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The example lesson is next. Enjoy reading it. Whenever you have any questions, please do not hesitate to contact us.

Regards,

The Didacton Team



# Practical Psychology

Lesson 11

**Memory**

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The memory has a huge, undeniable role in our lives. It is also a very tricky subject and plays a number of pranks on us at every possible instance. It has made us anxious and helpless during examinations because of sudden unexplained loss of everything that was learnt the previous day. It has embarrassed us in front of people because we are just unable to recall their name, even though we happen to know them very well. And it has also made us super proud of ourselves when we are able to flawlessly recite the famous lines of a prose that we learnt when we were still in school! All these factors make our memory to be a really intriguing yet fascinating human ability. It is central to a lot of important cognitive processes like thinking, perception and problem solving. Its main function is to preserve our sense of who we are, maintain our relationships with other people and it also helps us in solving the problems that we face. It also aids us in taking informed decisions. Over the years a lot of studies have been conducted by psychologists in order to understand the process through which any incoming information is executed by the memory, the way it gets stored for use after a period of time, the reasons why this information gets lost from our memory and also the techniques that we can use in order to improve our memory. In this lesson we will learn more about all such researches that have been done in this field so far.

### **11.1 What is memory?**

Memory refers to the retention and recalling of information over a period of time. It is highly dependent upon the nature of cognitive task that you are supposed to perform. That is there are some tasks where you need to use your memory for retaining information for only a short period and there may be others where you use your memory for remembering information over a very long period of time. For example: we often use our memory to retain an unfamiliar phone number, but only for a short period till the time we save it in our phones. On the other hand we have also used our memory to remember counting and the alphabet, something that we were taught when we were just a few years old.

Here, it is very important to know that all incoming information that we receive does not get automatically stored in our memory. Rather, there are three basic stages through which all this information that we receive necessarily goes through. These stages are:

#### **11.1.1 Encoding**

This is the first and the most primary stage in which all the incoming information is registered and recorded for the very first time, so that it is available for use by our memory system. Whenever an external stimulus impinges our senses, an automatic neural impulse gets generated. These neural impulses are received by the different areas of our brain where it is processed further. In other words, in encoding,

incoming information is received, processed and some meaning is derived out of it. It then gets represented in such a manner that it can be processed further.

### **11.1.2 Storage**

Storage is the second stage of memory. All the information that was encoded in the previous stage also needs to be stored so that it can be used later. Therefore, storage is that stage (or process) in which information is retained and held over a period of time.

### **11.1.3 Retrieval**

Retrieval is the third stage of memory. All information that is stored in our memory can only be used when we are able to successfully recover it from our memory. Retrieval refers to this recovery or bringing back of the stored information to our awareness, so that we are able to use it for performing the various cognitive tasks at our hand like- problem solving and decision making.

An important point worth noting here is that memory failure can happen at any of these stages and you may fail to retain or recall information. This might happen because you either did not encode the information properly or the storage was weak, and hence, you could not access or retrieve it when you wanted to. Here, it is also important to note that other reasons like injury etc can also be responsible for memory failure.

## **11.2 Approaches of memory**

There are many approaches that have been proposed in order to study memory. In the beginning, it was a popular opinion that memory refers to the capacity of storing all the information that has been acquired through our experiences and through the process of learning. It was considered as a huge storehouse where all the information that we have gets stored, so that it can be retrieved and put to use when needed. But, it was only with the invention of the computer, that human memory began to be seen as a system in which information gets processed in the same way as in a computer. That is just like a computer, human memory registers, stores and manipulates large amounts of information and takes action on the basis of the outcomes of these manipulations. Also, just like a computer memory has a temporary memory (RAM) and a permanent memory (hard disk), human memory also has both temporary and permanent memory. And it is this similarity between a computer and human memory, which led to the development of the very first model of memory in the year 1968.

### **11.2.1 Stage model**

In the year 1968, Atkinson and Shiffrin proposed the very first model to the study of the memory and called it the 'Stage Model'. According to this model, there are three basic memory systems:

- The 'Sensory Memory'
- The 'Short- term Memory'
- The 'Long- term Memory'.

These three memory systems have different features and perform functions based on the sensory inputs that have been received. Let us now try to understand the functions of each of these systems.

#### *11.2.1.1 Sensory memory*

All incoming information first enters the sensory memory. It is the system in which all incoming information, from all the senses, gets registered with a lot of accuracy. This system is often referred to as sensory memories or sensory registers. This is because here all the information from all the senses gets registered as an exact replica of the original stimulus. Information from both auditory and visual stimulus gets registered in sensory memory. You can relate to the auditory and visual storage system of sensory memory if you have ever heard reverberations of a sound even after the sound has stopped or if you have experienced visual after-images of a trail of light that stays even after a bulb is switched off. Here it is important to note that though, sensory memory has a very large storage capacity, it has an extremely short duration, of less than one second.

#### *11.2.1.2 Short-term memory*

All the information that impinges on our senses does not get attended to by us. The rest of the information that we attend to enters the second memory store which is known as the short-term memory (STM). It holds a small amount of information for a brief period of time, usually for about 30 seconds or less. According to Atkinson and Shiffrin, all the information in STM primarily gets encoded acoustically; this is in terms of sound, and unless the information is rehearsed continuously, it is likely to get lost from the STM in less than 30 seconds. The capacity of STM is said to be around 7 items at any particular time. Here, it is also important to know that in spite of its short duration and small capacity, short-term memory is not as fragile as sensory memory where information decays automatically in less than a second.

Based on recent studies, psychologists argue that the short-term memory is not unitary and it rather consists of a number of components. This multi-component view of the short-term memory was first proposed by Baddeley in the year 1986. He suggested that rather than being a passive storehouse of information, the STM is a

work bench which holds a wide variety of memory materials. These materials are constantly handled, manipulated and transformed as we perform various tasks. This work bench is known as the working memory.

#### 11.2.1.2.1 Working memory

- The first part of the working memory is the phonological loop. It stores a limited numbers of sounds which decay within two seconds unless they are rehearsed.
- The second part of the working memory is the visuospatial sketchpad which stores both visual and spatial information. Just like the phonological loop, the capacity of the visuospatial sketchpad too is limited.
- The third component of the working memory is referred to as the Central Executive by Baddeley. It not only organizes all the information from the phonological loop and the visuospatial sketchpad, but it also organizes the information from the long- term memory (we will read more about the long-term memory in the upcoming section). It also allocates attentional resources that are to be distributed amongst the wide variety of information's that are required to perform a particular cognitive task. It also monitors, plans and controls behaviour.

#### 11.2.1.3 Long- term memory

All the information that has survived from the STM now enters the long- term memory (LTM). The long term memory does not have a limited capacity and duration span like STM and can rather store vast amounts (read unlimited) of information for long periods. In fact, the LTM is like a permanent storehouse of information, where information right from what happened when you were in the 5<sup>th</sup> grade to what happened at your work yesterday gets stored. Studies suggest that the LTM works as a permanent storehouse of information because of the way information gets stored in it. All materials in the LTM gets encoded 'semantically' or based on the meaning that it has.

Here it is important to answer the major question that creeps up in our minds after reading that the LTM acts as a permanent memory storehouse: why do we forget things in spite of having learnt them? The answer to this question is that forgetting happens not because of encoding or storage failure. Rather it is the result of failure in retrieval of information that has been stored in the LTM.

#### 11.2.1.3.1 Types of long-term memory

Just like the short-term memory, it is believed that even the long-term memory does not consist of one single entity. This is because a huge amount of different information gets stored in this memory house. Keeping this in mind, a lot of new studies have been done in the recent years, the results of which suggest that the long-term memory is actually of many types. Some of these are:

##### 11.2.1.3.1.1 Declarative memory

It acts as a storehouse for all the information which is based on facts. Examples of declarative memory can be names of people, animals or things; important dates like birthdays, anniversaries etcetera; facts like how many wheels a car has etcetera. Information stored in the declarative memory can be easily stated and described. Tulving has further classified the declarative memory into two parts. They are:

##### 11.2.1.3.1.1.1 Episodic memory

The episodic memory contains all the biographical details of the events that took place in our lives. In other words, the episodic memory is like a storehouse of our personal memories and experiences. In fact, there are a lot of chances that we also remember the exact dates of when a particular event took place. For example: I am sure you can vividly remember how excited you were when you stood first in your class or how you felt when your best friend threw a surprise birthday party for you. But, there are also times when we forget some of these events that took place in our lives. This happens because even though these memories are hard to forget, we cannot ignore the fact that many events take place in our lives continuously, and this affects our capacity to accurately remember each and every one of them. A very interesting point worth noting here is that we tend to remember pleasant life experiences and events in much more detail as compared to painful and unpleasant experiences and events. This can be because, our brain consciously puts in efforts to delete these unpleasant events and experiences from our memory.

##### 11.2.1.3.1.1.2 Semantic memory

The semantic memory stores all the information that is related to general awareness and knowledge. In other words, the semantic memory is like a storehouse of all the concepts, rules and ideas that we are aware of. For example: it is because of the semantic memory that you still remember the meanings and spellings of the words that you learnt back in your early school days. An important point worth noting here is that because semantic memory stores facts and ideas of general awareness and knowledge, forgetting of such information is very less likely to happen. Also, unlike the episodic memory, there are very less chances of us remembering the exact dates around which we acquired a particular information.

#### 11.2.1.3.1.2 Procedural memory

This memory store is somewhat the exact opposite of the declarative memory store. And it is due to this reason that the procedural memory is sometimes also known as the non-declarative memory. In this memory, all the information regarding procedures and skills that are required to accomplish a task are stored. Examples of procedural memory include:

- the procedure to ride a bicycle
- how to make the tastiest donut in the world

Here, even though we might know the correct procedure of riding a bicycle or making the tastiest donut, it is very difficult for us to explain and describe it verbally.

Long- term memory can be further classified into 'flashbulb memories'; memories of events that were very surprising, unexpected or exciting; 'implicit memory'; memories that we are not consciously aware of.

#### *11.2.1.4 Transfer of information from one memory system to the other*

Another question that comes to our mind is how information travels from one memory store to another? As an answer to this question, Atkinson and Shiffrin proposed that the flow of information from one memory store to another happens via a function known as control processes. We have already discussed earlier in this lesson that we do not register and store information from all stimuli that impinges upon our senses. Therefore, only that information that we selectively pay attention to moves from our sensory memory to our STM. The control process through which information travels from sensory memory to STM is known as 'selective attention'.

After the information flows from the sensory memory to the STM, another control process starts for the further transfer of this information to the LTM. Maintenance rehearsals (constant repetition of information) and chunking (breaking of information into smaller parts), are the two control processes through which the flow of information from STM to LTM takes place. From the STM, information enters the long- term memory through a control process known as elaborative rehearsal (connection of old already stored information with the latest information, through rehearsal). Here it is important to note that all these three (maintenance rehearsals, chunking and elaborative rehearsals) are also methods that we can use in order to enhance our memory!

Note: We will be reading more about why forgetting happens and how we can easily enhance our memory capacity in the upcoming sections of this lesson.

### 11.2.1.5 Contradictions about the stage model

Recent studies on the relevance of the stage model have rendered contradictory and mixed results. Where the results of some experiments validate that the short-term memory and the long-term memory are two separate memory stores and that the process through which encoding happens in both of them are different, the results of other experiments completely refute the theory of their distinctiveness. For example: experimental evidences indicate that information in both STM and LTM can be encoded both semantically and acoustically. This contradicts highly with what Atkinson and Shiffrin had originally proposed in the stage model, according to which information was encoded acoustically in the STM and semantically in the LTM. Another contradiction to this theory was found when in the year 1970, Shallice and Warrington cited the case of a man whose short-term memory was seriously affected due to a severe accident, but the accident had completely no effect on his long-term memory. Therefore, the thought that information transfer takes place from the STM to the LTM stands invalid. These along with various other contradictory proposals lead to the development of another theory of memory in the year 1972.

### 11.2.2 Levels of processing

This model was proposed by in the year 1972 by psychologists Craik and Lockhart. The basic idea of this model is that, the storage and retention of all new information that impinges upon our senses is highly dependent on the way it is perceived, analyzed and understood by us. According to Craik and Lockhart, analysis of incoming information can be done in more than one way. For example: while reading the word '**RESPECT**', where one person may just focus on how the word is written (in italics), someone else may notice the way it is written (in bold and capital), whereas, the third person may notice all the three aspects of the word. This is the first and the most basic level on which the processing of information takes place. The next level of processing of the same word can be when a person moves on from processing these basic structural features of the word to processing the spelling or the phonetics of the word. Analysis of information at these two levels produces memory which is likely to decay quickly as it is very fragile. Therefore, in order to retain this information for a long time, the third and the highest level of processing has to take place. This happens when one moves on from the basics (spelling and structure) of the word, to understanding the meaning of the word. Let us take the same example as given above in order to understand this level of processing. So, in case of the word 'respect', long term retention of the word will happen when a person tries to understand the word in terms of its meaning, in this case 'REGARD' (or in terms of any other meaning that the word has).

Overall, the levels of the processing model of memory suggests that proper encoding and storage of information takes place in the third and the deepest processing level, when we look at it in terms of its meaning. And analyzing the word in terms of its physical structure and phonetics (spelling) leads to very shallow processing which

can result in the lack of actual storage of the information and eventually ends with failure of retrieval (forgetting).

Here it is very important to note that this model of memory resonates very well with the process of learning. (We will be reading more about learning in the upcoming lessons of this course).

### **11.3 Forgetting**

Do you remember how you felt when you forgot your friend's name? Or when you suddenly could not recall the answer to a question that you had very well memorized just the previous day? Basically each one of us can relate to incidents when we forgot something that we remembered just a little time back and have even faced consequences for the same, some good, some bad and some utterly disastrous!

But the main question here is why does forgetting actually happen? Is it because we did not memorize the concept well? Or is it because while storing, the encoding of information was not proper? Or maybe it happened because there was an overload of information and it got misplaced somewhere or maybe it got mixed with some other information? If you ask these questions to people, you are very likely to get different and unique answers every time. Even psychologists have shown a great deal of interest in studying why forgetting happens and have come up with a number of theories that probably explain why the phenomenon actually takes place.

#### **11.3.1 Nature of forgetting**

Hermann Ebbinghaus was the first person who made an effort to systematically explain the nature of forgetting in the year 1885, by memorizing lists of syllables which did not make any sense like KIR or NOK. He then measured the number of trials it took him to relearn the same syllables at varying intervals of time. The results of his studies indicated that the rate of forgetting is at its peak during the first hour after it has been learnt and it slows down gradually eventually reaching a point when no more forgetting happens even after many days have passed. A very interesting fact related to this theory by Ebbinghaus is that it was completely rejected earlier because of lack of evidences, but its explanations have now been accepted by everyone unanimously.

### **11.3.2 Causes of forgetting**

Some of the theories that give plausible explanations as to why forgetting happens are:

#### *11.3.2.1 Forgetting due to trace decay*

Also known as the disuse theory, this theory is probably one amongst the first few theories that tried to explain why forgetting happens. According to this theory, when we learn something and make a memory out of it, some modifications occur in our central nervous system (CNS). These modifications are very similar or equivalent to the physical changes that occur in the brain, and are known as memory traces. It is believed, that if these memory traces are not used for a long time, they simply start decaying slowly and thus become unavailable when we finally need them.

But this theory has been proved deficient on several grounds. For example: Based on the explanations given by this theory that forgetting happens when memory traces fade away because they are not used, people who sleep right after memorizing should forget much more than people who remain awake, simply because memory cannot be not put to use while sleeping, while it can be used while staying awake. But contrary to this, the results of a number of studies have proven that people who remain awake after learning are more susceptible to forgetting the information as compared to the people who sleep soon after learning the same concept!

Therefore, it was this lack of proper explanations that this theory was soon discontinued, and new theories with better explanations of the concept took its place.

#### *11.3.2.2 Forgetting due to interference*

This theory is probably one of the most accepted theories of forgetting. It is based on the assumption that when we learn and memorize any concept/ concepts, we form associations between the items that lay within that concept. These associations remain intact in our memory as we go on and gain more information. All these associations are placed independently without any interaction or kind of conflict with each other. But interference takes place when we try to retrieve information from our memory stores. This happens because all the associations that we have stored compete with each other for retrieval.

Try out this example so that you can get a better understanding of this process. Learn two lists of syllables (list A and list B) that do not make any sense, like DER or maybe FOW, one after the other. Make sure that the words in both the lists are entirely different and that there are no repetitions. Now, wait for some time and then try to recall the nonsense syllables from the first list (list A). When you recall these syllables, you are most likely to recall some syllables from list B as well, along with

the syllables of list A. This happens because the associations you formed while learning the syllables of list B, started interfering with the associations that you had already formed while learning the syllables of list A, ultimately resulting in the mixing up of the syllables from both these lists. The same thing is likely to happen when you try to recall the syllables from list B.

This example also shows that there are two kinds of interference that can take result in forgetting. They are:

#### 11.3.2.2.1 Proactive interference

Also known as forward moving interference, this is the kind of interference that happens when the associations that a person has already formed earlier, starts interfering with the associations that he/ she makes later, ultimately resulting in the failure of proper retrieval of information that was learnt later. Like for example, the difficulty you have while recalling the syllables of list B, because of the interference of syllables of list A with those of list B. Another example of proactive interference can be the difficulty in learning a new language because you confuse its words with the words of the language you already know.

#### 11.3.2.2.2 Retroactive interference

Also known as backward moving interference, this is the kind of interference that happens when the new associations that a person makes, starts interfering with the associations that he/ she had made earlier, ultimately resulting in the proper retrieval of information that was learnt earlier. Like for example, the difficulty you have while recalling the syllables of list A, because of the interference of syllables of list B with those of list A. Another example of retroactive interference can be the difficulty you have in recalling the words of the old language because the words of the new language that you just learnt have interfered with the words of the old language.

#### 11.3.2.3 Forgetting due to failure of retrieval

Forgetting also takes place when the retrieval cues (stimuli that assist us in the proper recall of stored information), are either not there at all, or are incorrect. To study this process, Tulving and his colleagues conducted a series of tests and experiments, the results of which concluded that the information that we have stored in our memory system may show failure during retrieval either because of the total absence of retrieval cues or because of the inappropriateness or unsuitability of the retrieval cues that are available at the time of retrieval. It is important to note here that retrieval cues are like 'hints' or relatable words/ events that help in the proper recall, and can be anything from physical context in which the learning of information took place or the category in which the information can be put etcetera.

Let us try out this example so that you can get a better understanding of this process. Make two lists (A and B) of 36 meaningful words belonging to different categories (like names of places, animals, food, and electronics etcetera). Make sure that both the lists have the same words and the only difference between the two is that list number two has the words properly listed under their respective categories, while the words are written randomly in the first list without being categorized properly. Hand out list A to your friend and ask him/ her to learn the words in the list. Now after sometime, ask your friend to recall the words. You will notice that he/ she might have forgotten quite a few words from the original list. Now, give the second list to your friend and repeat the process. Now you will notice that your friend is able to recall almost all the words. This happened because, the category names in the second list acted as retrieval cues and aided in the proper retrieval of information, while the absence of proper retrieval cues during the recall of the words of the first list resulted in forgetting.

## **11.4 Strategies for improving memory**

We all want to have an excellent memory which always helps us and does not put us in embarrassing situations. We have already learnt about a number of processes and theories that are related to memory, in the previous sections of this lesson. And now we have finally reached to the part where we will be learning about the easiest methods, which have been verified by psychologists, and can help you in improving and enhancing your memory. The strategies that are used for improving memory are called **mnemonics**. They can be of two types:

### **11.4.1 Mnemonics using images**

The basic idea behind this strategy is that, we learn by creating realistic, detailed and interacting images of the material that we want to learn and remember. These images are stored in our memory and they are easy to remember and retrieve. There are two very well-known and commonly used mnemonic devices that use images as a medium. They are:

#### **11.4.1.1 The keyword method**

In this method, we find a word/group of words which are similar to the words that we are supposed to learn and associate both the words with each other. This similarity between the words can both be in terms of similarity in meaning of the words or similarity in pronunciation, or even for any other relatable thing for that matter. The words that we use for remembering the new words are known as keywords. We then make mental images of both these words; the keyword and the target word and also imagine them interacting with each other. These images then act as cues and help us when we want to retrieve the target words.

For example: Suppose you are studying geography and are unable to remember the words tectonic plates. You can easily employ the keyword method here and relate the word tectonic to the word tonic and the word plates to, well, the word plate! Then you create the mental images of both these words along with their keywords and save it in your memory. Note: you can also create the images of a plate full of food and a tonic that you generally use in order to remember these words.

#### 11.4.1.2 The method of loci

Just like the name of the method (loci) suggests, this method uses the mental images of the sequence/ place/ position where something occurs or is situated, in order to learn things. This is a method which is especially helpful in learning and remembering information in a particular serial order. In order to use this technique, you have to arrange the items that have to be remembered in a physical space, in the form of visual images. In other words, it needs you to first visualize the places/ objects that you already know about, in a specific sequence, and then associate the items that you want to remember one by one to these physical locations/objects that you already know.

For example: Suppose you are going to the market and your mother asks you to pick up a few things like eggs, bread, fruits, shampoo etcetera on your way. So you can easily visualize the images of these things, the way they are kept in your house. Then when you reach the market, all you have to do is to take a mental tour of your house, from the kitchen to the bathroom, and you will be able to recall all the things that your mother asked you to purchase for her.

#### **11.4.2 Mnemonics using organization**

Organization refers to the learning of information, in a particular order. These mnemonics are extremely helpful as the retrieval of information that was learnt using this method becomes very easy because of the framework that has been created by us around it.

##### 11.4.2.1 Chunking

Chunking involves the breaking of information into smaller chunks or pieces in order to aid effective and easy learning of a large amount of information and then combining these small chunks or pieces of information together during the time of retrieval in order to form a larger chunk of information. A very important point worth noting here is that, for the proper creation of chunks, we need to first figure out an organizational pattern, something that links all the small chunks of information to each other. As we have already discussed in the earlier sections of this lesson, this

method is not only used to improve our memory but it is also very often used in order to increase the capacity of the short-term memory.

For example: Suppose you have to learn the words bread, paper, wood, eggs, soap, oxygen, shampoo, milk, flowers, moisturizer, pancake and comb. Though learning all these words without chunking them would not be impossible. But chunking them into four different categories like food items (bread, eggs, milk, pancakes); things we get from trees (paper, wood, flowers, oxygen) and things required for personal care (soap, shampoo, moisturizer and comb); will not only make the process easier, it will save a lot of time that you would have required to learn these words and will also aid in the proper and accurate retrieval of information.

#### 11.4.2.2 First letter technique

In this technique, the first letter of all the words that we need to learn are picked and arranged in a way that another word or sentence is formed. In everyday language, we commonly refer to these words as acronyms or abbreviations.

The best example of this method is the use of the word VIBGYOR for remembering the seven colors of the rainbow (Violet, Indigo, Blue, Green, Yellow, Orange and Red), accurately and in the correct sequence.

It is important to note here that there are times when the use of the various mnemonic techniques is not practical because they are either too simple or they do not match the level of the complex things that one needs to remember. And therefore, after a lot of research, psychologists have concluded that in order to learn complex material, we should lay special emphasis on applying the knowledge we have about the various memory processes in the task of improving our memory. For example:

1. We have already read that forgetting happens because of interference. Therefore we should make sure that a minimum of interference takes place. We can do so by not learning similar concepts together (or one after the other) so that the chances of any kind of mix up of information are eliminated. If this is not possible, we should at least take comfortable breaks in between the learning of two similar concepts, so as to ensure proper encoding of information of the first concept, before we proceed in to learning the next concept.
2. We already know that attaching a meaning, a reason, a fact or something similar to this, aids in better learning of information. Therefore, we should make sure that we engage in such deep level processing of information, by asking more and more questions about the concepts that we need to learn, gathering as much information as possible and also trying to understand the concept first, before moving on to learning it.

3. Use of retrieval cues not only helps in quick and accurate retrieval of information, but it also helps in us learning the concept better and more efficient manner. Therefore, we should try to associate as many retrieval cues to what we want to learn so that it helps us when we try to retrieve this material.
4. We should also never hesitate in asking questions, solving our queries, and testing ourselves for whether we have actually understood the concept behind what we are trying to learn.

### **11.5 Summary**

In this lesson, we learnt about the various processes that take place in our memory system when we try to learn new concepts, how forgetting happens and even how we can work towards enhancing our own memory.

### **11.6 Multiple choice questions**

1. Which memory system acts as a permanent storehouse of information?
  - a. Sensory memory
  - b. Long- term memory (LTM)
  - c. Working memory
  - d. Short- term memory (STM)
  
2. The capacity of which memory store is  $7\pm 2$  ?
  - a. Short term memory (STM)
  - b. Sensory receptors
  - c. Long- term memory (LTM)
  - d. Sensory Memory

3. The use of the word VIBGYOR is an example of which strategy for enhancement of memory?

- a. The keyword method
- b. The first letter technique
- c. Chunking
- d. The method of loci

4. Forgetting normally happens because of

- a. Failure in storage
- b. Failure in retrieval
- c. Overload of information in the long- term memory (LTM)
- d. Sensory receptors

(Answers to multiple choice questions- 1. b ; 2. a ; 3. B ; 4. B)

### **11.7 Self-reflective questions**

1. Try to recall an episode where you felt extremely excited or happy about an event that took place in your life?
2. Do you relate to the levels of processing model of memory?
3. Do you remember creating any other acronym (abbreviation) so that you can easily remember some difficult concept?

### **11.8 Case assignment**

Which method/ methods of enhancement of memory do you think is/ are the most effective and why? Explain by giving examples.

Please hand in the case assignment for grading.