Why Do We Have Short-Term And Long-Term Memory?

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Introduction

According to the literature, there exists confusion in working with different kinds of memory (Cowan). So, the article will reduce the confusion and make a recent assessment of these various types of memories (Cowan). The long-term and short-term memory could be differentiated in two fundamental ways. The short term memory is supposed to demonstrate the temporal decay and the capacity limit of the chunks (Cowan). Both of the above mentioned characteristics of the short term memory are debatable, still the given essay will encourage the existence of these properties (Cowan). Whereas lonAt the same time, memory is associated with long-term cognitive tasks and the system of multiple components that embrace and handle the information for short-term memory regarding the therapy devotion for the management of short-term memory (Cowan). Irrespective of the description, some other methods are also there in the short-term memory that could appear repetitive while not having a good correlation within the aptitudes of cognitions, including the other actions that seem more demanding and responsive and correlate well with the individual aptitudes (Cowan).

Historical Background

There are many phases of memory, and in an immature view, all of them are made of one cloth only (Cowan). Some people have a good ability to memorize events and facts, whereas a lot of others is there that have less ability to do so (Cowan). Careful observations have shown that there exist distinguishable memory aspects (Cowan). An elder teacher could be seen relating an old lecture that he delivered long ago; similarly, the ability to capture the names of new students can also be seen or recalling the specific student that has made a comment for enduring discussion might have weakened with time (Cowan).

While tracing back, the study of memory was started by Hermann. Hermann examined his acquirement about forgetting the new info in the form of the sequence of a syllabus that has been verified over several stages up to the period of thirty-one days (Cowan). Ebbinghaus has also noticed between the different observations that he has a hold on the moments of the first brief series with the appropriate concentration (Cowan). He also observed that this immediate memory doesn’t certify that the memorizing of a series would allow its remembrance later on (Cowan). For stable memory, there

is the requirement of continuous repetitions in series (Cowan). Later on, James, in 1890, suggested a difference between these memories (Cowan). On the irregular edge of secondary and primary memory, a small amount of information is needed to be held that stores a large amount of knowledge for a lifetime. This became the first memory of James was the first momentary hold of Ebbinghaus (Cowan)

With the revolution in the industry, the main memory of James required some new demands. During the 1850s the operators of telegraph needed to remember the series of dashes and dots that were sent acoustically and then need to interpret them (Cowan). Even before the Ebbinghaus, Nipher also reported a curved position among the logarithms and digits that he tried to remember (Cowan). So, with the efforts of Ebbinghaus, a tool was invented that was capable of inventing ecological validity along with the demand of expanding information while emphasizing the applied significance of the primary memory in the daily routine (Cowan). Main memory looks to be pressurizing if anyone is asked to keep in mind the situation of inexperienced aspects of ideas, things, places, etc. (Cowan).

Distinction Between Short Term And Long Term Memory

While differentiating short-term and long-term memory, there are two possible ways: one is the duration, and the other is the capacity (Preston). The difference in Capacity is the limit that how many short-term items can be stored in the memory (Preston). If there exists a limit of the capacity, only a specific number of short term items could be stored in the capacity and would remain there until they are replaced with other short items (Preston). Therefore, both of the terms are controversial, so to assess the advantages of these short-term and long-term capacities, their limits need to be evaluated (Preston); for this purpose following methodologies are applied to both of the terms (Preston).

3.1- Short Term Memory

A short-term memory is the memory of a stimulus that exists only for a short interval (Guo). Short-term memory is utilized practically for comparative purposes for the times when anyone is not able to look simultaneously at two places but needs their comparison for different possibilities (Guo). Short-term memory is required to connect the storage and processing of information (Guo). It also highlights the fact that cognitive abilities can have adverse effects on the capacity of working memory sometimes (Guo). So, it is important to be clear on the average capacity of a short-term memory without understanding the brain’s intact functioning, so it is hard to evaluate the deficit ability of an individual (Guo).

To define the span of independent judgment it is defined as the accurate limit that is capable of identifying the magnitude one-dimensional variable of stimulus (Guo). The traditional limit is around 7+2. The experiment of Miller on memory span has evidence of this regular limit (Guo). In the

experiment, the members had to remember the info and then read it aloud (Guo). The result clearly showed the average upper limit of 9 while using the binary items (Guo). These results were regardless of the persistent information from a hypothesis that suggests that if there is little information in each item, the span would be long (Guo). The conclusion showed that with an increase in the information per unit, the conveyed information increases in a linear fashion (Guo).

There are different factors that can affect this apparent short memory (McLeod). The main factors include the rehearsal, time limit, and overloaded information. The rehearsal is a serious complication that accurately measures the capacity of short-term memory (McLeod). A lot of studies have argued and measured the effect of short-term memory and its ability towards rehearsal and its admittance for long-term memory storage (McLeod). Moreover, the process of recording needs repetition and information that can be used on a long-term basis (McLeod).

The capacity of a short-term memory could be limited when the information provided to it is overloaded (McLeod). In this way, it prevents the recording of information (McLeod). For example, during a presentation, the attention could be directed away due to the presence of too much information. In this way, the information is not processed correctly to attend to the targeted stimulus, so only a few items can be remembered because most of them are replaced by the information from the alternative directions. Similarly, there are alternative techniques as well that require the repetition of words during the presentation of the targeted stimulus, which can prevent the rehearsal (McLeod).

Traditionally, it is assumed that short-term memory is time-limited in which the information stays in the memory for a specific time only (Nee et al.). However, the claim is challenged, and the information is replaced by the finite capacity of short-term memory that confirms the displacement of new data with the old one (Nee et al.). Using the lines as a counting object, the reaction of time is usually constant up to the four lines. After that, there could be seen a sharp increase in the response time (Nee et al.). So, the fact indicates that the natural upper limit of this particular version of counting is four lines regarding short memory (Nee et al.). Hence, it is concluded that counting is a controlled process that could limit the working span of the memory (Nee et al.).

3.2- Long Term Memory

Long-term memory creates the intrinsic pathways for storing information and ideas, which can be restored any time after years, months or weeks later (Baddeley¬). For the creation of these pathways, the information needs to be encoded in such a way we could be able to recall it back when needed (Baddeley¬). So long-term memory enables the process of learning, and it is one of the important parts of the acquisition of the interpreter because this information could last for minutes, days, weeks, months or even years (Baddeley¬).

Research says that the interpreting of long-term memory requires three stages, including recognition,

compensation and the storing of information (Bjork & Whitten). During the stage of comprehension and recognition, long-term memory helps the individual to furnish the required information and its grammar so that he is able to identify the precise sentences and words (Bjork & Whitten). Besides the understanding of the sample, long-term memory provides the direction to the interpreter towards the new information to rule out the input that is distracting (Bjork & Whitten). A more favorable interpretation can be achieved with more knowledge and experience (Bjork & Whitten). While producing it, the long term memory has again an important role (Bjork & Whitten). Although sometimes there is a need for revision during production, with the knowledge, the interpreter can overcome this barrier (Bjork & Whitten).

In the whole process of long-term memory, there is a transmission of getting, storing, processing and conveying (Bjork & Whitten). According to the perspective of modern cognitive psychology, human beings are similar to computers for the processing of information (Bjork & Whitten). Therefore, human beings are the active processors of encoding, storing, and retrieving information with the help of this long-term memory (Bjork & Whitten).

Conclusion

In conclusion, to the above discussion, we can say that there is a clear distinction between short-term and long-term memories (Cowan). An individual possesses both of them depending upon the consequences (Cowan). We possess the short term memory by limit of the capacity and the temporal decay (Cowan). The factor of decay is still a bit controversial, but there exists support for the capacity limit that was discussed in the above framework (Cowan). The distinction between short-term and long-term memory exists depending on the definition of specific terms (Cowan). Long term memory is related to the cognitive aptitudes that need for a long time recalling (Cowan). Hence, the system of attention is required by both of the systems for storage and processing. So, the system of attention holds importance for both types of memories (Cowan).

Work Cited

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