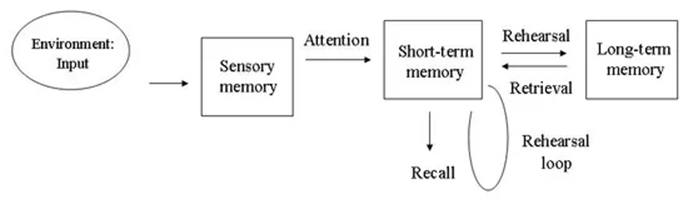
# **Psychology revision - Cognition**

* Psychology concepts and process associated with behaviors
* ***Multi store model of memory – Atkinson and Shiffrin, 1968***

Multi-store model of memory - Atkinson and Shiffren: The multi-store model of memory (also known as the modal model) was proposed by Richard Atkinson and Richard Shiffrin (1968) and is a structural model. They proposed that memory consisted of three stores: a sensory register, short-term memory (STM) and long-term memory (LTM).



* *Sensory register*

The **sensory register** is the memory store where information first comes in through the senses. There are separate sensory registers for each sense: the iconic store codes visual information and the echoic store codes auditory information. Information only lasts for a brief moment unless attention is directed to that register, which then transfers the information to STM.

* *Duration, capacity, encoding*

**Encoding** is the way information is changed so that it can be stored in the memory. There are three main ways in which information can be encoded (changed):

1. Visual (picture),

2. Acoustic (sound),

3. Semantic (meaning).

**Capacity** concerns how much information can be stored.

**Duration** refers to the period of time information can last in the memory stores.

* *Short-term memory (working memory)*

• Duration: 0-18 seconds

• Capacity: 7 +/- 2 items

• Encoding: mainly auditory

If maintenance rehearsal (repetition) does not occur, then information is forgotten, and lost from short term memory through the processes of displacement or decay. Maintenance rehearsal is the process of verbally or mentally repeating information, which allows the duration of short-term memory to be extended beyond 30 seconds. Continual rehearsal “regenerates” or “renews” the information in the memory trace, thus making it a stronger memory when transferred to the Long-Term store.

* *Working memory model – Baddeley and Hitch, 1974*

Baddeley and Hitch (1974) argue that the picture of short-term memory (STM) provided by the Multi-Store Model is far too simple. According to the Multi-Store Model, STM holds limited amounts of information for short periods of time with relatively little processing. It is a unitary system. This means it is a single system (or store) without any subsystems. Whereas working memory is a multi-component system (auditory, and visual). Therefore, whereas short-term memory can only hold information, working memory can both retaining and process information.

Diagram

Description automatically generated

* *Long-term memory*

• Duration: Unlimited

• Capacity: Unlimited

• Encoding: Mainly Semantic (but can be visual and auditory)

Elaborative rehearsal involves the process of linking new information in a meaningful way with information already stored in long-term memory. It is more effective than maintenance rehearsal for remembering new information as it helps to ensure that information is encoded well. For example, you could learn the lines in a play by relating the dialogue and behavior of your character to similar personal experiences you remember. Elaborative rehearsal is more effective than maintenance rehearsal for remembering new information as it helps to ensure that information is encoded well. It is a deeper level of information-processing.

* *Procedural memory*

**Procedural memory** is a type of long-term memory involving how to perform different actions and skills. Essentially, it is the memory of how to do certain things. Riding a bike, tying your shoes, and cooking an omelet are all examples of procedural memories. Procedural memory is a type of long-term implicit memory which is formed unconsciously and retrieved effortlessly. For example, we brush our teeth with little or no awareness of the skills involved.

* *Declarative memory – semantic and episodic*

**Declarative memory** is the ability to retain information about facts or events over a significant period of time and to consciously recall such declarative knowledge, typically in response to a specific request to remember.

There are 2 types of declarative memory, they are sematic and episodic:

* **Episodic memory** involves a person’s recollection of temporally dated information that permits the agent to mentally travel back in time and associate emotions with experiences.
* **Semantic memory**, on the other hand, involves a structure of recorded skills, facts and concepts acquired overtime—via the accumulation of episodic memories. For instance, while each visit to Paris may constitute an episodic memory, the experiences of how Paris looks would constitute the semantic representation of the word ‘Paris.’
* *Recall, recognition, and relearning*
* Recall: accessing information without cues.
* Recognition: identifying previously learned information after encountering it again, usually in response to a cue.
* Relearning: learning information that was previously learned.
* *Forgetting: retrieval failure, interference, motivated forgetting, decay*

**Retrieval failure** is where the information is in long term memory but cannot be accessed. Such information is said to be available (i.e., it is still stored) but not accessible (i.e., it cannot be retrieved). It cannot be accessed because the retrieval cues are not present.

**Interference** is a memory phenomenon in which some memories interfere with the retrieval of other memories. Essentially, interference occurs when some information makes it difficult to recall similar material. Similar memories compete, causing some to be more difficult to remember or even forgotten entirely.

**Motivated forgetting** is the idea that people can block out, or forget, upsetting or traumatic memories, because there is a motivation to do so. Some researchers have cited directed forgetting studies using trauma-related words as evidence for the theory of motivated forgetting of trauma.

**Decay theory** is a theory that proposes that memory fades due to the mere passage of time. Information is therefore less available for later retrieval as time passes and memory, as well as memory strength, wears away. When an individual learns something new, a neurochemical "memory trace" is created.

* Theories and processes of learning
* *Classical conditioning*

The **classical conditioning** process involves pairing a previously neutral stimulus (such as the sound of a bell) with an unconditioned stimulus (the taste of food). This unconditioned stimulus naturally and automatically triggers salivating as a response to the food, which is known as the unconditioned response.

* *Operant conditioning*

**Operant conditioning** (also known as **instrumental conditioning**) is a process by which humans and animals learn to behave in such a way as to obtain rewards and avoid punishments. It is also the name for the paradigm in experimental psychology by which such learning and action selection processes are studied.

* *Observational learning*

**Observational conditioning**: a form of classical conditioning in which an unconditioned response (in this case, fearful behavior as a response to fearful behavior in others) becomes associatively conditioned to a new stimulus (in this case, the snake).

* **Techniques for modifying behavior**
* *Token economies*

**Token economy** is a system in which targeted behaviors are reinforced with tokens (secondary reinforcers) and later exchanged for rewards (primary reinforcers). Tokens can be in the form of fake money, buttons, poker chips, stickers, etc.

* *Systematic desensitization*

**Systematic desensitization** is a type of exposure therapy based on the principle of classical conditioning. It was developed by Wolpe during the 1950s. This therapy aims to remove the fear response of a phobia and substitute a relaxation response to the conditional stimulus gradually using counterconditioning.

* *Cognitive Behavior Therapy (CBT)*

**Cognitive behavioral therapy (CBT)** is a talking therapy that can help you manage your problems by changing the way you think and behave. It's most commonly used to treat anxiety and depression but can be useful for other mental and physical health problems.

* *Positive and negative reinforcement, including rewards and punishment*

**Reinforcement:**

Positive: Something is added to increase the likelihood of a behavior.

Negative: Something is added to decrease the likelihood of a behavior.

**Punishment:**

Negative: Something is removed to increase the likelihood of a behavior.

Positive: Something is removed to decrease the likelihood of a behavior.