8 Memory

Learning objectives

This chapter aims at facilitating students to

1. understand the process and nature of memory.
2. understand various methods of measuring memory.
3. understand various causes of forgetting.
4. understand the strategies of improving memory and relate the same to day to day experiences.

8.1 Introduction : What is memory?

We have looked at the different parts of the brain as well as the mechanism of how signals are transferred to and fro from the brain and various parts of the body. In this chapter, let us now look at how information and experiences are stored and recalled in the brain.

Activity 1 :

Do you remember your first picnic from your school? Do you remember your primary school teacher? Now can you remember what food you ate last Monday? Why you can remember some incidents from the past clearly while you cannot remember some things which happened yesterday?

Activity 2 : Why this happens?

25 workers used to work in Thomas Edison's Bulb and Phonogram unit of industries. There was a huge tree near his company. After 6 months, Edison asked his workers about the huge tree but not a single worker could give information about that tree. Why do you think this happened despite seeing the tree everyday?

All of us are aware of the tricks that memory plays with us throughout our lives. Have you ever felt embarrassed because you could not remember the name of a known person you were talking to?

Memory is indeed a very fascinating, intriguing human ability. It functions to preserve our sense of identity, interpersonal relationships, solving problems and making decisions.

Memory has been a theme of research in Psychology over a hundred years.

What is Memory?

Memory is an ability by which information is encoded, stored and retrieved when needed. It is the retention of information over time for the purpose of future action. In the last chapter, we've seen that hippocampus plays an important role in storage of memory.

According to Tulving (2000) "Memory is the means by which we draw on our past experiences in order to use that information in the present". Memory is the term given to the structure and processes involved in the storage and subsequent retrieval of information.

8.1.1 Basic processes in memory

- Encoding / Acquisition
- Storage
- Retrieval

Fig. 8.1 Basic processes in memory

We can think of these processes as analogous to the functions of computer.

1. Acquisition / Encoding

Acquisition is the process of acquiring information from our sense organs. The process of transforming the information received through our sense organs into suitable symbols like pictures, figures, words & numbers.

2. Storage

The information acquired and encoded is preserved over a period of time. The process of storage is essential for using that information in future.

3. Retrieval

We can sometimes remember the poem which we had learned in first or second standard and we can recall it after our school days also. The process of recalling the stored information for the purpose of its actual use is known as Retrieval. We tend to retrieve mobile numbers, names etc. in our daily life.

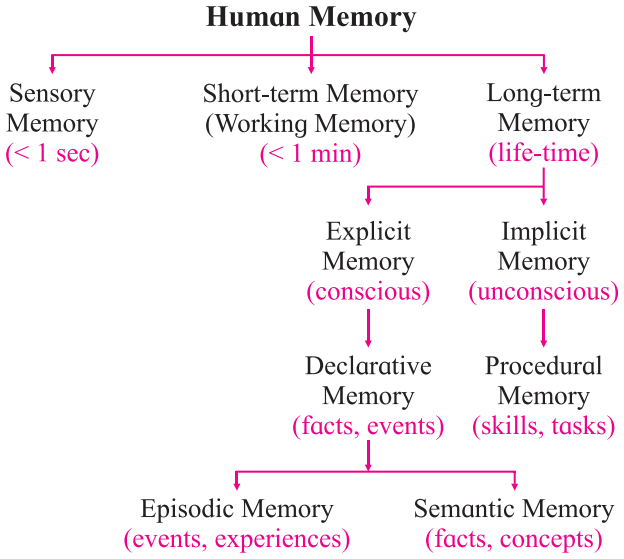

Fig. 8.2 Types of Human Memory

8.1.2 Stages of memory

The environmental stimulus is received with the help of our sense organs which is called as sensory memory. When we pay attention to the sensations coming in, they are transferred to STM. If the information is not rehearsed in STM, it is not retained. If it is rehearsed or appears frequently, then it is transferred to the LTM. When we encounter any problem, we bring the information from our LTM to STM so that it's available to us for solving that problem.

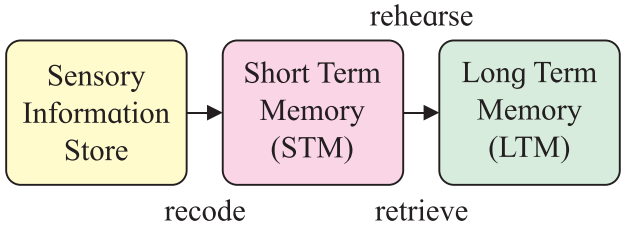

Fig. 8.3 Stages of memory

1. Sensory memory

Sensory memory is the shortest element of memory. It is the ability to retain impressions of sensory information after the original stimulus has ended. Sensory memory retains information received through the five senses of sight, hearing, smell, taste and touch for a brief period of time.

2. Short term memory

We are constantly bombarded with sensory inputs, however, only if they are significant they enter the Short Term Memory (STM). To retain the information in STM, maintenance rehearsal is required. STM holds the information between 15 to 30 seconds and the capacity of STM is about 7 items at a time.

The magical number 7 +/- 2 provides the evidence for the limited capacity of the STM. Most adults can store between 5 and 9 items in the STM. This idea was put forward by George Miller in 1956 and called as magical number 7.

Working Memory

Baddeley called STM as working bench of memory, because according to him STM is the most important stage of our memory which is used most of the time for problem solving.

Working memory term was coined by Miller, Galanter and Pribram around 1960.

It was formerly known as "short term store".

Short term memory is also known as -

primary memory.

immediate memory.

operant memory.

provisional memory.

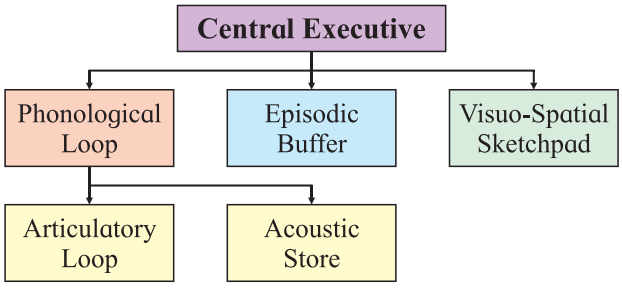

Fig. 8.4 Working Memory Model

The working memory model given by Baddeley can be explained as follows :

Central Executive

Central executive is a supervisor responsible for the co-ordination of the subsystems and the selection of reasoning and storage strategies.

Phonological loop (PL)

Phonological loop is responsible for verbal information. It has two subsystems, namely, phonological / acoustic store and articulatory loop.

Phonological / acoustic store

It is passive component of phonological loop. It holds on verbal information. This information is forgotten if it is not rehearsed.

Articulatory loop

It involves rehearsing and refreshing the information, just like our inner voice.

Episodic buffer

It holds information that is not covered by all other slave systems. It is link between working memory and long term memory.

Visuo-spatial sketch pad (VSSP) - handles visual and spatial information.

Is one of the two passive systems. It is responsible for storing speech based information.

It has 2 components -

1) Phonological memory store :

That can hold traces of acoustic or speech based information.

2) Articulatory Subvocal Rehearsal :

Material in short term store is maintained through this component. Prevention of articulatory rehearsal leads to rapid forgetting.

3. Long term memory

Some items enter the Long Term Memory (LTM) after rehearsal. Elaborative rehearsal is making that information meaningful and connecting the same with the information that already exists in the LTM. Once entered, the information is retained for more or less permanently. It is an organized system and a store house of encoded experiences. The amount of information stored here is unlimited.

Activity 3 :

Think about this -

How many people do you recognize? How many flowers you can name? How many places do you know? It is amazing that we can store an enormous amount of information, thanks to our Long Term Memory.

Types of Long Term Memory.

Explicit Memory

Conscious memories of facts and events are called as explicit memory. It is also known as Declarative memory.

Episodic memory is a memory of experiences and specific events which we recall step by step where we can reconstruct the actual events. It is the memory of autobiographical events with times, places and associated emotions.

Semantic memory is a more structured record of facts, meanings, concepts and knowledge. Semantic memories have personal context. It includes vocabulary, mathematics, rules of logic etc.

A type of declarative memory is **auto-biographical memory**. Autobiographical memory refers to episodes recollected from an individual's own life.

One type of autobiographical memory is known as **flashbulb memory**, which is a highly detailed, exceptionally clear "snapshot" of mostly a traumatic moment.

Implicit Memory

It is also known as procedural memory. Procedural memory is the unconscious memory of skills and how we do things, regarding the use of objects or movements of the body, such as tying a shoelace, playing harmonium or riding a bicycle. These memories are developed through repetition and practice.

8.2 Measurement of memory

As we've seen various stages of memory, let's see now how our memories can be measured. These are major ways of measuring memory - Recall,

Recognition,

Relearning.

Recall can be in the written form or it can be oral. Again recall can be free recall or serial recall.

8.2.1 Recall

Recall is retrieval of information from our LTM with few / no cues. The essay type questions which appear in your exams is the example of recall. Recall involves remembering a fact, event or object that is not currently physically present and require the direct uncovering of information from memory. Murdock (1962) did one experiment to check the recall of the subjects. He asked subjects to learn a list of words. Later their recall was tested by a free recall method. Murdock (1962) found that subjects could recall first few (primacy effect) and last few (recency effect) words prominently, but they got confused with the words in the middle part (serial position effect).

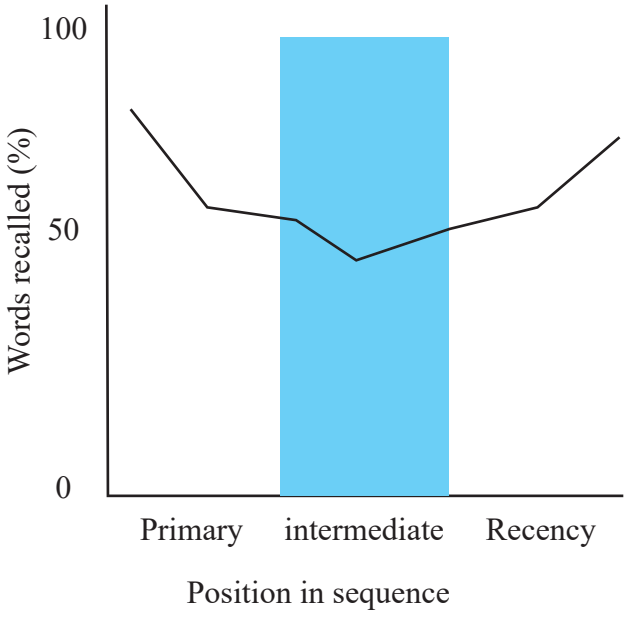

Fig. 8.5 Serial Position Effect

Activity 4 :

Note down the problems you face while learning a long answer.

Try linking your points to one another while learning in order to reduce the effect of serial position.

Recall is of two types.

Free recall :

It is recollection of the items in the list without its serial order. Memory for free recall is always better than if the subjects are asked to recall in a serial order. Free recall is effective in studying primacy effect and recency effect. Primacy effect occurs when the subject is able to recall items which are presented at the starting point of the list and recency effect occurs when the subject is able to recall the items which are presented at the end. Example of free recall is : we may listen to a lecture and afterwords recall few important points irrespective of the order in which they were presented.

Serial recall :

Here, material is recalled in the exact order in which it was presented. For example : if you are watching a dance show and if you are asked about who presented first and who was second performer and so on. Here, your answer will be in serial order. When you solve a mathematical problem, like 2+2= 4* 4= 16 you are doing steps one after the other so it is serial recall.

Recall is greatly affected by emotions and motivation at the time of learning and subsequently at the time of retrieval also.

8.2.2 Recognition

In this method the individual has to point out or recognise previously learnt material which is presented to him in a different context. The already learned material is present and the learner has to recognise it. It becomes relatively easier than the recall method. Usually score of memory by recognition method is more than recall method. Example : Multiple choice questions or match the columns.

8.2.3 Relearning

It measures retention by measuring how much faster one learns a previously learnt material after an interval of time. The comparison of retention scores at the time of first learning and the second learning shows that there is improvement in terms of time (no. of trials taken). Thus by relearning; there is saving of time taken to learn the same material.

This method is also known as saving method. The same material is learned by the same subject up to same learning criterion on two different occasions separated by some time interval.

It measures memory by comparing which includes performance on the same task on two different occasions.

8.3. Some phenomena related to memory

8.3.1 Flashbulb memory

Can you remember where you were and what you were doing when you first learned about an earthquake or tsunami taking place? If you can, you now have flash bulb memories – a term coined by Brown and Kulik.

Flash bulb memories are vivid memories of what we were doing at the time of an emotion provoking event because they seem to be preserved in autobiographical memory in considerable detail, almost like a photograph. Flashbulb memories illustrate a more general phenomenon about memory. Exceptional memories are easily retrieved.

8.3.2 Tip of the tongue phenomenon

One way to study organisation of information in long term memory is to see what happens when we search through our library of experiences to retrieve a memory. Suppose you are trying to retrieve a person's name but you cannot remember it. The name is on the tip of the tongue, but you cannot recall it. For example if you want to recall a name XYZ. Instead of this name you may utter similar names starting with the same letter and having nearly similar names, So tip of the tongue phenomenon is the evidence for the organisation of long term memory.

8.4 Forgetting

Activity 5 :

Think of the following situations...

Have you ever experienced the feeling that you had studied well before the exam but you did not remember the answers in the exam?

After a long time you meet your old school mate but you don't remember his name.

You hear your favourite song tune but you don't remember the words.

All these are the experiences of forgetting. Let's understand now what is forgetting...

Forgetting is simply the inability to remember the things which we want to remember at that moment. In other words, Forgetting is the failure to retrieve the material from our long term memory which we had already stored.

The pioneer of experiments on forgetting was Hermann Ebbinghaus. He created several lists of "nonsense syllables". Nonsense syllable is set of three alphabets two on both the sides are consonants and middle one is vowel like GEX, WOL, MUV etc and learnt it. He checked his own recall at various periods of time. He found out that he forgot most of whatever he had learnt in the first 20 minutes (40%). Following that after 1 hour (20%) till 9 hours (10%) again he forgot further and after one day he could recall only around 30% of the material he had learnt. After that his recall was steady for a long period of time. This experiment proved that we forget most of the things we learn in a short span. Therefore you should revise the study material on the same day again when you finish studying it to avoid forgetting.

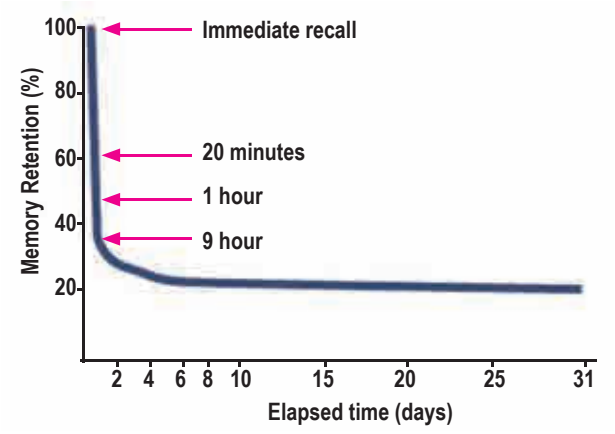

Fig. 8.6 Forgetting curve

Now let's see various causes of forgetting and how we can use some memory improvement techniques to reduce the forgetting.

Causes

1) If you keep a book on a shelf for over 6 months without touching it, what will happen to that book? How will it start looking? You will realize that after 6 months period, there will be dust on that book. Similarly our memories fade out when we don't use them for longer period. These traces get decayed over a period of time if they are not used and so we forget.

2) Have you ever played the game Chinese whispers? What happens in that game? Does the message remains the same as it was told by the first person who started the message? You can try it in the class or with your friends. You will see that the message in the beginning and message which is given by the last person is not the same. What do you think why does this happen? It is because we have a tendency to distort our memories. The game Chinese Whispers is the crude example of this type of forgetting. Some researchers believe that our memory traces are not decayed but they are distorted over a period of time and forgetting occurs.

3) Have you gone through some similar situations in your day to day life, think. You studied Psychology yesterday and you studied Sociology today. Now you end up forgetting either Psychology or Sociology. This kind of forgetting is due to interference of material. Some researchers believe that we forget due to the interference of the materials with each other which we learn one after the other. There are two type of interference namely retroactive interference and proactive interference.

a) Retroactive interference :

As the name suggests Retro means backward interference. It is the partial or complete forgetting of the previously learnt material due to the new memories which get mixed up with the older ones. So in the earlier example if we forget Psychology due to the study of Sociology, it will be due to retroactive interference.

b) Proactive interference :

As the name suggests Pro means forward interference. It is the partial or complete forgetting of the newly learnt material due to the old material. So in the example given, if we forget Sociology due to the study of Psychology, it will be proactive interference.

Retroactive and Proactive interference

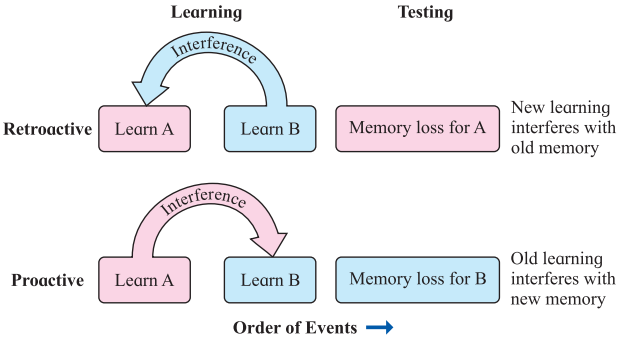

Fig. 8.7 Forgetting due to interference

4) Motivated Forgetting :

It is a behaviour in which people may forget unwanted memories either consciously or unconsciously. It is also called as a conscious coping strategy but it should not be confused with defense mechanisms.

There are two levels of motivated forgetting :

a) Repression :

Sigmund Freud's Psychoanalytic model states that we subconsciously push unwanted thoughts and memories into our unconsciousness. Person thinks that such repressed memories are completely forgotten. For example a girl who had experienced sexual abuse during childhood may completely forget about it but she may have difficulty while forming romantic relationship.

b) Thought suppression :

It is a conscious effort where we forget the memories of unwanted incidents and experiences of our lives. For example : if your friend has experienced a break up recently he may change the topic if you want to discuss about it. Thought suppression can be time consuming and quite difficult also, because such suppressed thoughts will reoccur. So your friend may try to suppress the thoughts about his ex-girlfriend but he may not be successful as she is your classmate.

8.5 Techniques of improving memory

After knowing the reasons of forgetting, now let us move ahead with how we can improve our memory.

1) The Keyword Method :

The Keyword Method is an effective method for remembering definitions, learning foreign language vocabulary with their meaning etc. Any two different pieces of information can be linked together by using this method. e.g. In Japanese "ki" means tree. A person can remember similar sounding word like "key" from English and can remember as "there is a key on the tree".

2) Encoding Specificity :

The encoding specificity of memory (Tulving & Thomson, 1973) provides information about how context can affect memory. According to this principle, memory is improved when information available while learning is also available at the time to recall.

3) Method of Loci :

It is creating imaginary route so that things can be remembered in better way. e.g. things to be picked up while going home or steps to solve mathematical problem. By using this method, a person with average intelligence also can form a route, club things in such a way that person can remember associated images for long period.

4) Mnemonic Devices :

These are the memory tools which help you to remember words, information or concepts. 'Mnemonic' in Greek means "of memory or related to memory". Mnemonics will include acronyms or first letter technique such as VIBGYOR which includes colours of rainbow. It will also include visualization like imagining face of a friend to remember your meeting

with him or her. Another example is, you don't repeat the same mistake if you remember the punishment you got before. Another technique is chunking where you can place large information into small chunks. For example "Vina's Nervous Mother was running slowly and peacefully'. this could be divided into chunks for 7 primary mental abilities given by Thrustone. The sentence includes verbal, numerical, memory, word fluency, reasoning, spatial and perceptual speed as factors of intelligence.

5) Practice and rehearsal :

Relearning the same material for a number of times will lead to better retention and better recall. For small size of material like definitions or easy material, if we use our time fully and learn the entire material, it will be more effective. For large size of material or difficult material we must take breaks in between and also learn the material in parts.

6) Minimizing interference :

We have already learnt about retroactive and proactive interference. Therefore we must not learn similar subjects together as they might interfere with each other. Also rest is necessary for minimizing interference.

7) One can also use POWER method for improving memory.

a) Prepare :

Before starting our studies, we must prepare ourselves for it by setting our goals i.e. why are we studying that particular topic. We should be aware of the reason.

b) Organize :

While reading we must organize the material appropriately and plan for the time we will require to learn it. If the material is easy and familiar, we can dedicate less time for it and if the material is unfamiliar, complicated or technical, we have to devote more time to it. We must learn difficult and technical material when we are fresh and when are tried we must go for the subject we enjoy.

c) Work :

You have to work towards your goal, put efforts while learning so to achieve the goal. You must associate new information with something which you have already learnt. Learn with motive to remember. Form chunks, form new associations so that you can remember the material.

d) Evaluate :

Try to evaluate quality of your learning by solving questions and find out the quality of your knowledge. Here, you will come to know about how much you have gained.

e) Rethink :

This final stage involves reanalyzing, reviewing, questioning and challenging our assumption. Here you can associate new material with whatever you already know.

This chapter must have provided you enough insight into the working and organisation of your memory as well as some hands on tips to improve your retention which could aid you in your academic performance. Make sure you apply the methods mentioned in this chapter while studying next time!

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Summary :

- Memory is a process of receiving, storage and retrieval of information when required.
- The basic processes of memory include acquisition (encoding), storage and retrieval.
- The stages of memory include : Sensory memory : retention of sensation (sensory impression) for a very brief time, Short Term Memory: the working memory that has limited capacity and retains information for limited time, Long Term Memory: After elaborative rehearsal the information from STM enter the LTM which is a highly organized system. Information retained almost permanently. LTM can be Explicit (Declarative) or Non declarative. Declarative memory can be episodic i.e. relating to life experiences OR semantic--for information encoded in signs and symbols. Non declarative is implicit or procedural i. e. for skills like riding a bike.
- Methods of Measurement of memory : Recall, Recognition and Relearning.
- Forgetting is inability to retrieve the stored information due to : Trace Decay, Trace Distortion, Interference or Retrieval failure.
- Memory can be improved by certain techniques. These techniques are called Mnemonic devices.

Key Terms :

- Memory
- Sensory memory
- Short term memory
- Working memory
- Elaborative rehearsal
- Long term Memory
- Explicit Memory
- Implicit Memory
- Episodic Memory
- Semantic Memory
- Flashbulb Memory
- Recall
- Recognition
- Relearning
- Trace Distortion
- Trace Decay
- Interference
- Retroactive Interference
- Proactive Interference
- Mnemonic device
- Method of Loci

Key Psychologists :

Hermann Ebbinghaus :

From 1880 to 1885, he conducted a limited, incomplete study on himself and published his hypothesis in 1885 as Über das Gedächtnis (later translated into English as Memory: A Contribution to Experimental Psychology). Ebbinghaus studied the memorization of nonsense syllables, such as "WID" and "ZOF".

Exercise

Q. 1. (A) Complete the following statements

1. One of the important processes for storage of information in the LTM is .....

   a. Perception *b. Elaborative rehearsal*

   c. Encoding

2. Memory is a/an .....

   a. Activity *b. Process*

   c. Performance

3. ..... memory has the shortest duration.

   a. Sensory *b. Short Term*

   c. Long Term

4. ..... memory is also known as Working Memory.

   a. Long Term *b. Accidental*

   c. Short Term

5. ..... memory has unlimited capacity.

   a. Sensory *b. Short Term*

   c. Long Term

6. The span of Short Term Memory is .....

   a. 5+/- 2 *b. 7+/-2* *c. 9+/-2*

(B) State whether the following statements are True or False. If False, correct them. If True,e xplain why.

1. Our sense organs also have memory.
2. Short term memory has an unlimited capacity.
3. Conscious memory of facts and events is called explicit memory.
4. Implicit memory is memory of skills.
5. When we memorise meanings, concepts and principles, it is called episodic memory.
6. The method of relearning is also known as saving method.
7. The most vivid memory is flashbulb memory.
8. Very often forgetting is due to unconscious processes like repression.

(C) Identify the odd item from the following.

1. Encoding, storage, Tip of the tongue (TOT), retrieval
2. Keyword method, method of Loci, Chunking, Rote learning, First letter technique
3. Sensory register, STM, Flashbulb memory, LTM
4. Recall, recognition, relearning, trace decay

(D) Match the following pairs.

A	B
1. A technique to improve memory	a. Short Term Memory
2. The most vivid memory	b. Declarative Memory
3. Working memory	c. Implicit Memory
4. Most organized memory	d. Flash Bulb Memory
5. Playing a harmonium after a long time	e. Method of Loci
6. Writing an essay on perceptual process	f. LTM
	g. recall method
	h. relearning method

Q. 2. Answer the following questions in around 35-40 words each.

1. Explain any one example of Flashbulb memory from your life.
2. Explain the model of working memory proposed by Baddeley.
3. Explain the Tip of the tongue (TOT) phenomenon with an example.
4. Give an example of Episodic memory.
5. What is motivated forgetting?

Q. 3. Compare and contrast

1. STM - LTM
2. Implicit Memory - Explicit Memory
3. Semantic memory - Episodic memory
4. Storage failure - Retrieval failure
5. Recall method - Recognition method

Q. 4. What will you do if...

1. You have to prepare a long speech covering all the activities in your college and present at the annual function.
2. How will you apply "POWER" to prepare for the final exam of Psychology.

Q. 5. Short Notes.

1. Characteristics of Memory
2. Techniques to improve memory
3. Motivated forgetting
4. Causes of forgetting

Q. 6. Answer the following question in 150 to 200 words.

1. Explain the process of human memory in detail.
2. Explain the theories of forgetting in detail.

Q. 7. Arrange the following elements in concepts of memory in ascending order.

1. Elaborative rehearsal, Short Term Memory, receiving information from the environment, Long Term Memory, Retrieval.

Glossary

Abnormal behaviour : The behaviour that produces distress or disability and maladaptive, disruptive or harmful for the person or the society.

Abnormal psychology : A branch of psychology that studies unusual patterns of behaviour.

Allocentrism : An ability to see a situation from other people's perspective.

Approach Approach conflict : A conflict experienced when a person is attracted by two or more equally strong and incompatible positive motives at the same time.

Approach avoidance conflict : A conflict experienced when an individual is confronted with a goal that has equally strong positive as well as negative aspect in itself. This leads to a conflict whether to go for it or avoid it.

Ashtang yoga : A theory proposed Pantanjali which has 8 aspects like yama, niyam, aasan, pranayam, pratyahaar, dharana , dhayn, samadhi.

Avoidance Avoidance conflict : A conflict experienced when an individual encounters two or more situations having equally strong negative aspects but is compelled to choose one of them.

Behaviour : Responses of an organism to various stimuli either internal or external.

Bullying : A form of aggressive behaviour displayed by individuals to gain power and prestige.

Central nervous system : A part of nervous system consisting of the brain and spinal cord.

Child psychology : A branch of Psychology that studies biological, psychological and emotional changes occurring during childhood.

Clinical psychology : An applied branch of psychology that deals with diagnosis and treatment of mental illnesses.

Cognitive psychology : A branch of Psychology that studies higher order mental processes such as thinking, reasoning, language development.

Conflicts of motives : A clash between two or more equally strong and incompatible motives occurring at the same time that compels an individual to make a choice.

Conception : The beginning of life , with fertilization of an ovum with sperm.

Counselling psychology : A branch of Psychology dealing with milder behavioural problems such as adjustment problems in workplace and family.

Covert behaviour : Includes responses which are not directly observable but can be inferred from behaviour like thinking, feeling etc.

Criminal psychology : A branch of Psychology dealing with identifying the causes of crime, suggesting preventing measures to control criminal behaviour and criminal rehabilitation.

Daydreaming : A defense mechanism that involves escaping unpleasant, boring and frustrating situation by imagining that he/she is doing something else that is interesting and pleasant.

Defense mechanism : A face saving device to protect Ego from shattering due to harsh reality, functions as a shock absorber and stop gap arrangement that provide time to the person to deal with the challenging situation.

Development : The progressive series of changes that occur in a predictable pattern as a result of maturation and learning.

Developmental psychology : A study of changes resulting from maturation and learning in behaviour from conception to death.

Developmental task : A set of social expectations about developmental changes at a particular developmental stage.

Deviance : The extent to which a said behaviour is away or deviated from established norms.

Diffusion : An identity status, according to James Marcia, of an adolescent who neither

explores nor commits to alternatives in reference to his self identity. There is a lack of commitment.

Displacement : A defense mechanism in which there is a redirection of an impulse onto some other object or person that is not a source of that impulse.

Distress : A negative type of stress accompanied by emergency response hormones such as adrenalin and cortisol.

Educational psychology : A branch of psychology that deals with teaching and learning process and aims at creating effective teaching learning methods.

Elaborative rehearsal : A process of making information meaningful and connecting the same with the information that already exists in the LTM.

Egocentrism : A tendency of a child to be self centered and the child's inability to see a situation from another person's point of view.

Embryonic stage : The prenatal stage that starts from the third week and continues till the ninth week after conception.

Emotional intelligence : A set of skills to process emotional information accurately.

Endocrine glands : The ductless glands which secrete hormones which are released directly into the blood.

Episodic memory : A memory of experiences and specific events associated with time and places.

Eustress : A positive form of stress having a beneficial effect on motivation, performance and emotional well being.

Exocrine glands : The duct glands secreting chemical substances and dispose them outside the membrane. Their secretions don't get mixed with the blood.

Experimental psychology : A branch of Psychology that deals with methods of conducting experiments to study the fundamental causes of human behaviour.

Explicit memory : The conscious memories of facts and events, also known as declarative memory.

Fetal stage : A prenatal stage that begins from the 28th week after conception till birth.

Flashbulb memory : A vivid memory of past experience which is mostly associated with a traumatic incident.

Foreclosure : An identity status typical of adolescent who accepts other's decision about himself and how others expect him to be.

Gender identity : A perception of one's own gender which may or may not correspond to their birth sex. Affected by gender role expectations from society.

Germinal stage : The prenatal stage that ranges from conception to two weeks.

Hormones : The chemical substances secreted by endocrine glands considered to be vital for growth, development and emotional adjustment.

Hyperstress : An intense physiological as well as psychological reaction to excessive demands of situation.

Hypostress : A type of stress experienced when an individual has no challenging activity to do.

Identity crisis : A stage of confusion about identity of self. A typical crisis experienced by adolescents.

Identification : A defense mechanism of trying to become like someone else to deal with anxiety.

Ideal self : A type of self as described by Carl Rogers that represents an ideal image developed by an individual as he would like to be.

Implicit memory : Also known as procedural memory, a type of memory that holds information of skills and procedures.

Impression management : A way of consciously monitoring one's own behaviour to lay the desired impression upon others in a situation.

Industrial psychology : An applied branch of psychology concerning with the factors affecting behaviour of people at workplace such as selection, placement, motivation, job satisfaction etc.

Infancy : The period from the second week after birth till two years.

Interference : A theory that explains forgetting the currently required information as a result of interference from previous or later learning.

Kapha prakruti : In Ayurveda, kapha is one of the three doshas. Those who are with kapha prakruti exhibits traits like calmness, flexibility, patience and care.

Long term memory : An organized system that retains information for more or less permanently.

Maturation : A natural unfolding of the genetic potentials at appropriate time in the course of development.

Memory : A process associated with storage, retention and retrieval of information about past experience.

Method of loci : A method to memorize or remember by creating imaginary route associated to actual places or locals.

Moratorium : An identity status of an adolescent who explores alternatives but does not make any commitment with reference to his self identity.

Mnemonic devices : A collective name for memory tools which helps to remember information and concepts.

Neonatal stage : In includes the period of two weeks after birth.

Nervous system : A system that constitutes all the nerves carrying nerve impulses.

Neurons : The special kind of cells composing the nervous system. They receive and transmit nerve impulses to and from the brain and the peripheral organs.

Normal behaviour : A common pattern of behaviour observed in majority of people in a given society. A behaviour pattern adhering to societal norms to a fair degree.

Openness : A characteristic of people who are intellectually curious, appreciative of art and who can think in nonconforming way.

Overt behaviour : The behaviour that includes directly observable responses like walking, talking, dancing etc.

Personal distress : A subjective feeling of an individual in response to persons and events creating extreme discomfort.

Peripheral nervous system : A system that connects the sensory organs as well as other organs in the body to the brain and the spinal cord.

Pitta : In Ayurveda, pitta is one of the three doshas. Those who are with pitta prakruti exhibits traits like sharp and short tempered.

Prenatal stage : The gestation period from conception to birth

Proactive interference : A partial or complete forgetting of the newly learnt material due to previously learnt material.

Projection : A defense mechanism of placing one's own unacceptable thoughts on to others as if the thoughts belong to others and not to oneself.

Psychoanalysis : A theory proposed by Dr. Sigmund Freud emphasizing upon the unconscious aspects of self.

Psychology : A science of human behaviour and mental processes.

Rationalization : A defense mechanism of justifying an otherwise an unacceptable situation with logically sound but false reasons. Also known as 'sour grapes attitude'.

Real self : The self that one is in reality.

Realistic perception : A perception that consists of expectations from self as well as others after considering reality in objective terms.

Recall : A method of measuring memory in which retrieval of information is with few or no cues.

Recognition : A method of measuring memory in which one has to recognize previously learnt material that is presented in a different context.

Relearning : A method of measuring memory in which retention is measured by comparing the original retention score and the score of retention after relearning the same material after an interval of time.

Repression : The basic defense mechanism in which an individual pushes down the unacceptable and painful memories into the unconscious with an impact that it appears to be forgotten altogether.

Retroactive interference : A partial or complete loss of information of the previously learnt material due to newly learnt material.

Self : The totality of perceptions each person has of themselves.

Self actualization : The term was originally introduced by the organismic theorist Kurt Goldstein for the motive to realize one's full potential.

Self awareness : It is the quality or trait that involves conscious awareness of one's thoughts, feelings, behaviours and traits.

Self concept : Self concept is defined as the totality of perceptions each person has of themselves or The totality of complex organized and dynamic system of learned beliefs, attitudes and opinions that each person holds to be true about his or her personal existence.

Self efficacy : Self efficacy is a person's belief in their ability to accomplish some specific goal or a task.

Self esteem : Self esteem is 'your overall evaluation of your worth as a person, high or low, based on all positive and negative self perceptions'.

Self image : A personal view or mental picture that one has of him/herself.

Self regulation : Is being able to control our thoughts, feelings and actions so to suit the social norms. Self regulation involves monitoring our actions and reactions because we can predict or imagine it's consequence.

Semantic memory : A more structured record of facts, meanings, concepts and knowledge.

Sensory memory : A capacity of a sense organ to retain the sensory impression for a very short time even after the source stimulus is withdrawn.

Short term memory : A stage of memory when information is retained only for 15 to 30 seconds. It has limited capacity also known as working memory.

Social psychology : It deals with understanding how individuals are affected by others and vice versa.

Stimulus : Is anything that gives rise to a response. It can be internal or external.

Stress : A physical or psychological reaction to demanding situation that one is compelled to pool resources to fulfil the demands.

Stress diathesis model : According to this model, a particular disorder results from genetic factors as well as life experiences. The word diathesis refers to vulnerability of an individual towards a particular disorder.

Sublimation : It refers to giving a vent to unacceptable urges into socially acceptable behaviour.

Trace decay : Also known as leaky bucket hypothesis, it explains forgetting as a result of passage of time during which the information is not used.

Trace distortion : A theory of forgetting that proposes that there are changes in the memory traces and therefore forgetting takes place.

Vaat prakruti : In Ayurveda, vaat is one of the three doshas. Those who are with vaat prakruti exhibits traits like unpredictability, fluctuating mood, thoughts.

Zygote : A single fertilized egg cell as a result of fertilization.

Suggestions for 20 marks

Field visit

Suggestions :

visit to blind and physically handicapped schools, deaf and mute schools, schools for mentally challenged, Rehabilitation centers, jails, mental hospitals, families affected by suicides, national players, politicians, social workers, actors. Everything that will enhance personality of students.

Important points to be noticed during field visits.

1) Whom are you planning to visit? Or which place you are planning to visit?
2) Information related to the place, historical importance / current information. Detailed Information related to the person.
3) Why this place or a person became famous ?
4) Analyse the place or a person from your point of view.
5) Which points you noticed? What makes you motivated or inspired about the place or about a person.

GUIDELINES ABOUT FIELD VISITS

1) Place / person.
2) Aim / motivating factor behind visiting the place or a person.
3) Collect information about geographical / social / educational / psychological / economical factors.
4) Narrate the place / take interview of a person.
5) Collect the information and analyse.
6) How this information can be utilized by you for the society .
7) Name the drawbacks / weaknesses you have noticed.
8) Suggest remedial actions.
9) Your comment. (Positive / negative feedback)

Prepare a report considering all the above mentioned points.

Marks distribution - 20 marks

1) Field visit - 5 marks.
2) Narration/interview - 5 marks
3) Write up - 5 marks
4) Presentations - 5 marks.

Important suggestion :

teacher should plan for field visit by taking into consideration factors like permission of the college and deputy director of education. Teacher should make plan by taking local rules and regulations into consideration.

Suggestion for 20 marks

Group - E2

Evaluation Suggestions :

Activity 1 : Seminar

Group of 4-5 students will be given a topic related to syllabus? Ask them to present it with help of PPT, oral presentation, poster etc.

Activity 2 : Film Review / Book review

Screening of films

Discussion

Write up

Example : Taare Zameen Par (Learning Disability), Devrai (Schizophrenia)

Activity 3 : Interview of a counsellor, Psychologist or therapist.

Activity 4 : Mental Health Awareness Campaign, Exhibition, Poster presentation, skits etc.

Activity 5 : Administration of standardized tests related to syllabus.

Example : Self esteem, Emotional Intelligence, Stress, Adjustment etc.

Activity 6 : Theme based model - making.

Activity 7 : Role plays to develop soft social skills.

Activity 8 : Case stady