

Human Brain and Memory Mechanism

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Similarities and differences between long-term memory and the working memory

As we might be aware, the working memory only occupies a small part of the human memory. It is where temporary information is stored. Short-term memory acts as a part that is used to store and manipulate small bits of data; data that is needed for a short period of time. The long term memory on the other hand maintains the memories for a whole life. Information stores here can be accessible at any moment. The information is not lost not unless a person faces an accident or is brutally injured, or ill (Corbin & Carnous, 2011). Long-term memory is connected to short-term memory through auditory and verbal information. The memories have the ability to be divided into smaller sections. However, the long-term memory can be stored in various locations. The working memory uses a controller that enables it to connect to the short-term memories and disintegrate. The two memories can be perceived as similar but they are distinct.

How the memories are formed in the brain by neural circuitry

We tend to perceive both as injuries whenever we are exposed to things such as a car halting or squealing, especially before an accident, or a glass drop. Next time we come into reality with similar situations, the mind triggers the memories of the first incident. The memories are triggered so the brain knows an action is needed. The memories can be referred to as episodic memories. The memories are characterized by elements like what, when, and where. When the memories are formed, the hypothalamus sends information to the cerebral cortex. Neurons are also forced to spark and transmit data, enabling the brain to trace ancient memories. The objects are linked and related to the previous ones through manipulation of the data and further memorization.

Situations that enable the brain to adapt to forget and remember

Human memories are adapted to remember and forget events, the effect is applicable to solving problems. When we rehearse, the brain is given the ability to store the information for a longer period. The information is transferred from the short-term to the long-term (Marlin & Margaret, 2013). This makes it possible for users to remember sensitive information such as phone numbers and

passwords. Additionally, the brain uses elaborate processing techniques. The process helps differentiate between facts and knowledge. Lastly, the mind's use of Mnemonics, creativity, and images enhances the mind's capability to retrieve information. Failure to possess the traits, the information is stored in the short-term memory where it is temporarily stored. Information might be lost within a short time frame.

Accuracy of the memories

According to Lachman, human memories ought to be certain at times (Lachman, Andreoletti & Pearman, 2006). Consequently, there is the 'false memory' issue; they give false suggestions that alter an individual's behavior in both short- and long-term situations. The suggestions like to children, the adult behavior is interfered. The fact that we have memory complications, especially with understanding cannot be denied (Matlin & Margaret, 2013). The above defines the type of stimuli we put in the sensory system. The effect is that we are able to retrieve the short-term memories from the long-term ones. On the contrary, the information moved from the short-term to the long-term memory is determined by the actions of an individual. The memories can be accessed using two ways (recall and recognition), however, research shows that humans are better at recognition (Matlin, 2013).

The ways of helping others

At certain times in life, humans are the caregivers or the ones to attend. A large percentage of adults end up having cognitive brain impairment. The effect is subtle to the reasoning, communication, and memory capacity. Some of the possible causes are Alzheimer's, stroke, and dementia disorders. Brain injuries and Parkinson's also have proved to influence the problem. Other complications such as aggressive behavior, low or no motivation, communication problems, and wandering are prominent.

Regardless of the option to use cognitive therapy, other ways such as using memory aids like cards and pictures that are appealing to the affected person are recommended. Furthermore, keeping track of an altered routine is helpful to people having cognitive problems since it alleviates some issues from re-occurring. Consistency builds a sense of comfort. Research denotes that we are continually growing new brain cells. As a result, it is possible to deal with the new cells when handling individuals with the deficiency.

The significance of environment and age to brain formation and development

Humans are created to become inactive or lucid with time. The effect can be due to age, diseases, or other impediments (Lachman, Andreoletti, & Pearman, 2006). The environment is also a major

contributor to the problem. Depending on an individual's state of mind and health status, memory deterioration varies. The decision-making process is slowed down before the years an individual is young. The physical and social environment plays an important role in the formation and maintenance of the human mind (Lachman, Andreoletti & Pearman, 2006). The ability to recall in old age is minimal compared to young age. It is difficult to recall basic information such as names, addresses, and numbers. However, arguments are raised concerning the issues, and alternatives like protein- are deemed to be able to differentiate between general forgetfulness and disease-based forgetfulness.

To sum up, we have the ability to do everything possible with our minds and memories. Aging and diseases act as barriers between the processing ability of our previous years at the current moment. Old age delineates people with the environment, and their attention is also lowered. Therefore, the information that gets processed does not meet the requirements, and thus, it has an inaccurate memory. There is a need to treat the minds correctly through engaging in exercises. The mind should be treated as an awful jewel that is not worth losing.

References:

Corbin, L., & Camos, V. (2011). Improvement of working memory performance by training is not transferable. *Europe's Journal of Psychology*, 7(2), 279-294.

Lachman, M. E., Andreoletti, C., & Pearman, A. (2006). Memory control beliefs: How are they related to age, strategy use and memory improvement? *Social Cognition*, 24(3), 359-385.
doi:10.1521/soco.2006.24.3.359

Matlin, Margaret. (2013). *Cognition Eighth Edition: A Brief History of Cognitive Psychology*.

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