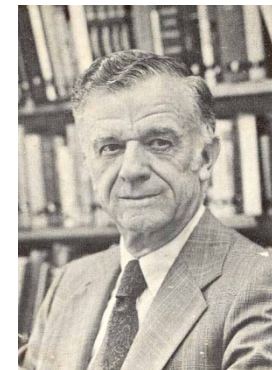
# The Trilogy of Mind

Immanuel Kant (1791); Hilgard (1980)

**“There are three  
absolutely irreducible  
faculties of mind:  
knowledge, feeling, and desire.”**



- **Cognitive Psychology**
  - Sensation, Perception, Learning, Memory, Reasoning, Problem-Solving, Judgment and Decision-Making, Language
- **Affective Psychology**
  - Emotion, Moods, Feelings
- **Conative Psychology**
  - Motives, Drives, Needs, Desires, Goals, Purposes



# The Domain of Motivation

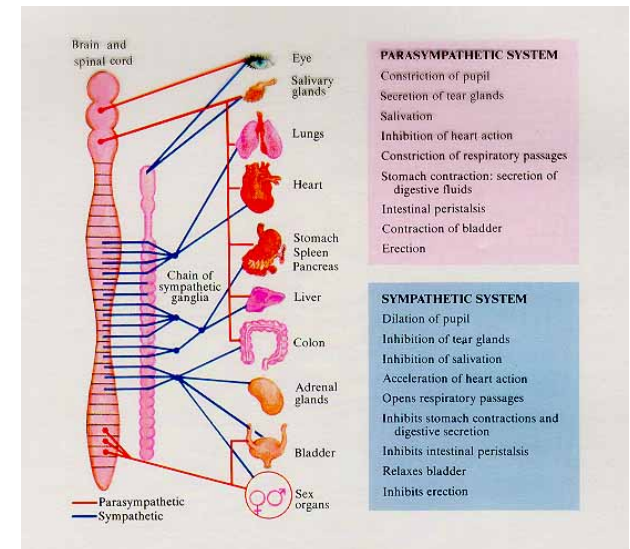
Mook (1996)

- An internal mental state that causes an organism to initiate, choose, or persist in approach or avoidance behavior.
- The Conative Lexicon
  - Drive
  - Need
  - Want
  - Goal

# Homeostatic Regulation

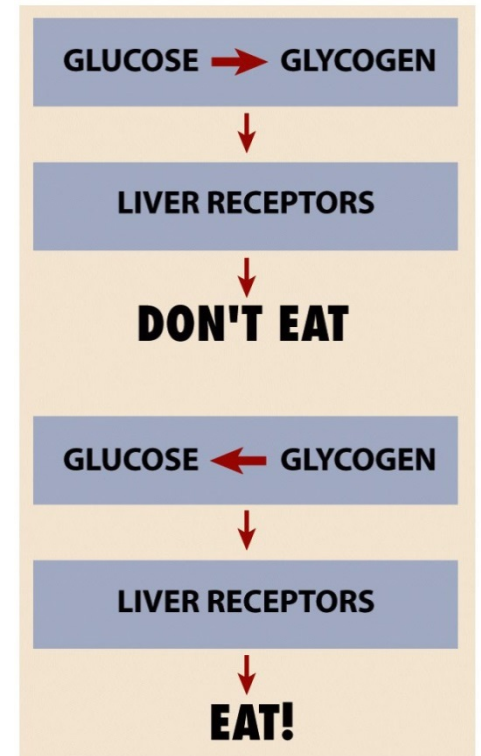
Bernard (1878); Cannon (1932)

- “The Wisdom of the Body”
  - Maintains Constant Internal Environment
    - Despite Changing External Environment
- Feedback
  - Negative
    - Stops or Reverses Change
  - Positive
    - Magnifies Change
- Autonomic Nervous System
  - Sympathetic vs. Parasympathetic Branches



# Hunger

- Interoception
- Glucose Levels
  - Liver
    - Glucose → Glycogen, Fatty Acids
    - Glycogen, Fatty Acids → Glucose
  - Glucoreceptors
    - Liver
    - Stomach, Duodenum, Fatty Tissue
    - Hypothalamus

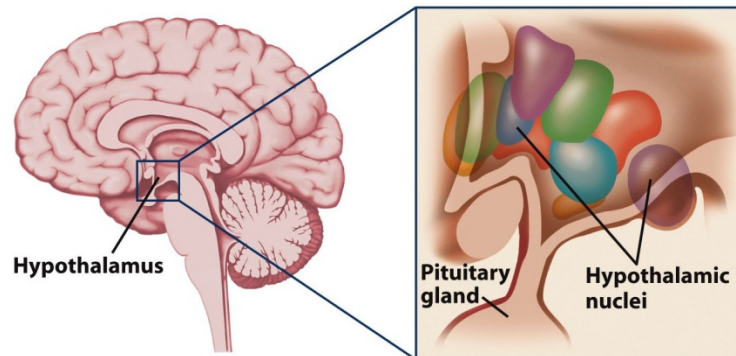


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# Theories of Feeding

Teitelbaum & Epstein (1962); Powley & Keesey (1970)

- **Dual-Center Theory**
  - Lateral Hypothalamus: “Go”
  - Ventromedial Hypothalamus: “Stop”
- **Set-Point Theory**
  - Calories
  - Body Weight/Body Mass



# Thirst

- Intracellular Fluid
  - Dehydration
    - Concentration of Salt
  - Overhydration
- Kidneys
- Double-Depletion Hypothesis
  - Intracellular Fluids
  - Extracellular Fluids (Blood Plasma)

# Thermoregulation

- Internal Body Temperature (98.6°)
- Too High
  - Vasodilation
  - Sweating
  - Panting
- Too Low
  - Vasoconstriction



**SEASONAL SAFETY** When winter comes and we reach for warmer wear, our preparations for the season include some hazards for Kitty. The two most common dangers are antifreeze, whose sweet smell can be attractive to cats, and the pellets used in the war against mice. If you suspect your cat has ingested either, call your vet immediately or contact the ASPCA Poison Control Center at 888-426-4435.

**Special Mention** LIZZIE.—Eleanor Kent, Woodstock, Ontario, Canada

7·Thursday·January 2010

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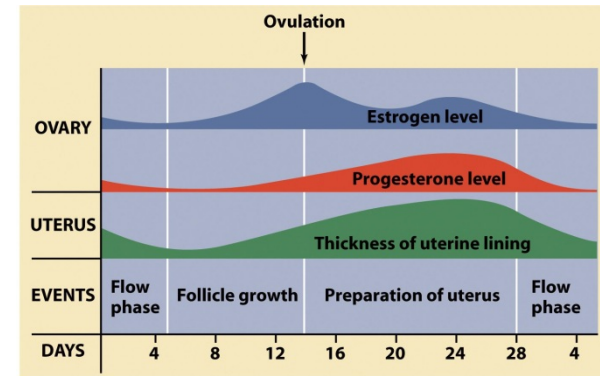


# Not Just Homeostasis

- Social Factors
- Cognitive Factors
- Emotional Factors

# Motivation Beyond Homeostasis

- Aggression
  - External Threats
  - Testosterone Levels
- Mating
  - Regulation by Sex Hormones
    - Estrogen, Testosterone
  - Estrus Cycle
  - Courtship Behavior, Copulation
    - Testosterone, Progesterone
  - The Human Case



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# Primary and Secondary Reinforcement

- Thorndike's Laws
  - Effect
  - Readiness
- Primary Reinforcers
- Conditioned Reinforcers



# Emotion as a Source of Secondary Motivation

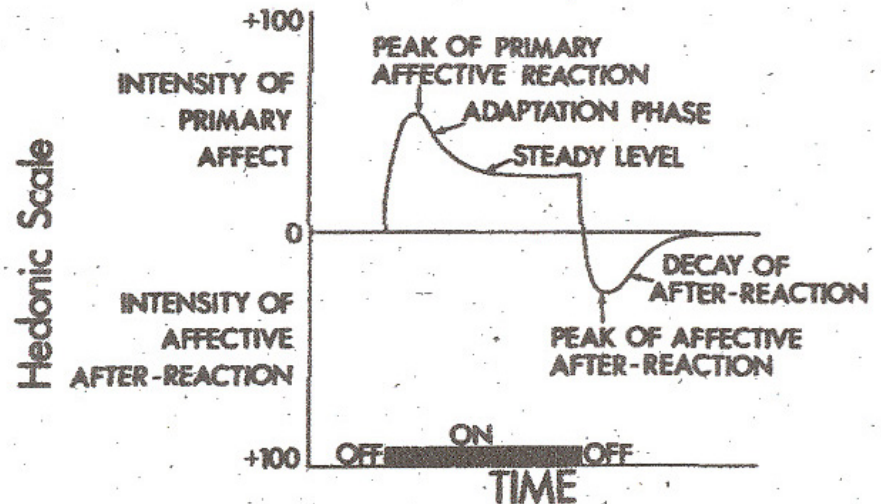
## Drives Acquired Through Experience

- Fear Conditioning
  - Conditioned Emotional Response
- Behavior Motivated by Fear
  - Escape Learning
  - Avoidance Learning

# The Temporal Dynamics of Affect

Solomon & Corbit (1973, 1974); Solomon (1980)

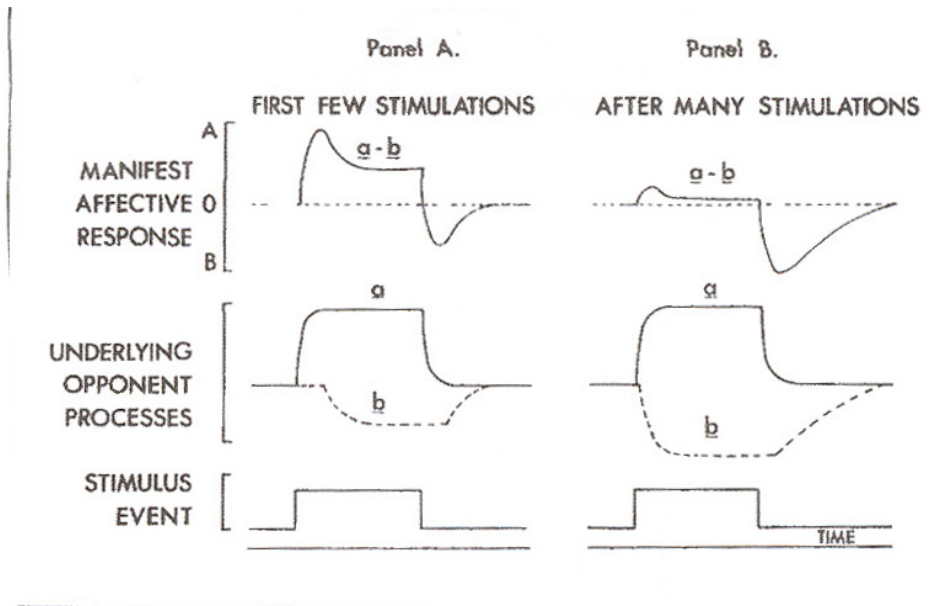
1. Arousing Event
2. Increased Emotion
3. Decreased Emotion
4. Stabilization
5. Termination of Event
6. Replacement by Opposite State
7. Gradual Return to Baseline



# The Opponent-Processes Theory of Acquired Motivation

Solomon & Corbit (1973, 1974); Solomon (1980)

- “A” State
  - Recruits Rapidly
  - Dissipates Rapidly
- “B” State as Slave to A
  - Recruits Slowly
  - Dissipates Slowly
  - Strengthens with Repetition



# Applications of Opponent-Process Theory

- Drug Addiction
  - Withdrawal
  - Tolerance with Repeated Doses
  - Repeated Doses Strengthen B State
  - Vicious Cycle
  - Addiction as Avoidance of B State
- “Salted-Nut Phenomenon”
- “Runner’s High”

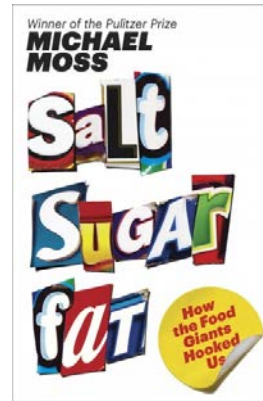


"I know! I know! But if I can beat chocolate, you can beat heroin!"

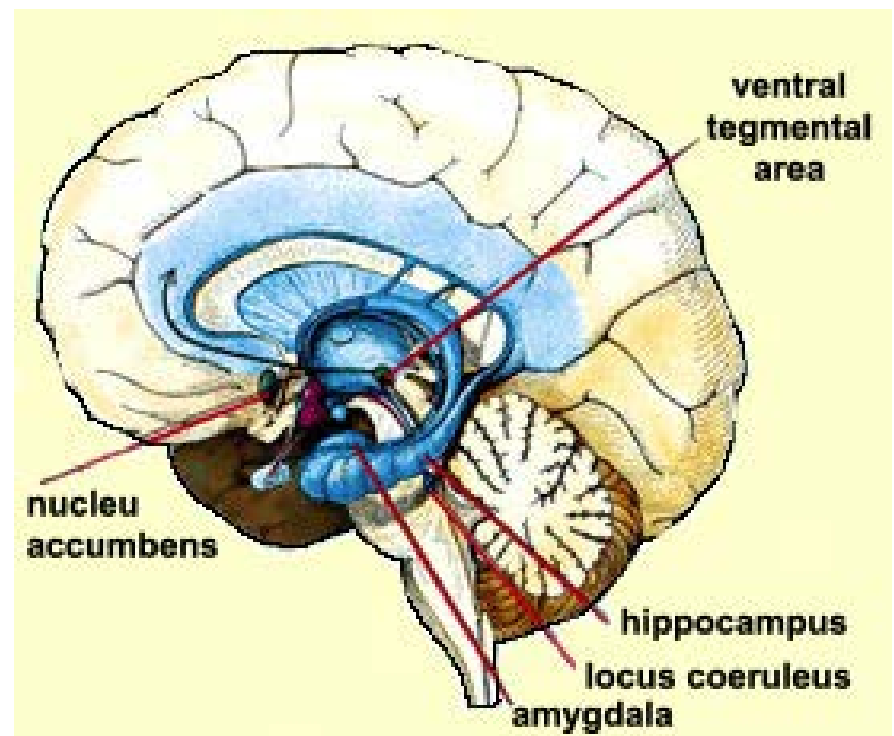


# Food, Flavor, and Addiction

Olds & Milner (1954)  
Kessler (2009); Moss (2013)



- **Mesolimbic Reward System** (“Pleasure Center”)
  - Ventral Tegmental Area
  - Medial Forebrain Bundle
  - Nucleus Accumbens
- **Dopamine** (“Pleasure Chemical”)
- **“The Bliss Point”**

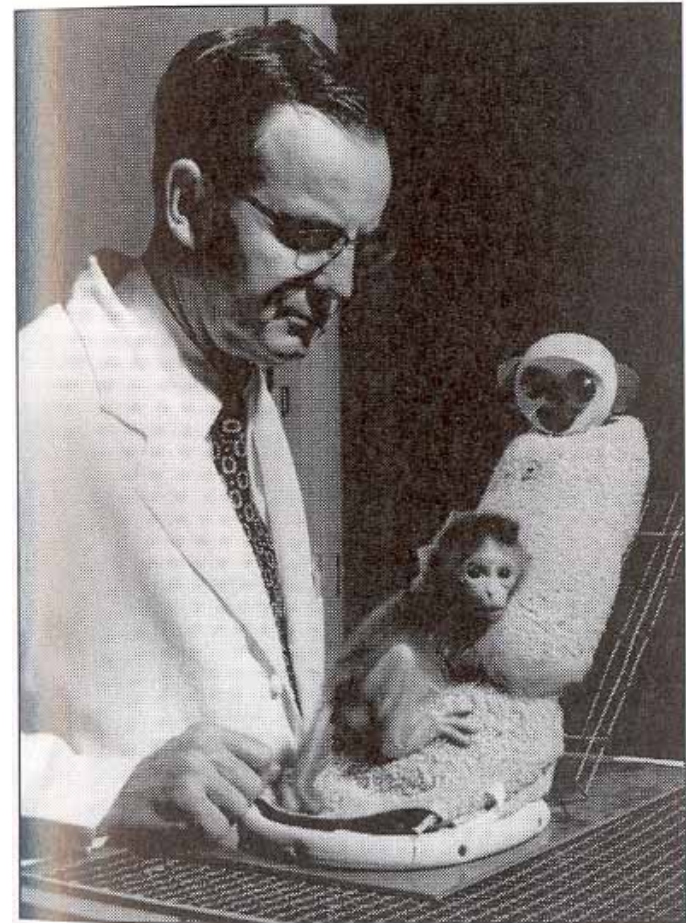




# Contact Comfort

Harlow (1958)

- Infant-Caretaker Bond
  - Derived From Feeding?
- Rhesus Monkeys
  - Raised Alone
- “Mother” Objects
  - Wire with Nipple
  - Terry-Cloth, No Nipple
- Frightened Infant
  - Clings to Terry-Cloth Mother

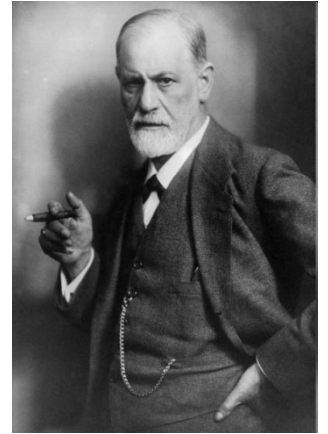


# Freud's Instinct Theory

*Three Essays on the Theory of Sexuality (1905)*

*Beyond the Pleasure Principle (1920)*

- Instinct vs. Somatic Excitation
  - Innate Bodily Need
  - Repetition Compulsion
- Eros
  - Life-Maintenance
  - Sexual (Libido)
    - Love and Sex
- Thanatos
  - Hate and Aggression



# Murray's Needs

Murray et al. (1938)

- Interaction
  - Personal Need ( $n$ )
  - Environmental Press ( $p$ )
- Three Great Social Motives
  - Achievement
  - Power
  - Affiliation (Intimacy)

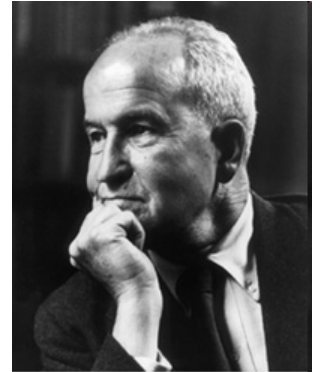


Photo: Harvard University Archives

# Maslow's Hierarchy of Needs

Maslow (1943)

Realism  
Spontaneity  
External, Problem-Centered Focus  
Autonomy  
Ethical Sensitivity  
Openness to Experience  
"Peak Experiences"

**Self-Actualization**

Self-Esteem

Love and Belongingness

Safety Needs

Physiological Needs



# Two Kinds of Motivation

- **Extrinsic**
  - A person's desire to engage in some specific activity in order to achieve some goal or satisfy some need
- **Intrinsic**
  - A person's desire to engage in some specific activity without any promise or prospect of reward.

# Curiosity in Rhesus Monkeys

Harlow (1953)



Three young rhesus macaques puzzle their way toward opening a lock during a curiosity experiment at the Harlow laboratory. *Photo courtesy of the Harlow Primate Laboratory, University of Wisconsin-Madison*

- Thorndike: Laws of Readiness, Effect
- Tolman: Latent Learning
- Berlyne: Epistemic Curiosity
- Kruglanski: Need for Closure

# Undermining Intrinsic Motivation

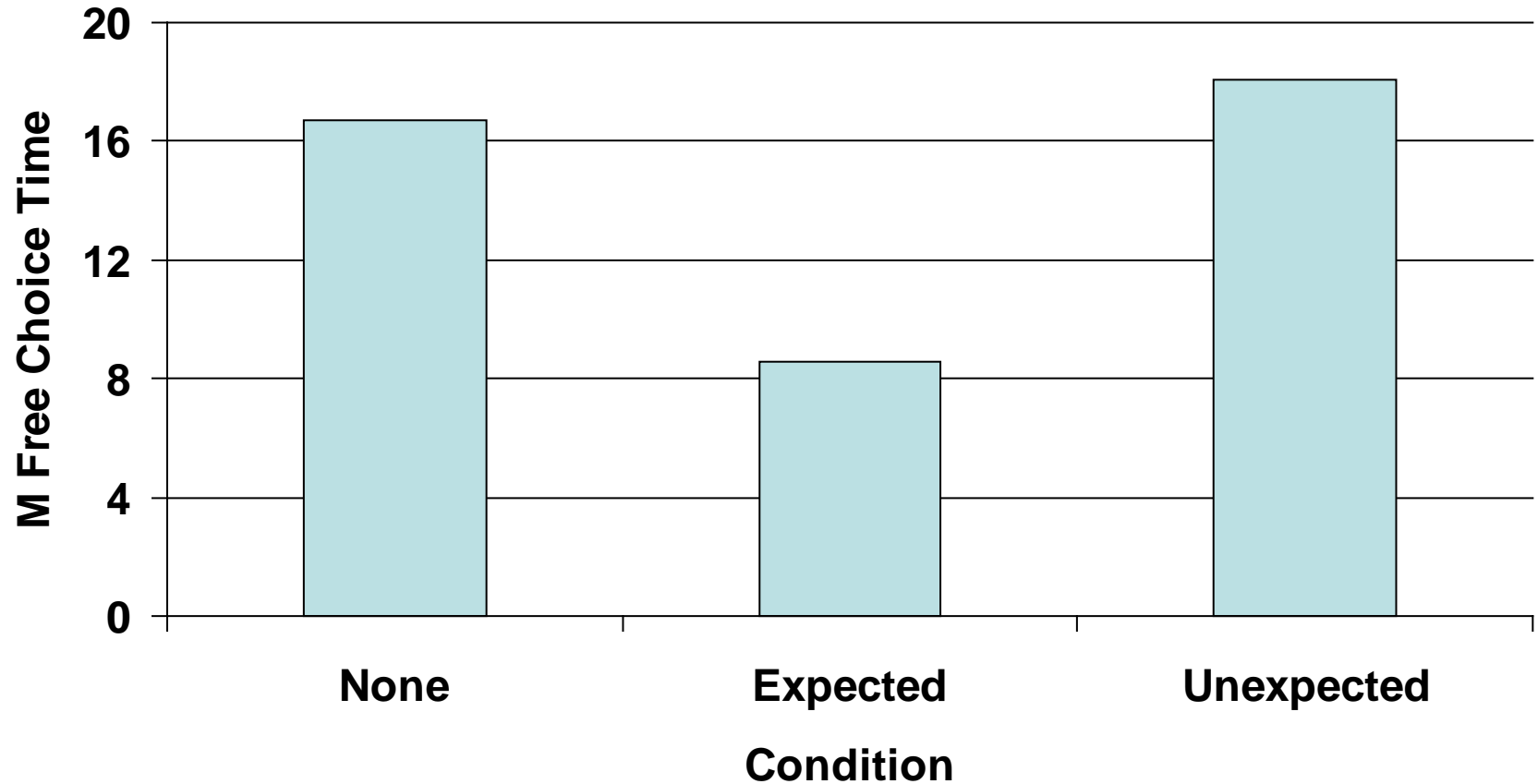
Lepper, Greene, & Nisbett (1973), after Deci (1971)



- Preschool Children
  - Drawing with Magic Markers
    - High Level of Initial Interest in Activity
- Reward Condition
  - No Reward
  - Promised “Good Player Award” Beforehand
  - Received Unexpected “Good Player Award”
- Free-Choice Period

# The “Hidden Costs” of Reward

Lepper, Greene, & Nisbett (1973)

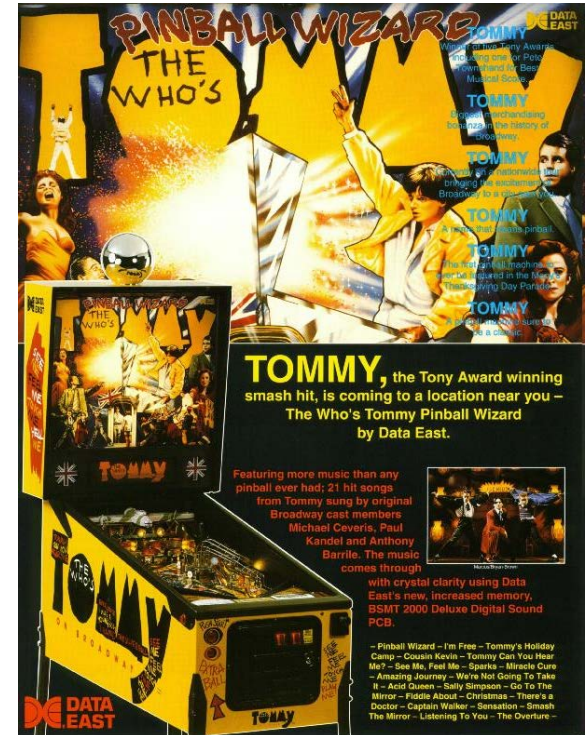




# Rewarding Pinball Wizardry

Harackiewicz, Manderlink, & Sansone (1984)

- Reward Structure
  - Task-Contingent
  - Performance-Contingent
    - Evaluative Contingency
      - Expected vs. Unexpected
    - Performance Feedback
    - Delivery of Reward
- Types of Rewards
  - Controlling
  - Informational

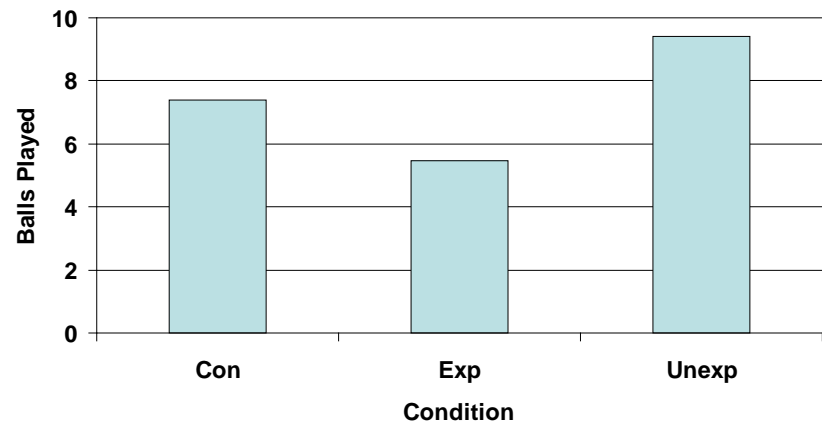


# Undermining *and* Enhancing Intrinsic Motivation

Harackiewicz, Manderlink, & Sansone (1984)

## Experiment 1

- Control
  - Feedback Only
    - No Evaluation
    - No Reward
- Expected Reward
  - Controlling
- Unexpected Reward
  - Informational

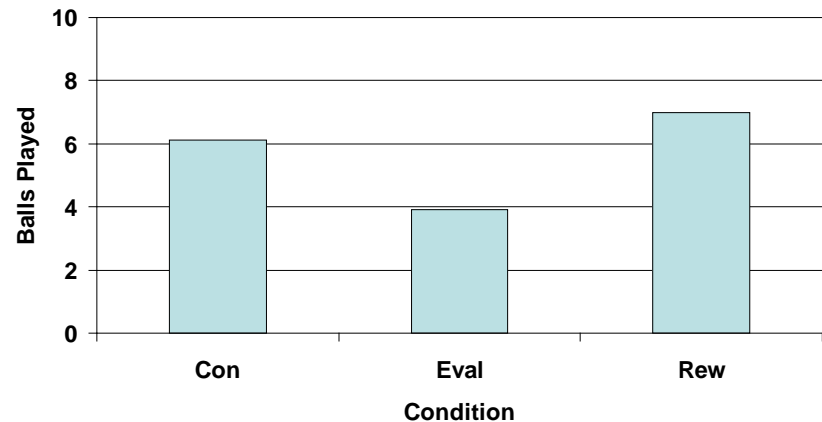


# Undermining *and* Enhancing Intrinsic Motivation

Harackiewicz, Manderlink, & Sansone (1984)

## Experiment 2

- Control
  - Feedback Only
    - No Evaluation
    - No Reward
- Evaluation
  - No Reward
- Unexpected Reward
  - Informational

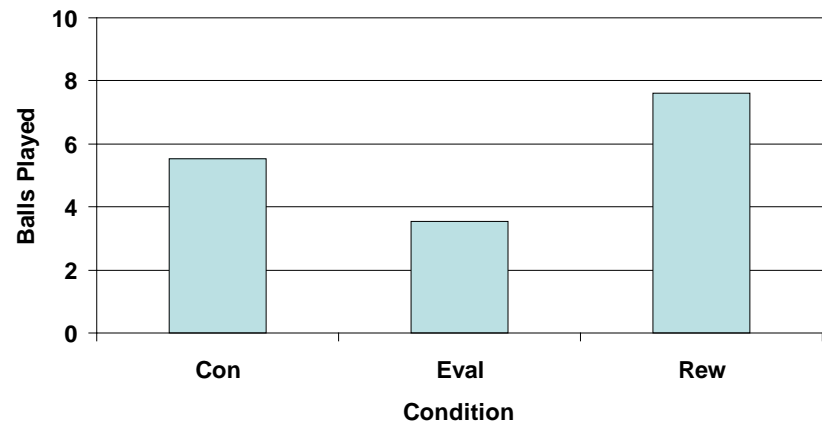


# Undermining *and* Enhancing Intrinsic Motivation

Harackiewicz, Manderlink, & Sansone (1984)

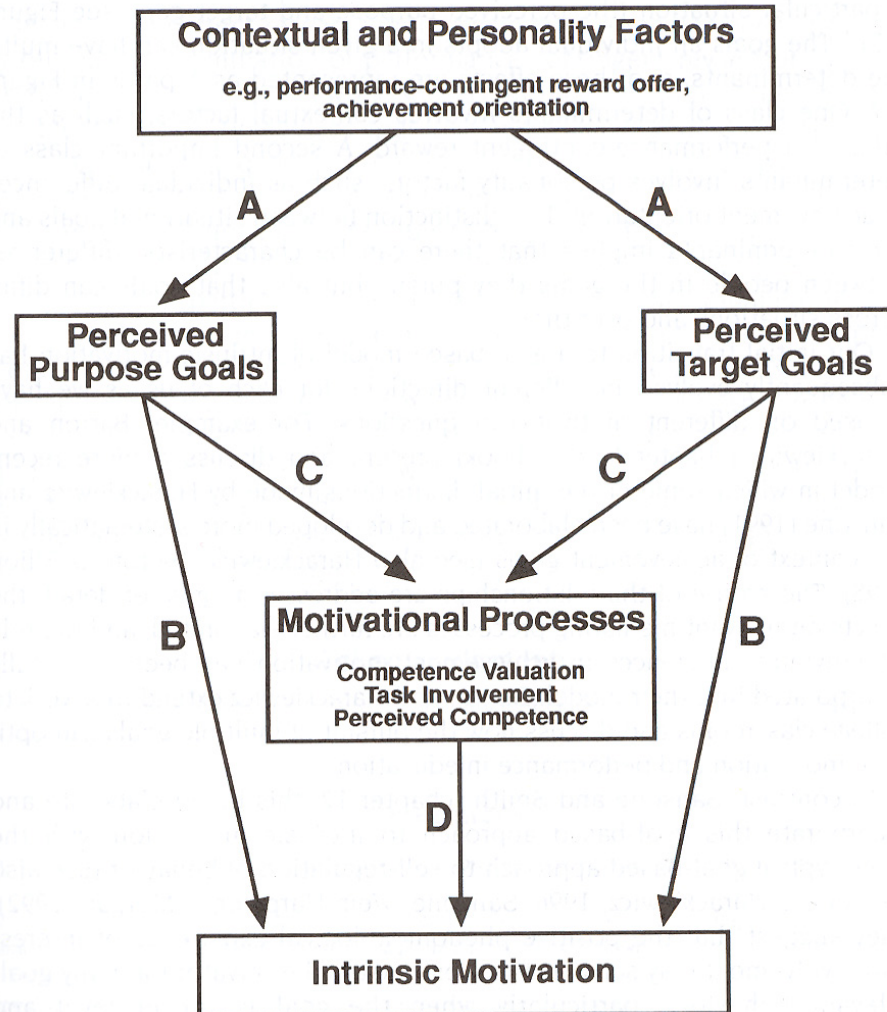
## Experiment 3

- Control
  - Feedback Only
    - No Evaluation
    - No Reward
- Evaluation
  - No Reward
- Information and Reward
  - Informational



# Rewarding Competence

Harackiewicz & Sansone (1991, 2000)



# The Bottom Line

## Extrinsic Rewards

Do Not Always Undermine Intrinsic Motives

- It Depends on What the Reward is *For*
- And How the Reward is *Perceived*
- And Whether the Person *Cares*