Day 2

Review

- Learning
- Memory/Cognition
- Intelligence
- Motivation/Emotion

Learning Review

Learning is permanent change resulting from experience **not** innate or biological. Cognitive factors have been implicated in learning, especially in humans.

5 Types of Learning

1. Classical Conditioning aka **Acquisition**

Key People 1. Ivan Pavlov, John Watson, Rosalie Raynor, Garcia & Koelling

Key Terms

- Unconditioned Stimulus (US or UCS)
- Unconditioned Response (UR or UCR)
- Neutral Stimulus
- Conditioned Stimulus (CS)
- Conditioned Response (CR)

- Extinction
- Spontaneous Recovery
- Generalization
- Discrimination
- Aversive Conditioning – assoc. of negative responses to CS
- Forward Conditioning = CS presented **before** US
- Delay Conditioning = CS presented until US begins
- Trace Conditioning = CS removed some time before US presented
- Simultaneous Conditioning = CS & US presented at **same** time
- Backward Conditioning = US presented **before** CS, **very ineffective**
    - Delayed vs. Trace vs. Simultaneous vs. Backward ---**Delayed is Best!**
- Second – Order or Higher – Order Conditioning = when CS elicits CR than associate new CS with other CS, New CS elicits same CR, rarely effective beyond 2nd order

Example:

Bell	+	Food	=	Salivation
		Bell	=	Salivation
Light	+	Bell	=	Salivation
		Light	=	Salivation

Equipotentiality = any animal can be taught any response (NOT TRUE)
Ex. Taste Aversions

Response = Adaptive (aids survival of species); food must be unique (salient)

Garcia & Koelling found rats can learn / associate with certain pairings

CS	US	Learned Response
Loud Noise	Shock	Fear
Sweet Water	Radiation	Avoid Water

If CS were switched acquisition did not occur

Pavlovian Conditioning aka. Contiguity Model

2. Operant Conditioning
aka. Instrumental Learning (Thorndike)

Key People - 1. Edward Thorndike
2. B.F. Skinner

Key Terms

- Law of Effect = Edward Thorndike
- Reinforcement = Positive & Negative (increase likelihood of behavior)
- Unpleasant Consequence = 2 Types Punishment & Omission Training (Decreases likelihood of behavior)
- Escape Learning vs. Avoidance Learning
- Shaping (animal training) aka. Differential Reinforcement of Successive Approximations
- Chaining (riding bike)
- 3 Types of Reinforcers
    - Primary, Secondary, Generalized (ex. Token Economy)
- Premack Principle = Whichever of 2 activities is preferred can be used to reinforce other activity

Reinforcement Schedules 5 Types

- Continuous – Rapid Learning / Rapid Extinction
- Fixed Ratio – Strong Learning / Learning Extinguishes Quickly
- Variable Ratio – Longer to Establish / Resistant to Extinction
- Fixed Interval
- Variable Interval

*Partial Reinforcement Effect - Behaviors are more resistant to extinction if reinforced on a variable schedule

Learned Helplessness = Consistent Effort **Fails** to Bring Rewards (Martin Seligman) Animal stops trying / In humans may cause depression

Instinctive Drift = when animals choose instinct behavior over training.

3. Other Types of Learning

Biological Factors
*1960's studies done on rats in enriched environment vs. deprived environment, Enriched environment rats produced thicker cortexes, more Ach, larger neurons in brain

In Cl. Conditioning of aplysia Neuromodulators were formed that strenghthened synapses betwn. Sensory & Motor Neurons (Eric Kandel)

Observational Learning aka. Vicarious Learning or Modeling (Social Learning) Albert Bandura

2 Components = Observation & imitation, ex. Bobo Doll

4 Conditions needed for Observational Learning to occur:

1. Learner **must** pay attention to behavior
2. Retention of the observed behavior
3. Motivation needed for learner to produce behavior at later time
4. Potential for Reproduction **must** exist, (learner must be able to reproduce behavior)

Latent Learning & Cognitive Learning (Edward Tolman) experimented on rats (Cognitive Maze) Rats used Mental Representation of maze to learn fastest route

Abstract Learning

Insight Learning (Wolfgang Kohler) chimpanzees

Chapter 6

Learning-AP Review

1. Which of the following behaviors is most clearly the result of learning?
   A. A spider spinning a web.
   B. A baby crying when it is hungry.
   C. A tired adult falling asleep.
   D. A child riding a bicycle.

2. Watson and Rayner's experiment with "Little Albert" showed that fears and phobias:
   A. originate in fixed action patterns
   B. can be acquired through classical conditioning
   C. are based on unconscious processes
   D. are not subject to counterconditioning techniques

3. An experimental subject was classically conditioned to blink every time a blue light appeared. That response has been extinguished. In other words:
   A. the subject now blinks to lights of other colors
   B. the CR no longer occurs.
   C. the US no longer elicits blinks
   D. only the CS elicits blinks

4. If a well-established CS is paired with a neutral stimulus, then the neutral stimulus will eventually come to elicit the CR. This is called:
   A. operant conditioning
   B. higher order conditioning
   C. insight learning
   D. observational learning

5. Which of the following strengthens or increases the probability that a behavior will occur again?
   A. negative reinforcement
   B. positive punishment
   C. stimulus control
   D. instinctive drift

6. The difference between a positive and a negative reinforcer is that:
   A. the former increases behavior when something is added, while the latter increases behavior when something is taken away.
   B. the former increases a behavior while the latter decreases a behavior
   C. the former unpleasant, while the latter is pleasant
   D. the former is rewarding, while the latter is punishing

7. If we have been reinforced on an intermittent schedule, we tend to continue the behavior, even though reinforcement has stopped, because:
   A. we continue to perceive reinforcement, even if it isn't there
   B. stimulus generalization is more likely to occur
   C. performance increases just after reinforcement occurs.
   D. It takes us longer to recognize that reinforcement has stopped.

8. In a treatment center, a staff member gives a mentally retarded child a token for dressing himself. This is an example of:
   A. operant conditioning
   B. classical conditioning
   C. insight learning
   D. observational learning

9. A young child loves to read and learns much more quickly than her classmates. Her parents begin rewarding her every time she advances to the next reading level. A potential effect of these rewards is to make reading a _____ reinforcing activity.
   A. more intrinsically
   B. less intrinsically
   C. less extrinsically
   D. more instinctively

10. New behaviors that have been acquired through observational learning may remain latent until:
   A. the correct unconditioned stimulus is present.
   B. A person reaches the age when that specific genetic potential unfolds
   C. A situation requires or allows that behavior
   D. A person enters an altered state through hypnosis or drugs

11. The Breland's attempted to teach a chicken to carry an object in its beak and drop it in a designated place. However, the chicken insisted on pecking at the object instead. This problem is an example of:
   A. insight learning
   B. modeling failure
   C. instinctive drift
   D. extrinsic reinforcement

12. According to cognitive psychologists, insight learning is different from other types of learning because in insight learning:
   A. a model guides the learning of the unique response
   B. inborn stimulus-response patterns provide the foundation for learning
   C. previously learned responses are combined in new ways
   D. direct reinforcement of the response is necessary

Memory Review

Memory = Any indication that learning has persisted over time

Models of Memory

Key vocab. = encoding (info in), storage (retain info.), retrieval (get it back out)

1. **Information Processing Method aka. Three Stage Processing Model of Memory**
   Encoding to Storage to Retrieval

2. **Three – Stage Processing Model of Memory (Richard Atkinson & Richard Shiffrin)**

   Sensory Memory (Record) to STM (Encode) to LTM (Retrieval)

   Important Vocab.
   Sensory Storage
   Iconic (few 10th's of a second)
   Echoic = (3 – 4 seconds) Memory
   Visual Persistence = Speed of Information causes memory to run together
   Sensory-- researched by George Sperling
   STM aka. Working memory-- STM 10 sec. – 1 min., # items,
   Primarily **acoustically coded**, despite nature of original source
   Others items used include: **Semantic and Visual Encoding**
   Semantic Encoding leads to Better Memory
   Primarily maintained through Maintenance and Elaborate Rehearsal
   Cocktail Party Phenomenon
   Selective Attention is key to memory!!!

How to encode: automatic processing vs. effortful processing
Parallel Processing

Memory studied by Hermann Ebbinghaus (1850 – 1909) "Forgetting Curve"

How to improve STM

1. Chunking
2. Self – Reference Effect = Ability to remember adjectives if relate to yourself – (connection to Episodic Memory)
3. Mnemonic Device
   Peg System
   Acronyms

4. Maintenance and Elaborate Rehearsal
5. Imagery – Mental Pictures
6. Organizations – Use Hierarchies
7. Overlearn * for LTM
8. Refresh memory by activating Retrieval Cues
9. Recall memories while fresh, before you encounter possible misinformation
10. Minimize Interference

Amount remembered depends on time spent learning.

Next – in – Line Effect = If going around in circle, person has poorest memory of what person before them said.

Info. presented a few minutes before sleep seldom is remembered – WHY??

Long Term Memory – 3 Types

1. Episodic
2. Semantic aka. As Declarative, often viewed as being organized into schemas, cognitive frameworks
3. Procedural – Stored in Cerrebellum

Explicit (Declarative) vs. Implicit (Nondeclarative, Procedural)
Eidetic Memory (Andra Lucia studied w/ Shereshevskii)
Flashbulb – problem w/ reconstructive memory

3. Levels of Processing Model

Memory of an item is positively correlated w/ amount of thinking about or amount memory is processed

Explains memory of stories & questions better than statements

3 Types of Retrieval (3 Re's)

W/ age Recall is More Difficult / Recognition is constant (Connection to Fluid / Crystallized Intelligence)

Factors that Influence Retrieval

1. Serial Position Effect (Primacy vs. Recency)
2. Context
3. Mood Congruent Memory
4. State Dependent Memory – aka. As Encoding Specificity Principle
5. Spacing Effect

6. Priming

Problem w/ Reconstructive Memory (Elizabeth Loftus) abuse studies
Factors (Misinformation Effect) and "Recovered Memory Phenomenon" ex. Of Source Amnesia
Opposite is Positive Transfer

Forgetting Increases due to:

1. Decay
2. Interference (Types) Retroactive vs. Proactive
3. Repression

others according to (Daniel Schacter)

4. Absent – Mindedness
5. Transience aka. Decay
6. Blocking connection to Repression or Tip of Tongue Phenomenon
7. Source Misattribution aka. (Source Amnesia)
8. Suggestibility
9. Bias

Effect of Alcohol on Memory

Connection of Memory Encoding w/ Limbic System
Inability to recall memory if Damage to Dif. Sides of Hippocampus
Problem if damage to Rt. / Left side hippocampus (Connection to Rt. / Left side of Brain
Many brain regions active in encoding, storage, retrieval of memory (ie. Hippocampus, Frontal / Temporal Lobes, etc.)

Retrograde vs. Anterograde Amnesia vs. Source Amnesia
Infantile Amnesia – occurs due to Implicit Memory in Cerebellum / Explicit Memory in Hippocampus
Long – Term Potentiation = Neurons ability to strengthen connections between ea. other, increase learning & memories

Excitement / or Stress Increases Memory Retention & Learning
More emotion – Stronger Memories
Problem w/ prolonged stress – Shrinking Brain – Reduced Memories

Chapter 7

Cognition I: Memory-AP Review

1. Santayana's statement that "those who cannot remember the past are condemned to repeat it" implies that are memories:
   A. contribute to our identity
   B. are often inaccurate
   C. help guide future action
   D. give us competence in our everyday activities

2. The information-processing view of memory states that the human brain:
   A. alters and organizes data
   B. records and stores all incoming data
   C. stores only elaborated data
   D. can retrieve all the data that was ever entered

3. Twenty years ago, Adam and Ann wrote their own wedding vows. Today, they can recall the opening world but nothing past that. They both insist they would recognize the words, but can't recall them. This suggests that:
   A. the words are probably gone from LTM
   B. the words were not meaningful enough to be encoded
   C. the words are stored, but not easily retrieved
   D. propositions eventually decay

4. Katie insists she can remember her family's annual Christmas tree surrounded by gifts. However, when she is older, her family members remind her that they lived in a tropical country for first six years and had no Christmas tree. How is this possible?
   A. this is an example of childhood amnesia
   B. the correct information was never stored in LTM
   C. Katie must have damage to the hippocampus
   D. Memory is a reconstructive process and the Christmas tree was "filled in"

5. One can increase the amount that can be held in STM by
   A. eliminating anterograde amnesia
   B. increasing eidetic imagery
   C. chunking data
   D. deep processing

6. A student must memorize a poem. He finds that he can remember the opening lines and closing lines but has great trouble remembering the middle section. This phenomenon is called the_____effect.
   A. elaboration
   B. serial position
   C. encoding
   D. chunking

7. Most likely, your class presentation, "How I Spent My Summer Vacation," is based on your _____memory.
   A. episodic
   B. iconic

C. procedural
D. semantic

8. After an automobile accident that involved a blow to the head, Roger cannot recall anything that happened just before the accident. How can this be explained?
   A. His hippocampus has been damaged.
   B. There was insufficient time for consolidation to occur.
   C. This is an example of retroactive inhibition.
   D. Such memory relies on procedural rather than episodic memory.

9. Why are you advised to complete your studying the night before your big exam, and then get a good night's sleep?
   A. STM can pass its information on to LTM.
   B. This allows for consolidation in LTM.
   C. This permits long-term potentiation to occur.
   D. Information must move from being distributed to being localized for easy retrieval.

10. Rene learns 20 new French vocabulary words in French 101. She then goes to Spanish 101 and learns 20 new words. She now cannot recall her French words. This is an example of:
    A. reconstructive decay
    B. retroactive interference
    C. proactive interference
    D. retrieval failure

11. Rhonda remembers to call for a hairdresser appointment. However, she forgets to call for a dental appointment which will continue her rather painful dental work. Her forgetfulness may be an example of:
    A. proactive interference
    B. motivated forgetting
    C. retroactive interference
    D. decay

12. On her way home, Laura encounters a young man who seems to know her. He says they met at a party at which the host almost set the house on fire while trying to reheat a cold pizza. Laura suddenly remembers talking to the man at the party. This is an example of:
    A. cue-dependent forgetting.
    B. proactive interference
    C. state-dependent memory
    D. retroactive interference.

Cognition & Language Review

Language

Language = Arrangement of Sounds to Communicate Ideas, based on 5 ideas

1. It is Arbitrary, Words sound like ideas they convey
2. It is Additive in a certain tense, to form sentences, paragraphs, etc.
3. It has Multiplicity of structure meaning that it can be analyzed in different ways
4. It is Productive – endless meaningful combinations of words
5. It is Dynamic – Constantly changing and evolving

Phonemes (44 in English)

- Consonant phonemes carry more info. than vowel phonemes

Morphemes

- Includes prefixes & suffixes

Grammar = Semantics & Syntax

Prosody = Tone & Inflection added to language

Semantics = Set of rules we use to determine meaning from morphemes, words & sentences

Syntax = Order of how words are put into sentences

Language Acquisition –Basic Stages

1. Babbling – Completely Innate (even deaf children do)
   - Advantageous to learn foreign language at early age
   - 4-10 months
2. Single Word Phrases = Holophrases (12 months)
2. Two Word Stage aka. ? (24 months)
3. Three Word Stage (24 months +) (Only discussed in Morris)
4. Telegraphic Speech – combine words into simple language
   syntax used correctly if modeling occurs (2 Word Phrases)

   Error may occur if infant does not know enough words to express something fully
   =**Overextension**

Overgeneralization = Misapplication of Syntax

Age / Vocab Level

18 months /100 words

3 / over 1000 words = Overextension often occurs

5 / Huge Vocab, Most grammatical mistakes have disappeared

10 / Child Language relatively same as adults

3 Conflicting Theories Language Acquisition

1. Behaviorist
2. Noam Chomsky – Language Acquisition is Born aka.
   Nativist Theory of Language Acquisition supported through Transformational Grammar (difference between structure of language (syntax) and deep structure of language (semantics)
3. Cognitive Neuroscientists: Statistical Learning
   Neural networks based on experience

- Critical Period

Language & Cognition

Benjamin Whorf – "Linguistic Relativity Hypothesis" - Language we use controls, limits thinking
- Studies have shown labeling does affect thought of pop, objects, ideas, but have NOT shown language creates thoughts (Edward Sapir – Garo people of Burma different words for rice)
- Ex. Gender Bias formed from he / she

Thinking & Creativity

1. Concepts = Types of Categories / Thoughts, similar to schema, based on rules ie. Bird
   <u>2 Types of Concepts</u>
   1. Superordinate Concept = Very broad concept encompasses large group of items "food"
   2. Subordinate Concept = Even smaller & more specific such as "Rye Bread"
2. Prototypes = Most Typical Example of Concept, ie. Bird = Robin
3. Typicality = **Degree** to which an object fits the average
4. Images = Mental Pictures ie. What a bird looks, sounds like, etc.

Thinking

<u>2 Basic Forms</u>

1. Autistic = Daydreaming or Fantasizing
2. Directed = Reasoning, Drawing Inferences & Problem Solving

<u>2 Types of Reasoning</u>

1. Deductive – Drawing specific conclusions from general info.
2. Inductive – Drawing general conclusions from specific info.

Problem Solving

1. Trial & Error - + / -
2. Means – Ends Analysis – What can I do to get there? ie. Stew
3. Working Backwards – Final Goal then work back (How to get to O'Hare)
4. Algorithm = Rule that **ALWAYS** generates solution by using formula
5. Heuristic = Rule of Thumb, **MAY** come up w/ solution

Faulty Heuristics

1. Availability Heuristic = similar situations that come to mind
   (ie. Plane Crash)
2. Representative Heuristic = How similar aspect is to prototype (ie. Librarians)

Problems to Problem Solving

1. Overconfidence
2. Belief Bias = illogical conclusions used to confirm belief
3. Belief Perseverance = Maintain belief even after contradictory evidence
4. Consensus Bias = aka? = Everyone is doing it
5. Barnum Effect = Belief person fits particular description, ie. Horoscope
6. Attribution Theory - How people explain others' behaviors due to disposition or situation
7. Fundamental Attribution Error – Own behavior due to situation, others' behavior to disposition
8. Self – Serving Bias = aka. = Good things due to disposition, bad things due to situation
9. Just World Hypothesis
10. Illusionary Correlation – perception of relationship where none exists
11. Rigidity aka. Mental Set, or Perceptual Set = Fall into fixed thought patterns
12. Fixation – Inability to see problem from fresh perspective
13. Functional Fixedness
14. Not using Sub goals
15. Confirmation Bias
16. Framing

Additional Vocab.

Divergent vs. Convergent Thinking
Syllogism = Deductive conclusions drawn from 2 premises
Brainstorming aka.
Metacognition

Individual view of creativity differs, but most agree on specific ex's that are creative

Insight = Wolfgang Kohler (Chimpanzees)1925

Additional info. Artificial Intelligence = Computers compared to brain + / -

Creativity – Indiv. Criteria varies, Most involve originality & appropriateness

- Relationship to Divergent Thinking, negative correlation to Convergent Thinking
- Relationship to IQ

CHAPTER 8

Cognition II: Thought and Language AP Review

1. Mike always buys special life insurance before taking any airplane trip, yet he never wears his seat belt while driving. What principle best explains this behavior?
   A. loss aversion
   B. bias due to expectation
   C. hindsight
   D. exaggerating the improbable

2. In answer to the question, "What swims in the sea?", most children and adults are likely to give the basic concept:
   A. fish
   B. marine life
   C. sharks
   D. animals and plants

3. Keith is sitting at the computer keyboard composing his term paper. He thinks of a sentence and effortlessly types it. His ability to think and type at the same time demonstrates the efficiency of _____processing.
   A. conscious
   B. nonconscious
   C. subconscious
   D. unconscious

4. Dialectical thinking involves:
   A. thinking critically about opposing points of view
   B. drawing conclusions from specific observations
   C. drawing logical conclusions from general assumptions
   D. using syllogisms to reason out a problem.

5. Debra consistently receives C's and D's on her papers, but doesn't know why. Finally, a professor gives her extensive feedback about her writing skills. Debra begins to think about correcting the weaknesses in her skills. She is:
   A. relying on heuristics
   B. defining the problem
   C. executing a strategy
   D. using an algorithm

6. Dr. Johnson is a new physician. He orders many tests for patients before making a diagnosis. Dr. Wilson is an experienced physician and considered an expert in his field. He orders few tests, but his diagnoses are as accurate as those of Dr. Johnson. Why is this?
   A. Dr. Wilson graduated from a better medical school.
   B. Dr. Wilson thinks like a computer.
   C. Dr. Wilson relies on his accumulated knowledge.
   D. Dr. Wilson is more intelligent.

7. All of the following are aspects of creativity EXCEPT:
   A. producing something new
   B. divergent thinking
   C. convergent thinking

D. overcoming a set

8. You hear that one of the Smith children is an outstanding Little League player and immediately conclude it's their one son rather than any of their four daughters. You reached your quite possibly erroneous conclusion as the result of:
   A. the Confirmation Bias
   B. the Availability Heuristic
   C. the Representative Heuristic
   D. Belief Perseverance

9. In relation to ground beef, consumers respond more positively to an ad describing it as "75% lean" than to one referring to its "25% fat" content. This is an example of:
   A. the Framing Effect
   B. the Confirmation Bias
   C. a Mental Set
   D. Overconfidence

10. Your watchdog can only communicate about the burglar while the intruder is entering you house. You, however can communicate about the burglar days and even months later. That is because your system of communication has
   A. sounds shaped into words
   B. productivity
   C. syntax
   D. displacement

11. A city slicker crashes in the Amazon area, calls all the greenery "jungle", and experience the "jungle" as an obstacle that interferes with his travel. A local inhabitant walks in the same greenery and names the various plants that produce food, provide raw materials for clothing, shelter building, furniture, etc. Whorf would say that this example demonstrates that:
   A. thinking influences the kinds of words in a language
   B. language does not influence cognition
   C. linguistic universals are rare, but do exist
   D. language influences our perception of reality

12. Careful investigation into early attempts to teach non-human primates language showed that:
   A. several species could develop the language ability of a typical three year old
   B. with careful training, some chimps could learn to vocalize words correctly
   C. dolphins were superior to primates in responding to spoken requests.
   D. Researchers inadvertantly gave non-verbal cues for correct responses.

Intelligence – Review

Intelligence Terms and Measurements

Standardized = Tests that have been piloted on similar pop of those who are meant to take the test, Achievement norms established, ex. SAT

Standardized Sample = Representative group of people who will take the test

Psychometricians

Reliability – Tested in 3 ways

1. Split – Half Reliability = Test split in ½, subject takes both parts of test, test scores are correlated, top scores are equal.
2. Equivalent – Form Reliability = Different forms of same test given, scores on different test are correlated for ea. Subject, top score equal
3. Test – Retest Reliability = Correlation between person's score on administration of 1 test and score of same test if it is retaken, top score equal

Perfect Reliability = Reliability Coefficient of +1

Validity – "Accuracy of Test" Measures what test is supposed to test – 6 Ways Tested

1. Face – Validity = Superficial measure of accuracy (form of content – validity)
2. Content – Validity = How well a measure reflects entire range of material it's supposed to be testing, degree material is balanced on test
3. Criterion – Related Validity measured 3 ways
    1. Concurrent Validity = How much of characteristic person has now
    2. Predictive Validity = How much of characteristic person has now that will predict future performance
    3. Construct Validity = If an Independent Variable exists that ID intelligence, correlation is made between amnt. of quality, ie. Intelligence & new intelligence test, "True Validity"

    * Factor Analysis = Allows researchers to id clusters of test items that measure common ability

*It is possible to have a test that is reliable but not valid. It is **impossible** to have a test that is valid but not reliable!!!

2 Types of Test = Achievement vs. Aptitude

Other types of test include: Speed vs. Power Tests

Power Tests gauge abilities in certain areas. Extremely difficult; unlikely an individual can get all answers correct

Group vs. Individual (+ / - for ea.)

Culture – Free Test or Culture – Fair Test

Intelligence = Ability to gather & use info. In productive ways

Different Theorists & Their Theories

1. Charles Spearman – IQ is General, g factor
2. L.L. Thurstone – 7 Main items (Reasoning, Verbal Comprehension, Memory, Spatial Ability, Perceptual Speed, Numerical Ability, Word Fluency) Book says 8 divides Reasoning into deductive & Inductive
3. J.P. Guilford – Over 100 different mental abilities
4. Howard Gardner **– Multiple** Intelligences (8) Know all 8
5. Nancy Cantor & John Kihlstrom – Social Intelligence (Comprehending Social Situations & managing oneself successfully)
6. Daniel Goleman, (originally suggested by Mayer & Salovey – EQ) (Interpersonal & Intrapersonal) says successful indiv. Needs both EQ & IQ
7. Robert Sternberg – Triarchic Theory of Intelligence
   3 types of intelligence: **ACE** = **A**nalytic intelligence (Componential), **C**ontextual (Practical) intelligence & **E**xperiential intelligence
8. Lewis Terman – Revised Stanford – Binet, does 1st Gifted Studies Barron's says creates IQ
9. William Stern – Creates IQ (Meyer's)
10. Crystallized vs. Fluid Intelligence

- Crystallized = One's accumulated knowledge as reflected through vocabulary & analogies, does not diminish with ?
    - Fluid = One's ability to reason speedily & abstractly

Different Intelligence Tests

1. Alfred Binet = 1st Intelligence test (developed in France), comes up w/ **mental age**, says IQ increases w/ age
2. Stanford – Binet = Created by Lewis Terman, 2 Parts Verbal & Performance, All adults have Mental Age of 20
3. David Weschler – develops 3 IQ tests (WPPSI, WISC, and WAIS) based on age. Weschler's Tests are based on Standard Deviation of 15 where mean is 100, Advantages = 11 subscales (6 verbal , 5 performance) + Total IQ (used to determine LD)

Normal Bell Curve (Normal Distribution)

68% of all scores fall w/in 1 SD of Mean, (85 –115)
95% of all scores fall w/in 2 SD of Mean, (70 – 130)
98 – 99% of all scores fall w/in 3 SD of Mean, (55 - 145)

Test is not considered biased even though advantages are to white, middle & upper class

IQ Extremes

Mental Retardation = IQ scores **below** 70. Causes?

4 Types of Mental Retardation

1. Mild (50 – 70) 85% Academic skills up to 6th grade
2. Moderate (35-49) 10% May progress to 2nd grade
3. Severe (20-34) 3 – 4 % May learn to talk & perform simple work under close supervision
4. Profound (Below 20) 1 – 2 % Require constant aid & supervision

Additional topics: Learning Disabled, Autistic Savant

Government / School Programs / Gifted / Genius / Prodigy

Gifted - IQ over 130
Genius - IQ over 145 +
Prodigy – Omnibus or specific field

Louis Terman – 1st study of gifted children

Is intelligence function of Nature or Nurture?

Nature argument originally suggested by Sir Francis Galton

Heritability (Coefficient) = How much of a trait is explained by genetic factor, ie. 50% heritability = attribute to heredity 50% of variation
Range from 0 to 1, where 0 = environment is totally responsible for trait & 1 = all of trait is attributed to genetic factor

Different Studies on Nature / Nurture

1. Flynn Effect = Performance on IQ Tests has been increasing steadily throughout century - due to ?

2. Monozygotic Twins score much more similarly on intelligence tests than dizygotic twins
3. Research on Identical twins separated at birth have strong correlations in intelligence scores
4. Chromosome 6 – relationship to Gifted
5. ? Head Start
6. Differences between individuals of same race taking tests and individuals of different races taking tests
7. Except for impaired & gifted observations before age 3 minimally predict future performance, by kindergarten stronger relationship, increases w/ age

Miscellaneous – Highly Intelligent individuals brains are less active, less glucose, according to PET Scans

Self – Fulfilling Prophecy

Qualities of Creative Individual

1. Expertise
2. Imaginative Thinking Skills
3. Venturesome Personality
4. Intrinsic Motivation

Intelligence related to Creativity
Environment effects Creativity
I/O Psychology relationship to Creativity

Ethics in Testing

(Guidelines)

1. Confidentiality must be protected
2. Purposes of test must be clear to those administering & those taking the test
3. Questions should be asked & answered – Who will see the results of the test? How will the scores be used?
4. Impact of the scores should be ascertained before the test is given

Practice Questions

Directions: Each of the questions or incomplete statements below is followed by five suggested answers or completions. Select the one that is best in each case.

1. Paul takes a test in the army to see if he would make a good pilot. Such a test is
   (A) a standardized test.
   (B) an aptitude test.
   (C) an intelligence test.
   (D) an achievement test.
   (E) a biased test.

2. If a test is reliable, it means that
   (A) it is given in the same way every time.
   (B) it tests what it is supposed to test.
   (C) it is a fair assessment.
   (D) it yields consistent results.
   (E) it is also valid.

3. The standardization sample is
   (A) the group of people who take the test.
   (B) a random sample of the test takers used to evaluate the performance of others.
   (C) the people used to represent the population for whom the test was intended.
   (D) all the people who might ever take the test.
   (E) the top 15 percent of scores on the test.

4. Which of the following is not one of Howard Gardner's multiple intelligences?
   (A) practical
   (B) musical
   (C) interpersonal
   (D) spatial
   (E) linguistic

5. Mrs. Cho is careful to make sure that she fairly represents the whole year's work on the final exam for her American literature class. If Mrs. Cho achieves this goal, her test will have
   (A) test-retest reliability.
   (B) construct validity.
   (C) content validity.
   (D) split-half reliability.
   (E) criterion validity.

6. Astor scores at the 84th percentile on the WISC. Which number most closely expresses his IQ?
   (A) 85
   (B) 110
   (C) 115
   (D) 120
   (E) 130

7. Spearman argued that intelligence could be boiled down to one ability known as
   (A) *s*.
   (B) *i*.
   (C) *g*.
   (D) *a*.
   (E) *x*.

8. Which of the following would provide the strongest evidence for the idea that intelligence is highly heritable?
   (A) The IQ scores of parents are positively correlated with the scores of their children.
   (B) Monozygotic twins separated at birth have extremely similar IQ scores.
   (C) Dizygotic twins score more similarly on IQ tests than do other siblings.
   (D) Adopted children's IQ scores are positively correlated with their adopted parents' scores.
   (E) Different ethnic groups have different average IQ scores.

9. All of the following people are known for their theories of intelligence except for
   (A) Thurstone.
   (B) Gardner.
   (C) Sternberg.
   (D) Flynn.
   (E) Guilford.

10. Which statement is true of power tests?
    (A) They are administered in a short amount of time.
    (B) They are an example of an individual test.
    (C) They are a pure measure of achievement.
    (D) They consist of items of varying difficulty levels.
    (E) They yield IQ scores.

11. People with high EQs would be likely to
    (A) pursue high-paying occupations.
    (B) complete college.
    (C) find jobs well suited to their individual strengths.
    (D) be creative problem solvers.
    (E) have a lot of close friends.

12. Although her score on the personality test indicated that Mary was devoid of social grace, painfully shy, and frightened of other people, she is extremely popular and outgoing. This personality test lacks
    (A) reliablity.
    (B) standardization.
    (C) consistency.
    (D) validity.
    (E) practical worth.

13. Santos is 8 years old and, according to the Stanford-Binet, he has a mental age of 10. What is his IQ?
    (A) 80
    (B) 100
    (C) 120
    (D) 125
    (E) 150

14. The Flynn effect is the finding that
    (A) intelligence seems to increase with every generation.
    (B) television has decreased intellectual performance.
    (C) linguistic skills decline with age.
    (D) within-group differences are larger than between-group differences.
    (E) the more times people take a test, the better they tend to score.

15. Desmond believes that nature is far more important in shaping personality than nurture. Desmond probably believes in the strong influence of
    (A) environment.
    (B) learning.
    (C) reinforcement.
    (D) genetics.
    (E) culture.

Motivation and Emotion Review

Motivations = Feelings or ideas that cause behavior & direct it toward a goal

Theories of Motivation

1. Original Theory of Motivation said "Instinctive" supported by Imprinting
2. Drive Reduction Theory – based on Homeostasis
   - Need = Requirement for Survival
   - Drive = Impulse to act to satisfy this need
     - Body seeks Homeostasis = Balanced Internal State
     - 2 Types of Drives = Primary / Secondary
3. Arousal Theory – Optimum Level of Excitement or Arousal, for best performance (Olds / Milner)
   - Yerkes – Dodson Law = Easy Task - High Level of Arousal
     Hard Task – Low Level of Arousal
     Similar to Social Facilitation
4. Incentive Theory – Incentive are stimuli that we're drawn to due to LEARNING, People seek rewards (Positive) over punishments (Negative)
   - Law of Effect
5. Maslow's Hierarchy of Needs - Order? Philosophy?

Hunger Motivation

1. Biological - Hypothalamus controls body chemistry due to glucose & insulin (Hunger vs. Satiety Center)

- 2 Important Parts of the Hypothalamus, through animal studies
  1. Lateral Hypothalamus – stimulation causes animal to eat & drink(Orexin in rats)
  2. Ventromedial Hypothalamus – causes animal to stop eating & drinking if stimulated
- Set Point Theory – Hypothalamus wants to maintain set weight (glucose) supported by Ancel Keyes experiment

- Basal Metabolic Rate – Body's resting rate of energy expenditure
- Lipostatik Hypothesis - fat is measured & controlled by substance in body that regulates hunger, supported through discovery of leptin (hormone secreted by fat cells)
- Glucostatic Hypothesis – relationship to diabetes

2. Psychological – Motivation to eat caused by cognitive cues (2 Types)
   - External
   - Internal

- Studied by Judith Rodin
- Garcia Effect aka. Taste Aversion = occurs when nausea is paired w/ food or drink - ? Evolutionary School
- Culture / Background effects food preferences, but sweet and salt preferred everywhere
- Eating Disorders - 3 Types
  1. Anorexia Nervosa – underweight 15% or more, ages, characteristics, gender
  2. Bulimia – Binge / Purge, ages, characteristics, gender
  3. Obesity – usually 100 lbs. overweight on ave., excess weight threatens health

Amount of eating disorders varies w/ cultures / countries, race – WHY?

3. Thirst – Level regulated by hypothalamus
   - Lateral Hypothalamus Increases thirst / Preoptic Area Hypothalamus Decreases thirst
   - Theories regarding Thirst
     1. Amount of Fluid in cells regulated by Osmorecepters (if low than… if high than….)relates to diuretics
     2. Volume of Liquid in Circulatory System – If low Angiotensin released… / If high…Osmorecepters
4. Sexual Motivation
   - Sexual Behavior (Alfred Kinsey) Problems w/ Study
   - Sexual Response Cycle – Masters & Johnson – 4 Stages
     1. Excitement
     2. Plateau Phase
     3. Orgasm
     4. Resolution Phase – Men have Refractory Period
   - Biological vs. Psychological Factors –Effect of Testosterone, Depo – Provera (reduces testosterone used on sexual offenders)
   - Hormones
   - Sexual Disorders = Premature Ejaculation, Impotence, or Orgasmic Disorder
   - Premarital Sex Rates Increasing – WHY??
   - Sexual Orientation –Based on Biological not Behaviorist Factors (1973 dropped from DSM, why?)
   - Biological Factors include
     1. Brain Structures differ in size of hetero / homosexuals – Simon LaVey study Hypothalamus, Roger Gorski corpus callosum larger in Homosexuals
     2. Twin Studies
     3. ? Relationship to hormone in prenatal period (2^{nd} to 5^{th} month)
     4. 3 – 10% (estimates vary) of population is homosexual

Social Motivation

1. Need to Belong – Harlow Study

Achievement Motivation – Our desire to Master Complex Tasks & Knowledge & to Reach Personal Goals

- Some people are / others aren't, also varies by task
- How tested?
- Low Achievement Individuals choose tasks that are either very easy or very difficult, where failure is likely
- More successful are more energetic, ambitious, persistent, productive at early age, most often first – born, parents are more encouraging hold high expectations
- Optimum Arousal = General Level of Arousal a person is motivated to seek, whether or not arousal is productive in meeting a goal
- 2 Types of Motivators - Cognitive Theory
  (Extrinsic vs. Intrinsic)
- Intrinsic Motivation is strongest and lasts longest!!!

Management Theory – I/O Psychology

- 2 Management Styles
  Theory X (workers are externally motivated)
  Theory Y (workers are intrinsically motivated)

  Task Oriented vs. Relationship (Social) Oriented
  Which is Best? Relationship w/ gender of manager
- Key is to challenge workers who want accomplishment, recognize attention they deserve, put those who value affiliation in groups that share decision making

Positive Psychology - Mihaly Csikezentmihalyi (Flow) & Martin Seligman

When Motives Conflict

4 Major Types of Motivational Conflicts (Kurt Lewin):

1. Approach – Approach
2. Avoidance – Avoidance
3. Approach – Avoidance
4. Multiple Approach - Avoidance

Theories on Emotion

Emotion = Feeling (Emotion and Motivation have a reciprocal relationship)

Stress affects Autonomic N.S.

1. James – Lange Theory

Stress (Stimuli) **causes** Biological change **causes** Emotion change

2. Cannon – Baird Theory

Stress (Stimuli) **causes** Biological change **at same time as** Cognitive Awareness of Emotional State

(Cannon believed this was due to thalamus sending signals to Cortex & Autonomic N.S. at same time) In reality it's both thalamus & amygdale.

Current Theories about Emotion say Biological Changes are involved w/ emotions but don't cause them

3. Two – Factor Theory (Stanley Schacter)

Physical Responses & **Cognitive Labels** combine to cause emotional response

Also states: The more physically aroused you are before the event the more intense the emotion you'll experience

Difference between activation different hemispheres on positive / negative outlook

4. ***Opponent – Process Theory of Emotion*** – Richard Soloman
   Every emotion triggers an opposing emotion
5. ***Robert Zajonc's View*** – sometimes emotional reactions are stronger than cognition = we feel before we think
6. ***Temperal Sequence Theory*** – go through repeated cycles of appraisal / reappraisal when confronted w/ stimulus

Nonverbal Communication

- James Laird's experiment with eye gazers for 2 minutes, effects of feelings from physical ie. smile, frown
- Carroll Izard / Ekman 6 basic emotions match facial expressions: joy, anger, disgust, surprise, sadness, fear
- Display of emotions vary by cultures and mores
- Fear comes from amygdala
- Aggression is learned

- Catharsis Hypothesis = Reduce anger by releasing it through aggressive action or fantasy

Stress

Stress = Stressors (certain life events) or how we react to changes in the environment (stress reactions)

Stress can be transient or chronic – which is worse?

Social Readjustment Rating Scale (SRRS) (Thomas Holmes & Richard Rahe)

- Measured Stress using Life – Changing Units (LCU)
- LCU's can be positive or negative
- Positive Correlation between amount of LCU's and having a Stress – Related Disease

General Adaptation Syndrome (GAS) (Hans Seyle) 3 Stages

1. Alarm
2. Resistance
3. Exhaustion

Perceived Lack of Control over events exacerbates harmful effect of stress

If individual is in control of events, actually experiences less stress than identical event with no or little control

Extra Vocabulary Terms

- Feel – Good, Do – Good Phenomenon
- Adaptation – Level Phenomenon = Judgment of various stimuli is relative to what we have previously experienced
- Relative Depravity = Sense that we are worse off than others within we compare ourselves
- Mihaly Csikszentmihalyi – FLOW= People are happier if totally mentally engaged
- Type A vs. Type B

Chapter 9
Emotion

1. The main channel for communication of emotional information is:
   a. the face
   b. voice pitch
   c. the hands
   d. body posture

2. Sandra is faced with dangerous situation. The hormones involved in her reactions to the danger are:
   a. epinephrine and norepinephrine
   b. serotonin and dopamine
   c. androgen and estrogen
   d. melatonin and norepinephrine

3. Cathy is feeling happy and cheerful. Most likely a brain scan would demonstrate:
   a. increased activity in the right hemisphere
   b. increased activity in the left hemisphere
   c. increased activity in the cerebellum
   d. decreased activity in the hypothalamus

4. An old, rundown house in you neighborhood burns down. You and your neighbors stand staring at the burnt-out shell. One neighbor says, "I feel sad for the poor family who lived here. They no longer have a home." Another says, "I'm glad the old eyesore is finally gone." This example demonstrates that:
   a. there really are right and wrong emotions
   b. particular emotions are tied to one's interpretation of events
   c. some individuals have few, if any feelings when tragedy strikes
   d. unless you are physiologically aroused, you won't label anything as a feeling

5. At the Overcoming Loneliness Support Group for new students, one member states, "I've never been on such a big urban campus. Everyone seems very busy. I'm having a hard time meeting people." Based on you knowledge of the relevant research, how do you evaluate this?
   a. This person sees internal reasons for his loneliness. This is likely to help in overcoming loneliness.
   b. This person sees his loneliness as the result of a stable internal cause and will have difficulty overcoming loneliness.
   c. This person feels that others control his loneliness and this will help in overcoming loneliness.
   d. This person sees external reasons for his loneliness. This is likely to help in overcoming loneliness.

6. A father loses a child to an incurable disease. How he experiences and expresses his emotions will be determined by:
   a. brain mechanisms in the limbic system
   b. physiological changes
   c. his body language
   d. the culture he lives in

7. Which item is out of place here?
   a. gesture
   b. emotion work
   c. posture
   d. body language

8. According to research, one way that men and women differ regarding emotional behavior is that
   a. men become more anxious in unfamiliar situations
   b. women have greater physiological responses to conflict dissension
   c. men are more likely to express their anger towards women if they feel they have been challenged
   d. women are more likely to talk about negative emotions such as fear and sadness with those who are close to them

9. A general finding involving the PONS test is that:
   a. there is no gender differences in the ability to read emotions
   b. both men and women find it easier to express feelings to men
   c. women are reliably more skilled at reading emotional cues
   d. men are more accurate in detecting anger and women more accurate in detecting fear

Chapter 10
Motivation

1. You awaken one morning to find all the male dogs in your neighborhood at your front door. They seem eager to meet you pet beagle, who is in heat and equally eager to meet them. One would say these dogs are highly:
   a. emotional
   b. motivated
   c. conflicted
   d. homeostatic

2. Push is to pull as:
   a. biological motives are to social motives
   b. social motives are to emotional motives
   c. goals are to needs
   d. needs are to drives

3. A member of the Conflict Anonymous Group has a choice of renting two apartments. The first is small, inexpensive, in a somewhat rundown building and only 20 minutes from the campus. The second is much more attractive, more expensive, 40 minutes from campus and larger that the first. This student is caught in a/an _____ conflict.
   a. avoidance-avoidance
   b. approach-avoidance
   c. approach-approach
   d. multiple approach-avoidance

4. Social motives are to primary motives as:
   a. power is to friendship
   b. hunger is to homeostasis
   c. friendship is to relief from pain
   d. excessive cold is to relief from pain

5. Which factor has been shown to influence work motivation **the least?**
   a. flexibility in doing tasks
   b. setting goals and feedback on those goals
   c. teamwork
   d. high pay

6. Which one of the following is likely to enjoy and value his membership the most in the Geta Beta Thi fraternity?
   a. Sam, who paid $5.00 to join
   b. David, who wrote a five page essay about why he wanted to join
   c. Rick, who certified he had at least a "C" average to join.
   d. Peter, who had to wear a Fraternity hat for one day to join.

7. According to current research, cognitive dissonance is most uncomfortable to a person when an attitude or behavior:
   a. violates one's self-concept
   b. involves religious beliefs
   c. contradicts one's sense of morality or justice
   d. involves one's child-rearing philosophy

8. Which of the following statements best expresses the so-called double standard of sexual behavior?
   a. men should use condoms
   b. women need a more reliable contraceptive technique
   c. men are more interested in pleasure, while women are more interested in love
   d. men can have casual sex, but women should not