Critical Review Of Consciousness: Selective Attention And Evaluation

Selective Attention

Selective attention is a process in which brain directs the awareness into relevant stimuli, while at the same time, ignoring irrelevant stimuli in the environment. Selective attention is an important process as there is a certain limit of how much information can be processed at a time, and selective attention allows the brain to get rid of insignificant and irrelevant details and put the attention on significant and relevant details.

Selective Attention by Broadbent

Selective attention can be explained using a model by Broadbent (1958). Information can come from all over the place and is received by the brain. Broadbent viewed that information is selected and filtered based on the physical characteristic (McLeod, 2018).

The brain receives a lot of information that needs to be processed and a human brain has limited amount of information to receive and process. If a brain receives too much information at a time, it can go through a condition called information overload. This condition can be prevented using the Broadbent's model by filtering information that is important to be furtherly processed in the next step. The information which is rejected is not understood and kept in a sensory storage.

The model that is proposed by Broadbent is called the dichotic listening task which was done by sending one message and different message to a participant through each ear at the same time. And asked to repeat orally of what they heard in order to see the ability of people to focus and center their attention without getting overloaded with information. And the it is found that people were relatively successful to repeat back ear by ear.

Selective Attention by Treisman

The model that was proposed by Treisman could be understood using attenuation as a way to explain how the model worked. Attenuation in this model means weakening of less relevant stimuli to have greater focus on the relevant stimuli. Attenuation does not reject irrelevant stimuli, unlike Broadbent's, meanwhile it weakens or drains them. Meaning that the brain still processes the irrelevant information, but not focus on them.

Treisman used dichotic listening task to do her experiment. The experiment was done using speech shadowing method in dichotic listening task. In this experiment, participants were given a sentence for each ear to be orally repeated. One ear is called attended ear, which is the main information that needs to be repeated orally.

For example, the sentence "The man eats a burger on a roof" was given to the attended ear and the sentence "There is a bird under the seat" was asked to be ignored.

As the result, participants would mostly hear “The man eats a bird on the seat”. Which proved that irrelevant stimuli were still processed by the brain and the meaning of information is slightly ignored (McLeod, 2018).

Evaluation

In this part, we will present the positive and negative sides of both Broadbent’s and Treisman’s models to evaluate how their models can be used to explain deeply about selective attention. The evaluation will be based on our point of view, therefore making this part to be subjective.

Evaluation of Broadbent’s Filter Model

Broadbent had provided us a simple model to explain briefly about selective attention. There are so many things that we can infer from Broadbent’s model. Firstly, Broadbent’s model can explain how we can put our attention to certain stimuli. Secondly, his theory can explain how the unprocessed information which are kept too long in the sensory buffet will fade away, which means that consciousness plays a role in detecting whichever information is important or not. And his dichotic listening experiment could find that people made fewer mistakes repeating back ear by ear and would usually repeat back this way.

But, Broadbent’s model cannot explain about the ‘Cocktail Party Effect which is one of the key roles of consciousness and attention. The Effect says that, ‘the name mentioning’ is not in the primary focus of attention. Yet, Broadbent said that hearing your name when you are not focusing is less likely to happen because unattended messages are rejected before the brain processes the meaning. Therefore, his model cannot explain the ‘Cocktail Party Effect’. And, Broadbent’s experiment of shadowing was relatively new to people in that time, and people who were being experimented were not familiar with the shadowing technique. Therefore, there is a high chance that they were not even paying attention to the task, rather being unfamiliar with the shadowing technique. Lastly, the experimented people could be forgetting about what was said through the headphone, so it was not that they were not paying attention, they just forgot about it.

Evaluation of Treisman’s Attenuation Model

Positively, Treisman’s model can overcome the lack of explanation by the previous model (Broadbent’s model) which can explain about the ‘Cocktail Party Effect’ by saying that people can still identify and process unattended messages. Therefore, the brain is able to process unattended messages. The model also can prove that Broadbent’s model showed a flaw in explaining the translation of meaning through dichotic listening task. It was proven that through the dichotic listening task, participants did not put meaning into account, and just saying what they hear without translating the meaning.

Similar with Broadbent, Treisman used dichotic listening experiment to prove her theory. It is still concerned that experimenters can never be sure if the participants have not actually switched attention to the unattended channel.

Change Blindness

Change blindness is a term that psychologists use to describe the tendency in their immediate visual environment for people to miss changes. Change blindness is the tendency to fail while actively exploring to detect changes in the line of sight. This happens when the perception of the motion that typically accompanies change is disrupted or prevented (McConkie, G. W., & Loschky, L. C.,2003).

If changes happen in people's lines of sight, they think that they would notice the changes. But in reality, the brain is unable to process every single detail that is happening in people's lines of sight. With that being said, some little changes are unnoticeable by sight, which is what change blindness is.

To study change blindness, the Flicker paradigm (Rensink et al., 1997 as stated in Simons, 2000) and the Forced Choice Detection (Pashler, 1988 as stated in Simons, 2000) can be used.

Flicker Paradigm

In the flicker paradigm, observers are told to notice and point out changes that happen when an original image and an altered image are shown in quick alternation with a blank screen in between the images. This paradigm reveals that changes are rarely noticed by the observers during the first cycle, even after a minute of observing (Rensink et al., 1997 as stated in Simons, 2000), and changes in the center of the screen are more likely to be noticed than changes in the sides of the screen (Rensink et al., 1997 as stated in Simons, 2000), meaning that observers are more likely to focus their attention to the center of an object (Simons, 2000).

Forced Choice Detection Paradigm

In forced choice detection paradigm, before responding to a change, observers only receive one view of each scene. Meaning that the maximum length of the initial scene exposure can be more accurately monitored. Moreover, because there are only changes to a sub-set of images, analysis of signal detection can be used and both accuracy and latency can be used as dependent measures (Simons, 2000)

Evaluation

In this part, we will present the positive and negative sides of both flicker paradigm and forced choice detection paradigm to evaluate how they can be used to explain deeply about change blindness. The evaluation will be based on our point of view, therefore making this part to be subjective.

Evaluation of Flicker Paradigm

The flicker paradigm has given us the understanding that humans take a while to notice that there is a difference between changes in the environment, even though they are being instructed to find the difference or search for a change. Also, changes towards the middle of a picture is noticed at a faster rate then changes in the side of the picture. Therefore, we can create a conclusion saying that people are most likely to put their attention to the center of their sight.

Evaluation of Forced Choice Detection Paradigm

In the negative side, forced choice detection paradigm can open up possibilities that may not support the making of accurate conclusions. Firstly, there could be a possibility of memory limitations by the observers, that they either cannot or did not record an accurate answer based on what they have been shown. Therefore, it may create another possibility of participats guessing the answer. And in the end, making the whole experiment to be inaccurate.

Reference

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