

Brain is a very complex organ which contains billion nerve cells. The functions of the brain are remarkable. It is the center of thoughts, beliefs, behaviors and memories. It coordinates the sensory information and also, determines the levels of consciousness. These are some specifics of the brain which make it very unique and complicated. It consists of four different structures including: the cerebrum, the cerebellum, the pons and the medulla.

The cerebrum is responsible for thought and action. It has two hemispheres which are called cerebral hemispheres. Each hemispheres are divided into four lobes. Frontal, temporal, parietal and occipital lobe.

Frontal lobe job is for complex processes such as problem solving, speech and thought. It is also associated with planning, voluntary movements and also our emotions which make human personality.

Parietal lobe is responsible for processing and interpreting sensory information such as taste, pain, touch and temperature. It is also involved in auditory and visual signals and linked them with memories. This is the way that when we listen to something or read a writing, we can understand them.

The role of temporal lobe is to process the sound and also involved in memories. It is highly involved with long term memory through the processing of events and also storing and retrieving information. The right lobe plays a role in visual memory but the left one is for verbal memory.

The occipital lobe which is located at the back of the brain plays a role in visual processing and interpreting, color recognition and visual memories.

The other parts of brain have also important roles. Cerebellum is responsible for regulation of motor movements by receiving the sensory information. The pons transmit the messages in the different parts of the brain. Medulla controls breathing, heartbeat and vomiting. Neurons and glial cells are the cells of the nervous system. Glial cells are more like a partner for neurons while neurons are more active and participating in transmitting information. Neurons consist of dendrites which bring information toward the cell and axons which send information away from the cell. This action takes place in a space which is called synapse through the neurotransmitters in chemical synapses or passively flow of ionic current pore to pore in electrical synapses. Brain is protected by three membranous envelopes which is called meninges.

Learning is a change in behavior which is relatively permanent as a result of experience. Those things which we are not born with must be acquired and the process is called learning. Learning is a result of changes in synaptic strength. This process of changing is called Long Term Potentiation. LTP is a relatively permanent increasing of signal transmission between neurons.

Learning and memory are very close and connected concepts. The prefrontal lobe plays a key role in short term memory and must be connected to the other parts of the cortex to link the information and pass them to the long term memory. The hippocampus is significantly involved in long term memory and stored information and experiences from the past, therefore it is very important in remembering. Limbic system is also involved in learning and memory.

There are other differences between short term, long term and working memory. Short term memory has limits and is just able to keep a little amount of information for less than one minute. While long term memory has the ability to store unlimited amount of information and

keeps them permanently. Working memory is a part of short term memory which is processing of short term memory and it usually dismiss quickly and doesn't retain. It is used in reasoning and logical thinking of temporary stored information.

My long term memory works much better than my short term memory. I usually can recall old events and information easier compares to the holding new pieces of information and recall them. For instance memorizing a new and relatively long number is more difficult for me than recalling the names and faces of my all teachers in elementary school with their special characters.

My DVC result is visual/non verbal learner which I expected. I always use highlighter pens while I'm studying. I also, use small paper stickers on the margins of the textbooks and write a short note to find them easier and also, make my own flash cards and highlight the main points. I usually prefer to study in a quiet place and study on my own.

I have never used graph paper before, but it should be very useful. Organizing materials with computer is going to be a new strategy for me. The best teaching method for the visual learners is applying visual aids such as film, charts and maps. Therefore, the occipital lobe is stronger in visual learners. Various regions of the brain cooperate together to produce the images which are seen by our eyes. Then these images are encoded by the brain, and this action occurs in the visual cortex of the brain which is located in occipital lobe.

Understanding the relation between sleep and learning is a complex concept. Some scientists believe that REM sleep might be involved in memory and learning. On the other hand, some researchers believe that the effect of REM sleep on learning is very low or even nothing. An example which is in conflict with the relation between REM sleep and learning, is, people with damaged brain. They don't have REM sleep but their memory still works. The other example is dolphins, they have no or very little REM sleep, but are able to learn. Also, people with higher IQs do not have different REM sleep than those with the lower IQs.

Based on researches on different species the ability of learning is not related to the total REM sleep period.