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
  – Glucreceptors
    • Liver
    • Stomach, Duodenum, Fatty Tissue
    • Hypothalamus
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
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
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”
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"

thebrain.mcgill.ca
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)
Maslow’s Hierarchy of Needs

Maslow (1943)

Self-Actualization

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

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)

- 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)

M Free Choice Time

<table>
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<th>Condition</th>
<th>None</th>
<th>Expected</th>
<th>Unexpected</th>
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<td>16</td>
<td>8</td>
<td>18</td>
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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

![Bar chart showing balls played in each condition: Control, Evaluation without Reward, Information and Reward.](image)
Rewarding Competence
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