Essay on common assessment

Science, Biology

- Introduction

The human brain plays an instrumental role in the cognitive stability of human kind. The process of memory consolidation and retrieval entails complex biological mechanisms. This paper gives a common assessment about human memory from the beginning to end. The description of this process will include biology and neuroscience, identification of each step in the human memory, factors that might impede the process of human memory, interferences in the process, and an explanation of the different kinds of memory loss.

- The Biology and neuroscience.

- Identification and description of each step in the human memory.

There have been many theories and ideas that have been used to explain each step of the human memory. There are many biological and neuroscience conceptualizations regarding the human memory that have remained controversial. However, they are some central ideas that are agreeable to a larger number of scientists. The widely held idea is that the human memory involves the storage and processing of information. Before describing the steps that are involved in the human memory, it is important to understand that there are three types of information storage and three key processes in the mechanism of human memory. The three types of information storage that are involved in human memory include the sensory information store (SIS), the short term storage of information (STS), and the long-term information storage (LTS). The three processes that are involved in the mechanism of human memory include encoding. Encoding refers to the placement of given information into a particular storage area in the brain.

The second process that is involved in human memory is maintenance. In this process, the information that gets into the brain is kept alive. Maintenance of this information prevents memory loss or improper response of the body towards a given piece of information. The final process that is involved in human memory is the process of information retrieval. In this step, the encoded information is found and the body responds as per the information that is received in the brain. From this process, it is clear that the mechanism of human memory involves a set of different process and the storage of information. However, the processing of information in the brain does not take the same time. There are sets of information that take long to be retrieved. In some cases, the information becomes completely inaccessible, which means that the information is completely forgotten.

In order to determine how long a set of information will take to be retrieved, they are a couple of factors that need to be looked at. First of all, the different stores that are involved in the storage of information have different holding capacities. This means that different parts in the brain that are involved in the process of human memory have can hold different quantities of information. By determining the maximum information capacity that can be held by a given storage, we can be able to determine whether certain information will be accessible or inaccessible after a given period of time. Focusing on the sensory information storage (SIS), this involves parts such as the ears and the eyes. Information that gets in the Sensory Information Stores (SIS) has the possibility of being captured or being ignored. The information that is ignored by the sensory information storage (SIS) does not remain in the storage for a long period of time. The ignored information is

usually quickly overwritten by new information that is perceived by the sensory glands such as the eye and the ear. The old information is masked by the new information. This process of overwriting old information with new information is referred to as interference. The new information is protected from interference by being quickly processed by the sensory glands using high level mechanisms. One of the high level mechanisms that are involved in this case includes the encoding of new information into the short term storage (STS). The Short Term Stores (STS) have a smaller storage capacity. In this storage, information becomes inaccessible after a short time. In most cases, the information becomes inaccessible within a range of about twelve to thirty seconds. Due to the fact that information lasts for a short time in the short term store (STS), there is a higher likelihood that information in short term stores might get lost as a result of interference. Interference can be happen in two ways.

Proactive and retroactive interference

First, interference might lead to the displacement of old information by the new perceived information. This leads to the total loss of the old information. However, interference does not always lead to the loss and decay of old information. In some cases, interference may lead in the occurrence of errors in the process of retrieving information. This lead to a situation whereby one remembers information that is not perfectly identical to the information that was received. In order for information to be maintained in the short term storage, there has to be a maintenance rehearsal (MR). Maintenance Rehearsal refers to the action of the brain whereby information is constantly repeated in the brain (Radvansky, 2006, p. 73). This repetition of information

allows the information to be encoded in the long term information storage (LTS). Once information is encoded in the long-term information storage it is available over a long period of time.

Strategies That Can Improve Memory Consolidation and Retrieval

Despite the fact that maintenance rehearsal(MR) being successful in some instances, it is important to note that it is not the most efficient process of getting information in the Long Term Storage (LTS). Instead, there is another information maintenance strategy that is known as Elaboration Rehearsal(ER). Unlike maintenance rehearsal, elaboration rehearsal involves a deeper processing of the information stored at the short term stores (STS). This deeper processing involves a repetition of the information received by the sematic cells so that it can be encoded in the Long term stores (Moulin, 2011, p. 113).

Long term stores have the ability to store large quantities of information that is received. In addition long term stores are able to hold information for lengthy periods of time. Some of the kinds of information that is stored in the long term stores include different factual idea, different events, beliefs, some attitudes that we have towards different things and peoples, and the knowledge of some of the physical laws that characterize our environment. Despite the capacity of Long Term Stores (LTS) to store information for a long time, there are factors that affect the accessibility of information (Baddeley, 1999, p. 65). Some of the factors that impede the accessibility of memory include the similarity of a current event to the information that was stored long time ago in the LTS, the duration of time that certain information

has been store in the LTS, the uniqueness of a set of information that was stored in the long term stores, and the extent to which stored information related to a current situation.

References

Baddeley, A. D. (1999). Essentials of human memory. Hove, England: Psychology Press.

Moulin, C. J. (2011). Human memory. Los Angeles: SAGE Publications.

Radvansky, G. A. (2006). Human memory. Boston: Pearson/Allyn and Bacon.