Working Memory

Working memory is the cognitive system that allows us to keep active a limited amount of information (roughly, 7 ± 2 items) for a brief period of time (roughly, a few seconds). This system has been a major research topic since the advent of the cognitive revolution in the 1950s, and was earlier referred to as "short-term memory." It was then thought to have two functions: storing material that we have to recall in a few seconds, as when we rehearse a phone number until we dial it, and providing a gateway to long-term memory (e.g., Atkinson and Shiffrin 1968). While cognitive scientists continue to believe in the simple storage purpose, their belief in the gateway function has been somewhat undermined by the existence of neurological patients who are impaired in short-term memory tasks, but perform normally on long-term memory tasks (see, e.g., Shallice 1988). Rather, cognitive scientists now assume that the major function of the system in question is to temporarily store the outcomes of intermediate computations when PROBLEM SOLVING, and to perform further computations on these temporary outcomes (e.g., Baddeley 1986). For example, when mentally multiplying two-digit numbers like 38 × 19, we may first compute and store the partial product 8 × 9 = 72, later use this partial product in further computations, and subsequently drop it when it is no longer needed. Given this role, the system in question has been renamed "working memory," and is considered critical not only for analyzing MEMORY, but for understanding thought itself.

See also

- AGING, MEMORY, AND THE BRAIN
- EPISODIC VS. SEMANTIC MEMORY
- IMPLICIT VS. EXPLICIT MEMORY
- LANGUAGE PRODUCTION
- MEMORY, HUMAN NEUROPSYCHOLOGY
- PSYCHOLINGUISTICS

Additional links

- A Computational Theory of Working Memory
- Long-Term Working Memory
- Scientific American: Article: Trends in Neuroscience: 8/97
- working memory research by subject

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