Selective Attention

Selective attention is a cognitive process in which a person attends to one or a few sensory inputs while ignoring the other ones. Selective attention can be likened to the manner by which a bottleneck restricts the flow rate of a fluid.

The bottleneck doesn't allow the fluid to enter into the body of the bottle all at once; rather, it lets the fluid to enter in certain amounts depending on the flow rate, until all of it has entered the bottle's body. Selective attention is necessary for us to attend consciously to sensory stimuli in such a way that we will not experience sensory overload.

There are three models that are associated to selective attention. These are the models of attention by Broadbent, Treisman, and Deutsch and Deutsch. They are also referred to as bottleneck models of attention because they explain how we cannot attend to all sensory input at one time in the conscious level.

Broadbent Filter Model

In 1958, Donald Broadbent proposed the Filter Model of Attention which states that there is a sensory buffer where all sensory stimuli enter at any given time. One of the sensory inputs is chosen based on the physical attributes of the stimuli. This input is then allowed to pass through a filter. Broadbent believed that the filter is necessary for the prevention of overloading the information-processing system. Those sensory inputs that are not selected

are temporarily kept in the sensory buffer until they undergo processing. However, if they are not processed, these sensory inputs that remain in the sensory buffer may decay or fade away.

Broadbent made an experiment using a dichotic listening task, in which he sent one message to the right ear of a person and a different message to the other ear. The research gave rise to Broadbent's conclusion that people would repeat the messages as they are sent ear-by-ear, rather than in the order by which they were heard.

Treisman's Attenuation Theory

Anne Treisman proposed her selective attention theory in 1964. His theory is based on the earlier model by Broadbent. Treisman [1]also believed that this human filter selects sensory inputs on the basis of physical characteristics. However, she argued that the unattended sensory inputs (the ones that were not chosen by the filter and remain in the sensory buffer) are attenuated by the filter rather than eliminated. Attenuation is a process in which the unselected sensory inputs are processed in decreased intensity. For instance, if you selectively attend to a ringing phone in a room where there's TV, a crying baby, and people talking, the later three sound sources are attenuated or decreased in volume. However, when the baby's cry goes louder, you may turn your attention to the baby because the sound input is still there, not lost.

Deutsch and Deutsch

In 1963, Deutsch & Deutsch proposed a late selection model which explained that all information, both attended and unattended, undergo analysis for meaning. After such analysis, selection of a sensory input takes place. One factor that has a major effect on selecting the input is the relevance of the information during the time of processing.

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Links
[1] http://www.simplypsychology.org/attention-models.html