

EXP 4680: Cognitive Psychology

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Fall 2012

EXAM 1 REVIEW

- **NOTE:** You are responsible for all material covered in my lectures, videos, 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.
- There will be approximately 80 multiple choice questions on your first exam.
- I strongly recommend that you either complete the practice exam questions that are on your text's web site.

CHAPTER 1: HISTORY OF COGNITIVE PSYCHOLOGY

- **Theorists/Schools of Psychology – Know the theories, how they differ from one another, and their contributions to Cognitive Psychology:** Watson, Skinner, Behaviorism (what it contributed to cognitive psychology), Wundt, introspection, Structuralism, Bartlett, Mental sets, Gestalt Psychology (apparent motion and perceptual organization), Functionalism, William James, Ebbinghaus (method, forgetting curve, savings score, nonsense syllables), Parallel Distributed Processing (Neuro Networks).
- Ecological validity, empiricism, operational definitions, metacognition
- **Cognitive revolution:** what caused it, when did it happen, who was a part of it (e.g., psychologist, linguist, computer scientists, and communication scientist), why can't behaviorism alone explain language development?
- **Atkinson & Shiffrin's Information processing theory:** computer metaphor, where it stands today, Atkinson-Shiffrin model,
 - **Know the details of the following:** Short-term memory, sensory memory, long-term memory
- **Cognitive neuroscience:** techniques used (e.g., PET, fMRI, ERP, brain lesions), Hubel & Wiesel's classic work
- Themes of the textbook (pp. 24-26)
- Computer simulation method
- **Top-down and bottom-up processing:** Know the definition of each and which one is responsible for cognitive illusions and expectancies?

CHAPTER 2: PERCEPTUAL PROCESSES VISUAL/ OBJECT RECOGNITION

- **Theories:** Know both the strengths and weaknesses of each theory along with the area of object recognition that they best explain (e.g., 3-D objects or simple 2-D shapes)
 - Gestalt Psychology (Principles of Perceptual Grouping, figure-ground),
 - Feature analysis/distinctive feature (Gibson's model),
 - Template matching theories,
 - Recognition-by-components theory,
 - Hubel & Wiesel's classic work and how it relates to object recognition.
 - Know the evidence from neuroscience research that relates to these theories.
- **Top-Down Processing and Bottom-up Processing:** Definitions, word of superiority effect, object superiority effect, Palmer's study (1975), Potter et al.'s (1993) nonword study, subjective contours
- **Proximal and Distal stimulus**
- **Change Blindness & Inattentional Blindness**
- **Face Perception:** Is it special? Evidence that supports that it is and evidence that suggests it is not. Brain evidence, prosopagnosia, Kemp et al.'s (1997) credit card study, Burton et al.'s research, individual differences (schizophrenia).
- **Note:** You are **NOT** responsible for speech perception for Exam 1. This material will be covered on Exam 2 with the rest of the language material.

CHAPTER 3: ATTENTION & CONSCIOUSNESS

- **Paradigms for Studying Attention:** Divided Attention, Focused/Selective Attention, Saccadic Eye Movements.
- **Research and Methods used to study Selective Attention:** Cherry, Dichotic Listening, Shadowing, Mere exposure effect, Cocktail Part Effect, Physiological Response Measure (GSR), We follow meaning studies (e.g., Treisman), Stroop effect, Emotional Stroop Test (phobias).
 - What happens to the unattended message? Early and later research findings vs. later findings.
 - Cocktail Party effect and how related to working memory capacity.

- **Research and Methods used to study Divided Attention:** dual task performance measures, driving while talking on your cell phone study, Wikman et. al.'s (1998) study on attention and driving, automaticity.
 - What factors have an effect on people's ability to perform 2 tasks at once?
- **Theories of Attention:** bottleneck theories, capacity theories, **Sperling's Partial Report Technique**, automaticity theories (e.g., Logan's theory, Treisman's Theory, Schneider and Shiffrin Theory), visual search, attentional blink.
 - Schneider and Shiffrin's Theory: controlled and automatic processes, know research in support of theory.
 - Treisman Feature Integration theory: distributed and focused attention, illusory conjunctions, target present vs. target absent search, know research in support of theory.
- Saccadic Eye Movement (function of, good vs. bad readers), Perceptual Span,
- **Brain areas** involved in attention and visual search (e.g., anterior attention network, parietal lobe, frontal lobe)
 - **Consciousness:**
 - Definition of
 - Wegner's White Bear Study: effects of suppression, inhibition, thought suppression, ironic processes of control, rebound effect of expression after suppression.
 - Nisbett and Wilson's discussion of consciousness
 - Blindsight: Know what it is, how a patient with this condition would act, and current explanations for it.
 - Mere exposure effect
 - Nisbett & Wilson

CHAPTER 4: WORKING MEMORY

- **Atkinson and Shiffrin's model:** characteristics of each memory store (STM, LTM, sensory), differences between structure and processes.
- **Serial Position Curve:** Rundus's work, recency and primacy effects.
- **Code of STM/working memory:** preferred code as well as other codes that are used (e.g., acoustic, visual, semantic, dissociations, pronunciation time studies), research on the code of working memory (e.g., Wickelgren, 1965; neurological studies, proactive inhibition, Brown & Peterson).

- **Baddeley's Theory**: Phonological loop, visuo-spatial sketchpad, central executive. Know research that supports the theory that we have 2 ways of handling information in working memory, how this theory explains acoustic confusions.
- **Capacity of Working Memory**: George Miller's "Magical number seven," chunking, the effects of pronunciation time on capacity.
- **Brain Areas involved in working memory**: Baddeley's phonological loop and visuospatial sketchpad
- **Individual Differences in Working Memory**:
 - How is WM capacity related to verbal fluency?
 - How is WM capacity related to other cognitive skills?
 - How can the theory of WM explain extraordinary memory ability (experts)?
- **Application of Research to Real World**:
 - Counterfactuals: Jury decision making and memory load
 - Selection of Wines (primacy and recency effects)
 - Judging figure skating