
Week 1

Memory

- The retention of information over time
- Memory refers to the processes that are used to acquire, store and later retrieve information
- Memory allows us to learn about the things in our environment that promote survival and avoid those things that may harm us
- **Memory illusion:** our brains will often go beyond the available information to make sense of the world

3 systems of memory (Atkinson-Shiffrin)

Sensory memory:

- a high capacity sensory register that briefly holds perceptual information
- **Icnic (visual) memory:** lasts only 1 second
- Echoic (auditory) memory: can last 5-10 seconds

Short-term memory:

- memory system that retains information for limited durations. It is related to working memory
- has a very brief duration (5-20 seconds)
- **Decay:** memory fades over time
- **Interference:** loss of information due to competition of new incoming information
- **Proactive interference:** when previously learned material interferes with learning new material
- **Retroactive interference:** when newly learned information interferes with the recall of previously learned information
- The span of short term memory in adults is 7 + or - 2 pieces of information (magic number 7 + 2 Miller 1956)
- **Chunking:** grouping pieces of information to extend our short term memory span
- **Rehearsal:** repeating information in short term memory extends the duration of it
- **Maintenance rehearsal:** simply repeating the stimuli in the same form
- **Elaborative rehearsal:** linking the stimuli to each other in a meaningful way. It is usually more effective and is consistent with the **levels-of-processing model**
- **Levels-of-processing-model:** three levels including visual, phonological (sound), and semantic (meaning-related)
- Visual processing in the most shallow, phonological somewhat less, and semantic the deepest

Long-term memory

- Relatively enduring store of information
- Includes facts, experiences, and skills developed over lifetime
- Differs from short term memory in several ways
- Very unlimited capacity
- **Implicit memory:** recalling information that we don't remember deliberately (unlocking our front door or tying our shoelaces)
- This includes procedural memory, habituation, classical conditioning and other forms of learning
- **Procedural memory:** refers to motor skills and habits
- **Priming:** our ability to identify a stimulus more easily or more quickly after we've encountered similar stimuli

Short term memory vs Long term memory

Capacity

- **STM:** 7-9 stimuli
- **LTM:** virtually unlimited

Duration

- **STM:** 20 seconds at most
- **LTM:** decades to permastore

Serial Position Curve

- A delay in testing affect recency, but not primacy, indicating that they must be subserved by different memory systems
- When recall is greater for items presented at the beginning and end of a list in comparison to the items presented in the middle of the list
- **Primacy effect:** when recall is greater for items presented at the beginning of the list
- **Recency effect:** when recall is greater for items presented at the end of the list

3 Processes of Memory (encoding, storage, retrieval)

Encoding:

- getting information into memory
- To encode a stimulus, we must first attend to it
- Most events we experience are never encoded in the first place
- **Next-in-line effect**
- **Mnemonics:** learning aids that enhances recall (every good boy deserves fruit)
- **Pegword method:** uses rhyming
- **Method of loci:** places imagery
- **Keyword method:** language learning and reminder words

Storage:

- keeping information in memory
- **Sleep-dependent memory consolidation**
- **Schema:** organised knowledge structure or mental model that we have stored in our memory

Retrieval:

- reactivation or reconstruction of information from memory
- Many types of forgetting are failures of retrieval
- **Retrieval cues:** help us to access information in long term memory

Measuring memory

- **Recall:** generating previously remembered information
- **Recognition:** selecting previously remembered information from an array of options
- **Relearning:** we acquire a memory of something that has already been learnt and retained before
- **Encoding specificity:** we are more likely to remember something when the conditions present at the time we encode it are also present at retrieval
- **Tip of the tongue phenomenon:** experience of knowing that we know something but being unable to access it
- **Context-dependent learning:** superior retrieval when the external context of the original memories matches the retrieval context
- **State-dependent learning:** superior retrieval of memories when the organism is in the same physiological or psychological state as it was during encoding (mood)
- **Time-dependent learning:** animals will often only be able to retrieve a memory when testing occurs at the same time as training

