

Unit III: Learning

- Definition:

–A relatively permanent change in knowledge or behavior that is caused by experience.

- Three types of learning:

- Classical conditioning

- Operant conditioning

- Observational learning

Classical Conditioning

- A previously neutral stimulus acquires the ability to elicit a response because it is repeatedly followed by a stimulus that elicits the same response

- Components:

- Unconditioned stimulus

- Stimulus eliciting unlearned response

- Conditioned stimulus

- Stimulus that is normally neutral
- Stimulus associated with UCS

–Unconditioned response

- Response that is automatic (not learned)

–Conditioned response

- Learned response
- Response elicited by the CS

• Differentiating Responses:

–The UCR and CR are the same behaviors

–Each is elicited by different stimuli

Types of Conditioned Responses

• Conditioned Fears

–Anxiety/phobic reactions

• Conditioned Emotional Responses

–Pleasant emotional reaction

• Conditioned Physiological Responses

–Immune system changes

Classical Conditioning Processes:

–Acquisition

- Single or multiple pairings

–Stimulus generalization

- CR occurs around stimuli other than the CS

–Stimulus discrimination

- CR occurs only around the original CS

–Higher-Order Conditioning

- CS functions as a UCS for a new stimulus

–Extinction

- CS no longer triggers the CR
- Time depends on strength of the bond

–Spontaneous recovery

- CR reappears after a period of nonresponse
- Renewal Effect

- Biological Preparedness:

–We are programmed to learn certain associations more easily

- Novel
- Unusual
- Intense

Stimuli Contiguity:

- Simultaneous Conditioning

CS & UCS occur together

- Short-delayed

CS begins before UCS

- Trace Conditioning

CS ends before UCS

Developments in Conditioning

- Instinctive Drift
- Conditioned Taste Aversion
- Signal Relations
- Response Outcome Relations

Operant Conditioning

- Premise:
 - Learning is based on the consequences of behavior
 - Behavior is controlled by how the environment responds
 - Responding is instrumental in getting a certain outcome

Important figures:

–Thorndike

- Law of Effect: If a response is followed by satisfaction the response will recur, if discomfort it is less likely to recur

–B. F. Skinner

- Operant Conditioning Basic Principles:
 - Reinforcement = Increase behavior
 - Punishment = Decrease behavior
 - Positive = Add something
 - Negative = Take something away

Negative Reinforcement:

Escape Learning: Response ends aversive stimuli

Avoidance Learning: Response prevents aversive stimuli

Punishment Guidelines

- Immediacy and Consistency
- Explanations
- Maintain a warm relationship
- Salience:
 - Punishment should fit the crime
- Reinforce alternative (desirable) ways of responding

- **Principles of Reinforcement:**

–Shaping

- Reinforcing successive approximations of the desired behavior

–Schedules of reinforcement

- Continuous
- Intermittent
 - Concurrent Reinforcement

–Two or more reinforcers are in effect at any one time, for different behaviors

–Reinforcer type

- Primary
- Secondary

–Extinction

- No reinforcement is given with a response
- Activity burst then gradual decline
- Occurs rapidly with continuously reinforced behavior

Observational Learning

Albert Bandura

Also Called:

Social Modeling

Social Learning

- Premise:
 - Behavior is learned by watching and imitating the behavior of others
 - Can be classically or operantly conditioned by watching others

- Basic Processes:

–Attention

- Observing a behavior and consequences

–Retention

- Storing a mental representation

–Schema

- Generalized idea about the behavior you observed

–Reproduction

- Performing the behavior *based on the memory*

Memory

- Memory involves three processes:

–Encoding

–Storage

–Retrieval

Encoding

- Three types:

–Structural Encoding

–Phonemic Encoding

–Semantic Encoding

- Level of Processing Theory

–The deeper the level of processing information (encoding) the longer lasting the memory will be

- Improve Encoding By:

–Elaboration

- Link information
- Use examples

–Self-Referent Encoding:

- Personalize information

Storage

- Atkinson – Shiffrin Model

–Memory stored in 3 stages:

- Sensory memory
- Short-term memory
- Long-term memory

- Sensory Memory:

–Brief and temporary storage

–Holds auditory and visual information (lasts .25-.50 sec.)

–Information quickly fades if not noticed

- Short-term Memory:

–Longer duration

- 20 seconds without rehearsal
- Rehearsal improves duration

–Greater capacity

- 7 items (+/-2)
- Capacity increased by chunking
 - Group information together so that each item has many parts
 - Putting information into chunks increases depth of processing (semantic encoding)

- Alternative Model:

–Baddeley

- Short-term memory has three distinct parts
- Parts combine to form “Working Memory”

- Long-term Memory

–Unlimited capacity

–Relatively permanent storage

–Information may change over time

- Organizing Information:

–Clustering & Conceptual Hierarchies

- Grouping similar pieces of information

–Schemas & Scripts

- Combining information with past experience or knowledge

–Semantic Networks

- Information organized through pathways connecting related nodes

Retrieval

- Considerations:

–Encoding specificity

- *Context counts*

–Inaccurate reconstructions

- Schemas change encoding

–Misinformation effect

- New information changes memory

- Source Monitoring:

–Misattribution of origin

- Reality Monitoring:
 - Is the memory from an internal or external event?
- Forgetting Curve
 - Memory loss occurs rapidly then tapers off
 - Rate of loss depends on type of memory
 - Recall
 - Recognition

Memory Loss:

- Loss due to ineffective encoding
 - Semantic encoding is best
- Decay
 - Memory degrades over time
- Interference
 - Retroactive: New blocks old
 - Proactive: Old blocks new
- Retrieval Failure
 - Encoding and retrieval cue mismatch
 - Consider transfer appropriate processing

- Motivated Forgetting
 - Memory put into unconscious
 - Repressed memories

Biology of Memory

- Biochemistry
 - Changes in the synapse, hormones, protein synthesis
- Neural Circuitry
 - Long-term potentiation

Memory Problems

- Amnesia:
 - Retrograde
 - Anterograde

Memory Systems

- Implicit vs Explicit
 - Unconscious/Conscious
- Declarative vs Procedural

–Facts/Behaviors

- Semantic vs Episodic

–Knowledge/Experience

- Prospective vs Retrospective

–Future/Past

Improving Memory

- Focus attention
- Consider contextual cues
- Consider serial position effect
- Consider total time:

–Total Time Hypothesis

–Distributed vs Massed

- Use deep processing

–Explain it to a friend

- Transfer appropriate learning
- Organize information
- Use verbal & visual mnemonics