

Executive attention

In its role of managing information in short-term memory, executive attention is highly effective in blocking potentially distracting information from the focus of attention. This is one way in which the brain is able to keep information active and in focus. Yet there are limits to the amount of information ("capacity") that executive attention is capable of handling at any given time, and this capacity will differ from person to person. As a result, all people differ in their ability to bring attention to bear on the control of thought. Known as "working memory capacity," this ability is measured most often through a test that requires people to commit a short list of items to memory while performing some other task. Thus, one form of the test might involve reading a series of sentences and then attempting to recall the letters at the end of each sentence. The capacity of working memory is measured by the number of items that a person recalls, so that if a person recalls five letters, the working memory capacity in this case is five. In most cases number of letters recalled will depend on each person's ability to avoid the distraction of reading the sentences. Such tests of working-memory capacity can be used to predict an individual's ability to perform tasks involved in reasoning. In fact, working memory capacity is strongly related to general intelligence.

In terms of brain activity, executive attention seems to involve the frontal lobes. Thus, damage to the frontal lobes, which is associated with a condition called dysexecutive syndrome, can affect the role of executive attention in the control of thought, behaviour, and emotion. Evidenced by a notable reduction in the patient's abilities to set goals, make plans, and initiate actions, dysexecutive syndrome is often accompanied by diminished social inhibitions and thereby leads to behaviour that is considered rude or inappropriate. Excessive use of alcohol and other drugs can lead to similar behavioral problems.

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