

## Week 1

# Learning Outcomes

### Define the study of memory as it relates to the discipline of cognitive psychology

*Memory: the retention of information over time*

- Refers to processes that are used to acquire, store and later retrieve information
- Allows us to learn

### Differentiate between the three major systems of memory (sensory, short-term, long-term memory) in terms of their function, the way information is encoded and retrieved, and limitations on capacity and duration of storage

#### Sensory memory:

- *high capacity sensory register that briefly holds perpetual information*
- maintains perception in a buffer area before passing to STM
- iconic
  - visual
  - lasts 1 second
- Echoic
  - Auditory
  - Lasts 5 – 10 seconds

#### Short term memory:

- *Memory system that retains information for limited duration*
- Related to working memory
- 5- 20 seconds
- Two ways to lose information in our STM
  - Decay
    - Fading over time
  - Interference
    - Loss due to competition of new incoming information
    - Proactive
      - Interference of new information due to previous learning of information
    - Retroactive
      - Interference of old information due to acquisition of new information
- 7 + 2 *pieces* of information
  - Can be expanded with chunking

- Improving STM
  - Rehearsal
    - Repeating information to extend duration
  - Maintenance rehearsal
    - Repeating stimuli in the same form
  - Elaborative rehearsal
    - Linking stimuli to each other in a meaningful way

### Long term memory

- Relatively enduring store of information
- Includes facts, experiences and skills we've developed
- Virtually unlimited capacity
- Duration is decades/ permanent
  - 'Permastore'
    - Type of long term memory that appears permanent
- Primacy and recency effect
  - Remembering stuff at start and end of list

### Classify examples of long-term memory according to the definitions of episodic / semantic /procedural memory and implicit versus explicit memory

#### Implicit

- Recalling information that we don't remember deliberately
- Types
  - Habituation
  - Classical conditioning
  - Procedural
    - Motor skills and habits
    - Eg bike riding
  - Priming
    - Ability to identify a stimulus more easily or more quickly after we've encountered similar stimuli

#### Explicit

- Semantic or episodic

### Formulate a set of principles for improving long-term memory derived from research on variables that affect encoding and retrieval

#### Encoding

- Mnemonics
  - Learning aids that enhance recall
  - Depend on existing knowledge store
  - Types

- Pegword (rhyming)
- Method of loci (place imagery)
- Keyword method (language learning – reminder words)

## Retrieval

- Retrieval cues
- 3 R's
  - Recall
    - Generating previously remembered information
  - Recognition
    - Selecting previously remembered information
  - Relearning
    - 'Savings'
    - How much quicker you reacquire something learned before
- Context dependent learning
  - Superior retrieval when external context of original memories matches retrieval context
- State dependent learning
  - Superior recall when the organism is in the same physiological or psychological state as it was during encoding
  - Can extend to mood dependent learning
- Time dependent learning
  - Animals will often only be able to retrieve a memory when testing occurs at the same time as training

## Lecture material not in learning objectives

### 3 processes of memory

- Encoding
  - Getting information into memory
  - Must be attended to
- Storage
  - Keeping information in memory
  - Uses schemas
  - Equips us with frames of reference for interpreting new situations
    - Allows us to comprehend new situations
  - Can sometimes have mistakes
    - They simplify to help us understand
      - They sometimes over simplify
    - May think you remember something that never happened
- Retrieval
  - Reactivation or reconstruction of information from memory
  - Often memories are present but we are unable to retrieve them

## Keywords

**Sensory memory:** *brief storage of perceptual information before it is passed to short-term memory*

**Echoic memory:** *auditory sensory memory*

**Iconic memory:** *visual sensory memory*

**Short term memory:** *memory system that retains information for limited durations*

**Long term memory:** *relatively enduring (from minutes to years) retention of information stored regarding our facts, experiences, and skills*

**Recency effect:** *tendency to remember words at the end of a list especially well*

**Primacy effect:** *tendency to remember words at the beginning of a list especially well*

**Implicit memory:** *memories we don't deliberately remember or reflect upon consciously*

**Procedural memory:** *how to do things including motor skills and habits*

**Explicit memory:** *memories we recall intentionally and of which we have conscious awareness*

**Episodic memory:** *personal recollection of life events*

**Semantic memory:** *knowledge of facts of the world*

**Schema:** *organised knowledge structure or mental model that we've stored in memory*

**Recall:** *generating previously remembered information*

**Retrieval cues:** *hint that makes it easier for us to recall information*

**Recognition:** *selecting previously remembered information from an array of options*

**Tip of the tongue phenomenon:** *experience of knowing that we know some- thing but being unable to access it*

**Encoding specificity:** *phenomenon of remembering something better when the conditions under which we retrieve information are similar to the conditions under which we encoded it*