Episodic & Semantic Memory

- Medial Temporal Lobes
- Episodic (Remember) vs. Semantic (Know) Memories
- Childhood amnesia
- Reminiscence bump
- Does semantic or episodic come first
- Episodic-like memory
- Encoding
  - Mere exposure
  - Connections (Bransford & Johnson, 1972: balloon/laundry)
  - Levels of Processing
    - Craik & Tulving, 1975
    - Rogers, Kuiper, Kirker, 1977
    - Nairne, Thompson, & Pandeirada, 2007
    - Problems with LOP
  - Testing Bias and Transfer Appropriate Processing
    - Morris, Bransford, & Franks, 1977
    - Studying for exams
  - Encoding Specificity
    - Godden & Baddeley, 1975
    - Eich et al., 1975
- Retrieval
  - Free recall
  - Cued recall
  - Recognition
  - Testing Effects (e.g., Roediger & Karpicke, 2006)
    - Desirable Difficulties (Soderstrom & Bjork, 2015)
  - Passive vs. Directed Forgetting
  - Interference
  - Reality/Source Monitoring
    - DRM Paradigm and critical lures (theme words)
    - Schizophrenia
- Cryptomnesia
- False Memory
- Loftus & Pickrell, 1995
- Wade et al., 2002
- Slate Magazine
- Innocence Project

- Consolidation
  - Reconsolidation
  - Estes’ Perturbation Model
  - Electroconvulsive Therapy
  - transcranial Direct Current Stimulation (tDCS)

- Metamemory
  - Tip-of-the-tongue (TOT)
  - Feeling of Knowing (FOK)
  - Judgment of Learning (JOL)

- Sensory & Association Cortices

- Specificity of Encoding
  - Peanut & Banana Neurons (Thorpe, Rolls, & Maddison, 1983)
  - Steve Carell Neurons (Quiroga et al., 2005)
  - Extrastriate Body Area, Right Lateral Occipital Cortex (Downing et al., 2001)

- H.M & E.P.’s performance on memory tests

- Anterograde Amnesia

- Retrograde Amnesia

- Temporally Graded Retrograde Amnesia
  - Ribot’s Gradient

- Categorization of Peggles by Amnesiacs and Controls (Reed et al., 1999)

- Hippocampus

- Parahippocampal Area
  - Parahippocampal Place Area

- Perirhinal Area

- Subsequent Memory Paradigm (Wagner et al., 1998)
  - LOP Effects
  - False Memory
• Standard Consolidation Theory
• Multiple Trace Theory
• Frontal Cortex and Deciding What to Remember
  o Directed Encoding
  o Directed Forgetting
• Basal Forebrain
  o Neuromodulators (GABA & Acetylcholine)
    - Fornix
  o Confabulation and source monitoring errors
• Diencephalon
  o Korsakoff’s disease
    - Thiamine
  o Temporally-graded retrograde amnesia
• Transient Global Amnesia (TGA)
  o Concussions
  o Brief
• Functional Amnesia
  o Dissociative amnesia & Dissociative fugue
    - PET and fMRI evidence.

Skill Memory
• What is a skill?
• Perceptual-Motor Skills
• Cognitive Skills
• Automaticity
  o Stroop (1935)
• Open vs. Closed Skills
• Skill vs. Fact/Event Memory
• Perceptual-Motor vs. Cognitive in First to Develop
  o Cognitive skills unique to humans?
• Practice and Feedback
- Thorndyke (1927)
- Negatively accelerated
- Frequency of Feedback
- Spaced vs. Massed Practice
  - Post Office Employees
- Constant vs. Variable Practice
- Explicit vs. Implicit Learning
  - H.M.’s Mirror Tracing, Gollins Partial Picture, Backwards Reading
  - Serial Reaction Time Task
- Expertise
- Reflexes vs. Motor Programs
- Fitts’s (1964) Model of Skill Acquisition
  - Cognitive Stage
  - Associative Stage
  - Autonomous Stage
- Talent and Prodigies
- Genes vs. Experience
  - Rotor Pursuit Task (Fox et al., 1996)
- Skill Transfer
  - Transfer Specificity
  - Identical Elements Theory (Thorndike & Woodworth, 1901)
  - Learning Set Formation
- Skill Decay
  - Non-use
  - Negative acceleration
  - Retroactive Interference
  - Sleep and consolidation (Walker et al., 2003)
- Basal Ganglia and Dorsal Striatum
  - Inputs/Outputs
  - Rotor Pursuit Task
  - Lesion Research (e.g., Packard, Hirsh, & White, 1989)
  - T-Maze with Predictive Tones (Jog et al., 1999)
    - Pattern of neural firing in basal ganglia over training
    - Skill acquisition
o Weather Prediction Game (Knowlton, Squire, & Gluck, 1994)

o Cerebral Cortex and Skill Memory
  ▪ Violinists and Gray Matter
  ▪ Musician’s Dystonia
  ▪ Tactile Discrimination Task
  ▪ Finger Movement Task (Karni et al., 1998)

o Cerebellum
  ▪ Lesions and motor performance
  ▪ Learning finger movements (Friston et al., 1992)
  ▪ Synaptic growth in acrobatic rats (Kleim et al., 1997)
  ▪ Observational learning (Leggio et al., 2000; Torriero et al., 2011)
  ▪ Mirror tracing and mirror reading

o Parkinson’s Disease
  ▪ Muhammad Ali
  ▪ Substantia nigra pars compacta (SNc)
    • Dopamine Producing Neurons

o Human-Machine Interface & Motor Prostheses