

WORKING MEMORY

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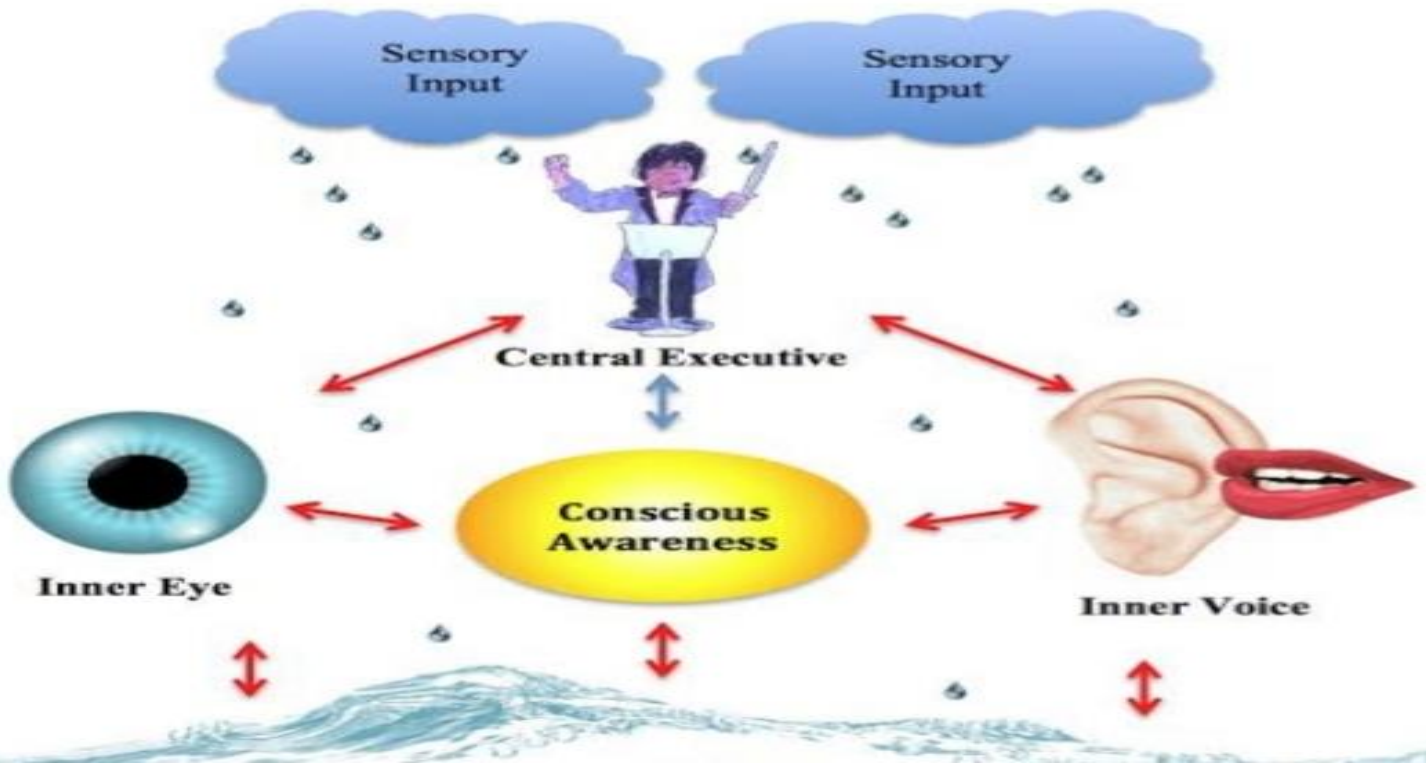
DEPARTMENT OF PSYCHOLOGY

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- Baddeley and Hitch (1974) argue that the picture of short-term memory (STM) provided by the Multi-Store Model is far too simple.
 - According to the multi store model STM holds limited amounts of information for short periods of time with relatively little processing. It is a unitary system. This means it is a single system (or store) without any subsystems. Working Memory is not a unitary store.
 - Working memory is short term memory However, instead of all information going into one single store, there are different systems for different types of information.

CENTRAL EXECUTIVE

- Drives the whole system (e.g., the boss of working memory) and allocates data to the subsystems: the phonological loop and the visuospatial sketchpad. It also deals with cognitive tasks such as mental arithmetic and problem-solving.
- **Visuospatial Sketchpad (inner eye)**
- Stores and processes information in a visual or spatial form. The VSS is used for navigation.
- **Phonological Loop**
- Part of working memory that deals with spoken and written material. It can be used to remember a phone number. It consists of two parts
- **Phonological Store** (inner ear) – Linked to speech perception. Holds information in a speech-based form (i.e., spoken words) for 1-2 seconds.
- **Articulatory control process** (inner voice) – Linked to speech production. Used to rehearse and store verbal information from the phonological store.

Working Memory



THE CENTRAL EXECUTIVE

- The central executive is the most important component of the model, although little is known about how it functions. It is responsible for monitoring and coordinating the operation of the slave systems (i.e., visuospatial sketchpad and phonological loop) and relates them to (LTM).
- The central executive decides which information is attended to and which parts of the working memory to send that information to be dealt with. For example, two activities sometimes come into conflict, such as driving a car and talking. Rather than hitting a cyclist who is wobbling all over the road, it is preferable to stop talking and concentrate on driving. The central executive directs attention and gives priority to particular activities.
- The central executive is the most versatile and important component of the working memory system. However, despite its importance in the working-memory model, we know considerably less about this component than the two subsystems it controls.

- Baddeley suggests that the central executive acts more like a system which controls attentional processes rather than as a memory store. This is unlike the phonological loop and the visuospatial sketchpad, which are specialized storage systems. The central executive enables the working memory system to selectively attend to some stimuli and ignore others.
- Baddeley (1986) uses the metaphor of a company boss to describe the way in which the central executive operates. The company boss makes decisions about which issues deserve attention and which should be ignored. They also select strategies for dealing with problems, but like any person in the company, the boss can only do a limited number of things at the same time. The boss of a company will collect information from a number of different sources.

THE PHONOLOGICAL LOOP

- The phonological loop is the part of working memory that deals with spoken and written material. It consists of two parts.
- The **phonological store** (linked to speech perception) acts as an inner ear and holds information in a speech-based form (i.e., spoken words) for 1-2 seconds. Spoken words enter the store directly. Written words must first be converted into an articulatory (spoken) code before they can enter the phonological store.



Thank you