

MEMORY = Active system that receives, encodes, stores, organizes, alters, and retrieves info

Encoding = Physical input to representation

Storing = Holding/maintaining

Retrieving = Back into consciousness

Parallel processing - more than one thing at once

Serial processing search for one thing at a time (exhaustive/self-terminating)

Three Stores View (Atkinson/Shiffrin)

Sensory Memory = All of the sensory information you are perceiving at a given moment

Iconic (1/2 - 1 second) - visual images

Echoic (3-4 secs) - auditory continuation (echo)

Short Term Memory = 7 items +/- 2 (George Miller) Up to 30 sec (1 min tops)

Stored phonetically (sound)

Working Memory Area

Rehearsal

Maintenance - silently repeating

Elaborative - tie info to existing memory

Chunking = Grouping items to recode (reorganize) them

Long Term Memory = Limitless capacity and duration ; Relatively permanent

Stored semantically (meaning)

Redintegrative memories

Procedural memories: Memories for performance of actions or skills. "Knowing how"

Declarative memories: Memories of facts, rules, concepts, and events; includes semantic and episodic memory. "Knowing that"

Semantic memories: General knowledge, including facts, rules, concepts, and propositions.

Episodic memories: Personally experienced events and the contexts in which they occurred.

Recall (from your mind alone)

Serial Recall - in order

Free Recall - in any order

Paired-associate Recall - recall one word when pair is given

Cued Recall - prompt/hint given

Recognition (pick from choices)

Explicit Memory = Consciously act to remember

Implicit Memory = Recall info without trying, occurs on its own (**most** procedural info)

Forgetting

Forgetting Curve = Herman Ebbinghaus/Forgetting was rapid at first and then tapered off.

Decay (forgotten due to time)

Serial position curve

Recency effect - you'll remember more from the end of the list

Primacy effect - you'll remember more from the beginning of the list

Interference (info that competes)

Proactive - interfering info is presented before

Retroactive - interfering info is presented after

Cue-Dependent Forgetting: The inability to retrieve information stored in memory because of insufficient cues for recall.

State-Dependent Memory: The tendency to remember something when the rememberer is in the same physical or mental state as during the original learning or experience.

Psychogenic Amnesia: The partial or complete loss of memory (due to nonorganic causes) for threatening information or traumatic experiences.

Childhood Amnesia (aka Infantile Amnesia): The inability to remember events and experiences that occurred during the first two or three years of life.

Retrograde Amnesia: inability to remember events prior to a trauma

Anterograde Amnesia: inability to remember events after a trauma

Source Amnesia

Constructive memory

Loftus and Palmer Study (1974)

Priming: facilitating the remembering of an implicit memory by using cues to activate hidden memories.

Flashbulb Memories

Eidetic Memory (photographic)

Mnemonists

Aleksandr Luria studied "Mr. S" (1968)

Ericsson, Chase, Faloon "S.F." (1982)

Rajan Mahadevan - 31,811 digits of pi

Memory and the Brain

Basal Ganglia: procedural memory

Hippocampus: complex learning, consolidation of encoded memories (cross-referencing)

Amygdala: emotional memories

Cerebral cortex: long term declarative memories

Cerebellum: classically conditioned memories

Acetylcholine: NT imp in memory formation, esp hippocampus

LANGUAGE = Words or symbols, and rules for combining them, which are used for thinking and communication

Phone: Basic speech sounds for all humans

Phonemes: Basic speech sounds of a language

Morpheme: Speech sounds collected into meaningful units, like syllables or words

Syntax: Rules for word order in sentences

Transformation Rules: Rules that allow us to change a declarative sentence into other voices (passive, active) or forms

Productivity: Ability of language to generate new thoughts or ideas

American Sign Language (ASL): Language used by deaf and hearing-impaired people

Stages for Language

In Utero

Cooing

Babbling

Holophrases

Telegraphic Speech

Basic Adult-Like Syntax

Biological Predisposition/Critical Period – Chomsky

Signals = vocal intonations that signal it's your turn to talk

Turn-taking = repeating phrases to allow for proper speech modeling

Overregularization, Overextension

Linguistic Determinism

THINKING

Metacognition – thinking/discussions about thinking

Cognition: Mentally processing information (images, concepts, etc.); thinking

Cognitive Psychology: Study of human information processing

Conceptual Rule: Guideline for deciding if objects or events belong to concept class

Positive Instance: Object or event that belongs to the concept class

Negative Instance: Object or event that does not belong to the concept class

Synesthesia: When images cross normal sensory barriers, e.g., listening to music leads to experiencing tastes

CREATIVE THINKING

Divergent thinking: generating diverse assortment of solutions (*Creative ppl do this more than others)

Convergent thinking: proceeding from various alternatives to converge on one answer

Fluency: Total number of suggestions you can make

Flexibility: Number of times you shift from one class of possible uses to another

Originality: How novel or unusual your suggestions are

Stages of Creative Thought

Orientation: Defining the problem

Preparation: Gaining as much information as possible

Incubation: The problem, while not appearing to be actively worked on, is still “cooking” in the background

Illumination: The “a-ha” experience; rapid insight into the solution

Verification: Testing and critically evaluating the solution

Critical Thinking

Analysis: breaking down large

Synthesis: combining concepts

Divergent thinking: generating diverse assortment of solutions

Convergent thinking: proceeding from various alternatives to converge on one answer

Inductive Thought: Going from specific facts or observations to general principles

Deductive Thought: Going from general principles to specific situations

Problem Solving

Well-structured Problems = clear cut path to solution

Heuristics = intuitive/speculative strategies to solve problems

Algorithms = formula to solve prob that guarantees the correct solution if done right

Ill-Structured Problems = do not have a clear cut path to solution

Insight problems = involve insight, or the sudden understanding

Productive thinking = using new thoughts/ideas

Reproductive thinking = using existing ideas/thoughts

Hindrances Problem Solving

Mental set – your preset way of things that hinders

Negative transfer – past experience blocks new solution

Emotional barriers – fears, self-doubt...

Cultural barriers

Learned barriers (Functional Fixedness) – you have learned to use an object for a specific purpose and cannot see it for having any other value/purpose

Confirmation Bias

Representativeness Heuristic

Overconfidence

Availability Heuristic

Belief Perseverance

Framing

Hindsight Bias

Incubation – low cortical arousal lets mind think of new solutions