

REVIEW FOR EXAM 3

- **NOTE:** You are responsible for all material covered in my lectures, on my handouts, and in your textbook (assigned readings). This outline is meant to serve as a general overview of what will be on the exam, but it is not intended to represent all of the material that you are responsible for.

CHAPTER 11: PROBLEM SOLVING & CREATIVITY

- **Definition of a Problem and features of a problem:**
 - Initial State, Goal State, Obstacles:
 - Situated Cognition: the importance of context, ecological validity.
- **Understanding The Problem:** Important steps involved in this process.
 - Divided attention and competition from competing ideas, paying attention to important information
- **Methods Of Representing The Problem:** symbols, lists, matrices, imagery, diagrams, hierarchical tree diagrams.
 - Know advantages and disadvantages of each method
- **Problem Solving Approaches:**
 - **Algorithm:** Exhaustive Search, disadvantages to this approach.
 - **Heuristics:** advantages over algorithms, what are they?
 - **Means-Ends:** Research on the Mean-Ends Heuristic (Greeno, 1974), computer simulation, Newell & Simon's General Problem Solver (GPS), ill-defined problems.
 - **Analogy Approach:** problem isomorphs, Novick (1988), Gick & Holyoak (1980, 1983), know reasons for why analogy is difficult to use.
 - **Hill-Climbing Heuristic**
 - **Hobbits & the Orcs Problem**
- **Factors That Influence Problem Solving**
 - **Memory:** DeGroot (1966), Chase & Simon (1973)
 - **Knowledge Base/Expertise:** Importance Of Specific Knowledge:
 - Speed & Efficiency
 - Mental Set, Functional Fixedness, Duncker's (1945) Candle Problem
 - Stereotype Threat
- **Insightful Problem Solving**
 - **Behaviorist rejected the concept of insight:** Wolfgang Kohler (1917) - Sultan & the box and banana; Epstein et al. (1984) - Pigeon & the box and the banana; Janet Metcalfe (1986)
- **Methods Used To Study Problem Solving:** computer simulation
- **Role of Language in Problem Solving**
- **Creativity:**
 - **Factors that influence creativity:** brainstorming, incubation, social factors
 - How Do You Measure Creativity? divergent production; remote associates tests (rat) (Mednick & Mednick, 1967); consensual assessment technique; investment theory (Sternberg & Lubart, 1995).

CHAPTER 12: DEDUCTIVE REASONING

- **Types of deductive reasoning**: conditional and syllogisms
- Characteristics of the laws of logic
- **Terminology of conditional reasoning problems**: antecedent, consequent, accept, deny.
 - Know which conclusions are valid and which are invalid and be able to pick these out of an actual conditional reasoning problem.
- **Factors that affect conditional reasoning**: e.g., abstractness or concreteness of the problem (imagery) and negation
- **Confirmatory bias**:
 - Wason's selection task, illicit conversions, confirmatory bias, seek to disconfirm
 - Effect of using a concrete problem (Griggs & Cox, 1982)
- Making only one model
- Does knowledge transfer from one task/problem to another?

CHAPTER 12: DECISION MAKING

- **Heuristics** – know all of them in your text and from lecture/video.
 - Biased judgments or cognitive illusions.
 - **Representativeness Heuristic**: law of large numbers, importance of base rates and sample size, conjunction error/fallacy
 - **Availability Heuristic**: recency, familiarity, illusory correlation and creation of stereotypes.
 - **Anchoring and adjustment Heuristics**
 - **Simulation Heuristic**
 - overconfidence, planning fallacy, hindsight bias, my-side bias
- Kahneman and Tversky pessimistic view about our decision-making skills vs. Gigerenzer more optimistic view.
- See Judgment & Decision making quiz that I discussed during lecture – know the heuristics associated with each question for the exam.
- See video hand out: “Discovering Psychology: Judgment & Decision Making.”

CHAPTER 13: COGNITIVE DEVELOPMENT

METHODS OF STUDYING INFANT COGNITION

- **Measures of attention**: Preferential looking, visual preferences in newborns, preference for human face.
- **Use of Learning Principles to Study Infant Perception**
 - **Habituation-Dishabituation Paradigm**: know definitions, methods, and what it is used to study.
 - **Operant Conditioning**: know definitions, methods, and what it is used to study.

DEVELOPMENT OF MEMORY

- **Memory Stores**: Know the developmental course of each store and which are more adult-like at birth (e.g., sensory, working memory, long-term memory)
- **Different Types of Memory**: Know the developmental course of each store and which are more adult-like at birth (e.g., implicit and explicit).
- **Methods For Testing Memory**: Know the developmental course of each store and which are more adult-like at birth (e.g., recognition, cued recall, and recall).

MEMORY IN THE FIRST HALF YEAR

- **Recognition Memory**: Joseph Fagen's (1974) and Decasper and Spence's (1986) research. Know methods for both and what they found.
- **Cued Recall**: Rovee-Collier's Conjugate Reinforcement Procedure. Know the method, research, and what it suggests. Infant memory is highly context dependent. Know what happens when the context is changed.
- **Recall**: Deferred imitation

MEMORY IN THE SECOND HALF YEAR

- **Deferred imitation** has been used to study LTM

CAN INFANTS ADD AND SUBTRACT?

- Know methods used to answer this question and what the research suggests. Know material from both of your texts.

INFORMATION PROCESSING APPROACH TO COGNITIVE DEVELOPMENT

- According to this approach what is responsible for cognitive development?
 - Increase in processing efficiency.
 - **Acquisition of cognitive skills**: Why do skills improve with age? What skills improve with age?
 - **Developmental changes in recall**: Memory span, serial position effect (Ornstein, Naus, & Liberty, 1975), rehearsal, metamemory and metacognition, retrieval based versus storage based problems.
 - **Memory strategies**: when do they develop and what are they.

INFANTILE AMNESIA

- Know the Hypotheses for why this occurs

PIAGET'S THEORY OF COGNITIVE DEVELOPMENT

- Each stage is qualitatively different from others
- **Sensory Motor Stage (0-2 years)**:
 - **Object permanence**: know what it is and how it is/was measured by both Piaget and Neo-Piagetians (e.g., classic Piaget task vs. Impossible event)
- **Preoperational Stage (2-7 years)**:

PIAGET'S THEORY OF COGNITIVE DEVELOPMENT (CONTINUED)

- Conservation task: know what conservation is and how it is measured, the classic Piagetian 2-question task vs. Rose & Blank's (1974) 1-question task. Why is the 2-question task problematic?

**WELLS ET AL. (2000), CHAPT 5 (pp. 144-159), & CHAPT 10 (pp. 453-455):
FALSE MEMORIES, REPRESSION, & EYEWITNESS TESTIMONY**

- **Child eyewitness memory** (pp. 453-455)
- **Post-event misinformation effect** (begins on p. 152 of textbook): retrospective interference, constructionist approach
- **Event memory vs. Identification memory**: know the differences between these and how both system and estimator variables affect each type of memory. Which type of memory and which type of variables are the focus of the Wells et. al article?
- **Estimator variables & system variables**: e.g., stress, confidence malleability or inflation, relationship between confidence and accuracy, cross-race bias, lighting, questioning method, lineup instructions, emotions, weapon-focus, delay between event and ID. Some of these are covered in your textbook (pp. 151-158) and all are covered in the Wells et al. chapter.
- **Types of lineups**: sequential vs. simultaneous lineups, perpetrator-absent vs. perpetrator-present lineups.
 - Know the costs and benefits of each. Which type of lineups (simultaneous or sequential) are more prone to false ID errors (false positives) and why?
 - Definition of identification accuracy.
 - What state is currently using the sequential lineup?
- **DNA exoneration cases**: what are they and what impact did they have on "The Guide?"
- Conditions that increase and decrease the chances of mistaken identification.
- U.S. Attorney General Janet Reno's role in the "Guide" and the composition of Working Group
- **The "Guide"**: Know what is in it and why and how it came about. Know what is not in it and why these procedures did not make it into the guide. Know the guide's short-comings and its strengths. Know who the Psychologists had the easiest and hardest times working with during the creation of the guide (e.g., police, prosecutors, defense attorneys).
 - Double-blind procedure, procedures for selection of fillers, pre-lineup instructions, avoiding post-identification suggestions, cognitive interview, sequential lineup, confirmatory bias, composition of lineups, experimenter expectancy (Clever Hans & Rosenthal and Jacobson), counterbalancing (to control order effects).
 - Valid and invalid concerns of police officers.
- Are experts (e.g., police officers) better than nonexperts at making eyewitness IDs?
- **Recovered Memory – False Memory Controversy** (p. 156-158 in textbook)