

Cognition

Text Material: Modules 2.2a-2.7, & Module 3.5

How can cognitive psychology help us become better at remembering, problem-solving, and thinking?

Key People (be able to describe their contributions):

- Hermann Ebbinghaus
- Elizabeth Loftus
- George Miller
- Daniel Kahneman & Amos Tversky
- Noam Chomsky
- Benjamin Lee Whorf
- Richard Atkinson & Richard Shiffrin
- Alan Baddeley

Objectives:

2.2-1	Define cognition , and explain the function of concepts (and prototypes). <ul style="list-style-type: none">• Explain the role of metacognition
2.2-2	Explain the (5) factors associated with creativity, and describe some ways of fostering creativity.
2.2-3	Explain the cognitive strategies that assist our problem solving, including algorithms , heuristics , and insight , and the obstacles that hinder it (e.g., confirmation bias , mental set).
2.2-4	Explain the meaning of intuition , and explain how the availability and representativeness heuristics influence our decisions and judgments.
2.2-5	Explain how our decisions and judgments are affected by overconfidence , belief perseverance , and framing . Give examples of how the gambler's fallacy and the sunk-cost fallacy illustrate irrational decision-making.
2.2-6	Explain how smart thinkers use intuition.
2.3-1	Define memory , and explain how memory is measured, distinguishing between recall , recognition , and relearning .
2.3-2	Explain how memory models (e.g. the information-processing model) help us study memory, and explain how later research updated the Multi-store model (Atkinson-Shiffrin model) . <ul style="list-style-type: none">• Explain how Alan Baddeley's research on working memory illuminated the role of the central executive in coordinating the activities of the phonological loop and the visuospatial sketchpad.
2.3-3	Explain how changes at the synapse level affect our memory processing, noting the roles of neurogenesis and long-term potentiation (LTP) .
2.4-1	Explain the differences between explicit and implicit memories.
2.4-2	Explain what type of information we process automatically (e.g., procedural memories)
2.4-3	Explain how sensory memory works. <ul style="list-style-type: none">• Distinguish between iconic and echoic sensory memory.
2.4-4	Explain the capacity of short term memory.

2.4-5	<p>Explain the effortful processing strategies that help us remember new information, including:</p> <ul style="list-style-type: none"> ● imagery ● chunking ● mnemonics (e.g, method of loci, peg-word system) ● hierarchies
2.4-6	Explain how distributed practice , deep processing , and making new material personally meaningful aid memory.
2.5-1	Explain long-term memory with regard to capacity and location.
2.5-2	Explain the roles of the frontal lobes and hippocampus in memory formation.
2.5-3	Explain the roles of the cerebellum and basal ganglia in memory processing.
2.5-4	Explain how emotions affect our memory processing.
2.6-1	<p>Explain how external cues, internal emotions, and order of appearance influence memory retrieval. Be able to predict the impact of the following phenomena:</p> <ul style="list-style-type: none"> ● Priming ● Serial position effect ● Encoding specificity principle: context-dependent memory, mood-congruent memory, and state-dependent memory
2.6-2	Explain how retrieval practice strategies, such as the testing effect , interleaving , and metacognition , support memory retrieval.
2.7-1	<p>Explain why we forget.</p> <ul style="list-style-type: none"> ● Distinguish between anterograde and retrograde amnesia ● Distinguish between encoding failure, storage decay, and retrieval failure ● Explain how proactive and retroactive interference lead to forgetting errors ● Evaluate the evidence for and against the idea that we repress painful memories.
2.7-2	Explain how misinformation effects , imagination , and source amnesia influence our memory construction, and describe how we decide whether a memory is real or false.
2.7-3	Explain the reliability of young children's eyewitness descriptions.
2.7-4	Explain how you can use memory research findings to do better in this and other classes.
3.5-1	<p>Explain how we acquire language, and explain the concept of universal grammar.</p> <ul style="list-style-type: none"> ● Distinguish between language structures, such as phonemes and morphemes. ● Provide examples of overgeneralization* of language rules
3.5-2	Explain the milestones in language development, and identify the critical period for acquiring language.
3.5-3	Identify the brain areas involved in language processing and speech.
3.5-4	Explain the relationship between thinking and language, and discuss the value of thinking in images. Explain evidence for and against Whorf's linguistic determinism hypothesis (and distinguish from related concepts, like linguistic relativity).