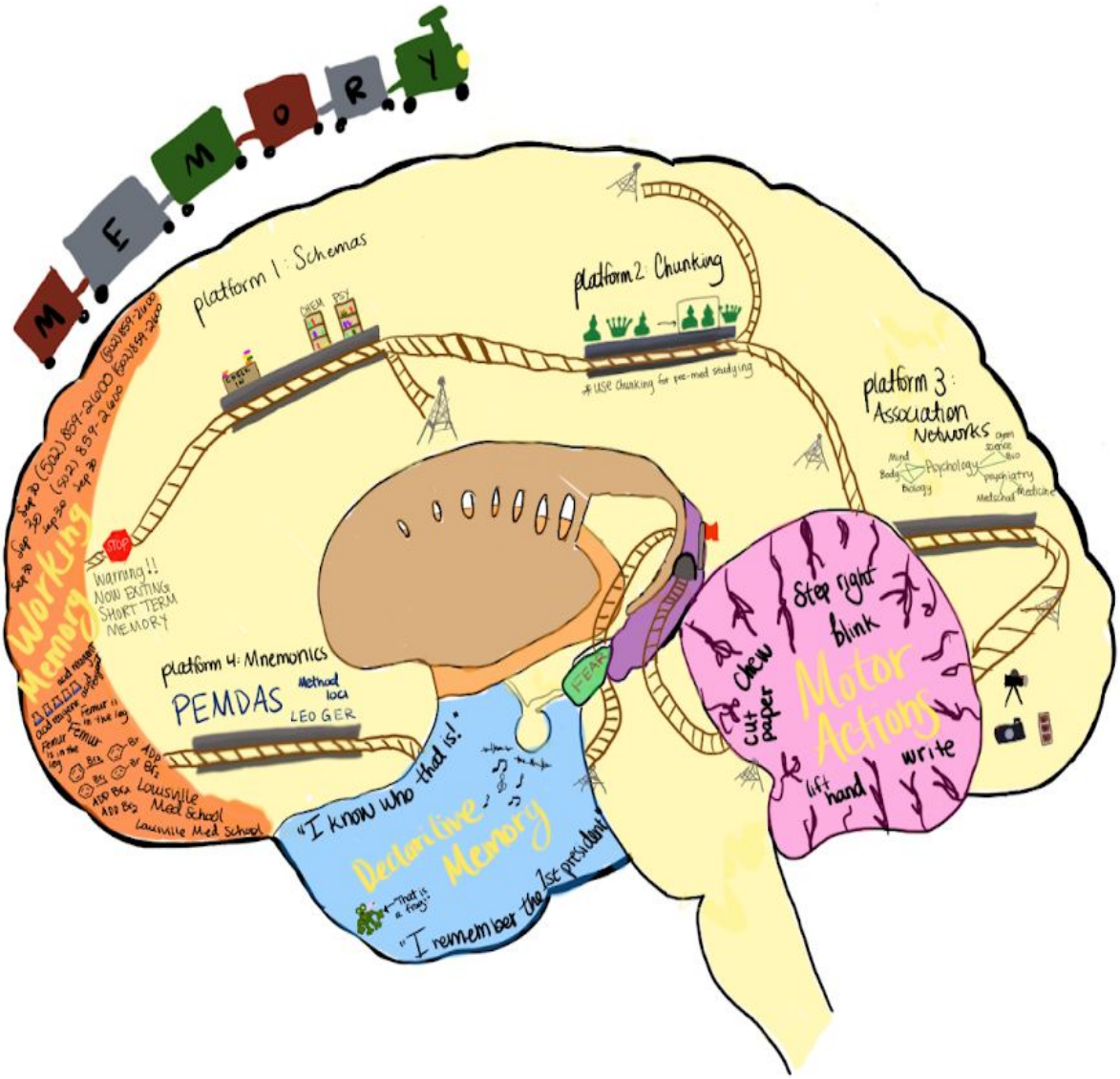

= memory storage enterance

= long-term memory checkpoint

prefrontal lobe

temporal lobe

amygadala

hippocampus

Cerebellum

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Psy 110

28 September, 2020

Artifact 5 Connection Paper

Memory has many different roles in our lives and is essential to our experience as humans. Memory is defined as “the nervous system's capacity to retain and retrieve information and skills,” (Gazzaniga 2018). For my artifact 5, I have created an artwork that incorporates specific locations of the brain that have a role in our memories as well as common ways I remember things I learned for medical school. This artifact ties into my behavior chapter artifact, as it is also a semi-anatomical map of the brain that depicts each region's role in memory. This artifact helps to make sense of the information we learned in this chapter by visualizing where processes happen and the types of learning styles that allows us to commit things to memory more readily (which I decided to base on what I would learn for the MCAT). This artifact outlines mnemonics, chunking, schemas, association networks, and the brain regions/the type of memory they function with. Like many of my previous artifacts, this illustration connects to my broader theme of getting into medical school.

The goal of this artifact is to depict how memory might be at work in a student on the pre-med track. The artwork marks each lobe of the brain and details how memory is used in each. The prefrontal cortex’s role is important to working memory. Working memory is the short-term retention of memories, meaning once the person forgets the information once they stop actively trying to remember it (Gazzaniga 2018). It is almost like a waiting room for your brain, so that you are not bombarded with all the information we receive from our environment.

This is showcased in the small details of the cortex, like: the repetition of a date; a specific acid reagent; and the addition of bromine to an Organic Chemistry reaction. These are examples of information that are retained for a short period, until they are applied/forgotten or committed to long term memory. Long-term memory is the location that we permanently store information that is important to us in some way (Gazzaniga 2018). One way that we store information in our long-term memory is through repetition. We have to remember information repetitively, and not just in an isolated instance. Repeating a number over and over until I am able to dial it will not help me to fully commit it to memory, as there are other processes that help me to practice the number enough to remember it (some of which are depicted in the artwork).

The temporal lobes role is in declarative memory and it allows us to verbalize what we know (Gazzaniga 2018). For example, it might help us to remember the name of a scientist that we see an image of during a test or the sound of our teacher explaining long-term potentiation. A region within the temporal lobe, the hippocampus, is instrumental in the storage of new memories (specifically recognition and spatial memories). It also helps with declarative and episodic memory, alongside the whole temporal lobe and its other regions. The amygdala, which is also located in the temporal lobe, is involved in fear and the memories that are rooted in fear (Gazzaniga 2018). Memories attached to fear or other strong emotions, like stress, are sent to the amygdala to be held long-term. The final brain region discussed in our textbook is the cerebellum. It is crucial to motor action learning and memory, especially fine motor skills (Gazzaniga 2018). Its role is mostly in implicit memory, or the things that we don't actually have to think about prior to doing. Reflexes are housed here, so if someone were to blow into our eyes the blinking response would result due to our implicit knowledge that we must protect our eyes.

There are many ways to commit things to memory, some that we know and some that we are still exploring. One way that we are able to more easily commit things to memory is by creating schemas. Schemas are a type of structures that we create to help us understand, organize, process, and apply knowledge (Gazzaniga 2018). When we receive information we are able to process it with what we already know and use it to fill in holes in our previous knowledge and reinterpret meanings. These structures help us to navigate the world and cultivate knowledge, and in the context of a student they could help us to build upon our knowledge of a subject. For example, the schema we have related to psychology helps us to understand the next chapter we will learn. We can take social psychology and process the information available through the lens of what we already know and fill in gaps of our knowledge.

Schemas also have a hand in our ability to chunk information. We are able to synthesize information by splitting it into more manageable sizes and connecting it to what we already know/understand, also known as chunking (Gazzaniga 2018). If I were to read a chapter in my psychology textbook, my ability to chunk and understand information is only as strong as the schemas I have created. I would be able to look at a paragraph and break it down into sections that have more meaning by making connections like: this cortex is important to memory and last chapter I learned it was important to behavior, so now we can fill a hole in our memory with this knowledge.

We use networks of association to help us create connections between our knowledge, so we are able to store and recall information more efficiently. We create these connections based on the items' distinctive features that help us to identify them (Gazzaniga 2018). For example, we could see a brain and activate the node (unit of information in the network) and

other nodes that represent the features as well. This will activate a wave of nodes and helps to make sense of the information we are receiving (Gazzaniga 2018).

One final way we employ learning to strengthen our memory is through the usage of mnemonic devices. These are learning aids that use retrieval cues to help us recall information quicker (Gazzaniga 2018). For a student, a mnemonic device like PEMDAS or LEO the lion goes GER could help them remember how to approach a math or a chemistry question. LEO the lion goes GER is a cue that when the student is doing oxidation-reduction chemistry, the Loss of Electrons is Oxidation and the Gain of Electrons is Reduction. Mnemonics help a student to remember otherwise difficult concepts by simplifying them into memorable cues.

Knowing this information will help me with my broader goal of getting into medical school, because I now know how to study in my classes to ensure I remember the material. I can take these classes and use mnemonics, networks of associations, chunking, and my schemas to ensure that what I am learning is making it to my long-term memory. It is important to know how to commit things to memory, especially now that I am gearing up to take the MCAT, so that I will not have to relearn the material.

The process of creating this artifact was a little more difficult than my other artifacts. I initially struggled with deciding how to portray this chapter and connect it to my goals, but after reflecting on previous artifacts I was able to create a plan. I drew a brain for my behavior artifact and I depicted each lobe of the brain and the behavior that results from it so I wanted to create a connection between these two chapters. The memory chapter focuses a lot on the brain and how information is stored inside, so I decided that illustrating it from the viewpoint of a student was important. The concept of the train and the different train stations at each memory/learning device was influenced by movies and popular media's portrayal of the brain and its processes. The movie *Inside Out* and the saying “I lost my train of thought” were main influences in the way

that I chose to portray each stop. While these are not accurate explanations of the brains processes, they are great ways to start to understand how memory and recalling information works. The longest part of this artifact was by far creating the artwork. While I did it on my iPad, which saved me a lot of time, it still took over 3 hours to complete. It was difficult to decide how I wanted to create a visual of my thoughts and ideas.

This artifact is by far my favorite that I have done because it allowed me to have fun with the chapter and connect it with things that I like. Reflecting on the movies and sayings that I have grown up with, as well as just being able to create a fun art piece for this project was a highlight of this course. This artifact really allowed me to engage with the material and gain some understanding about what type of student I am and how well I actually learn and commit things to long-term memory.