Working Memory, Long-Term Memory, and Language Processing: Issues and Future Direction

In this study, different views are examined concerning the relationships between working memory, long-term memory, and language processing. Thus, working memory is considered a gateway between sensory input and long-term memory (or rather a workspace), and working memory is considered not strictly tied to any particular cognitive system; rather, as drawing on the operation and storage capacities of a subset of components involved in language processing.

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the operation and storage capacities of a subset of components involved in language processing.

- Working memory refers to a limited capacity system responsible for the temporary storage and processing of information while cognitive tasks are performed.
- According to the multicomponent model, working memory consists of a modality-free controlling central executive aided by two slave systems that ensure temporary maintenance of verbal and visuospatial information: the phonological loop and the visuospatial sketchpad.
- Working memory makes significant contributions to some aspects of language processing; namely, sentence comprehension, speech production, vocabulary acquisition, and reading.
- Working memory is considered a 'gateway' between sensory input and long-term memory, although this gateway perspective has been questioned because there are long-term memory effects in working memory tasks.
- Baddeley et al. (1998) postulated that two separate but interrelated short- and long-term phonological stores exist.
- The visually or auditorily presented verbal information is maintained in a phonological short-term store.
- The long-term phonological representations constitute a stable pattern corresponding to phonological structures that are frequently activated. Repeated presentations of phonological information will modify the representations in the long-term phonological system.
- Logie (1996) suggested that rather than working as a gateway between sensory input and long-term memory, working memory operates as a workspace.
- Accordingly, the storage components of working memory are not input buffers; rather, they serve as temporary buffers for the information that has yet to be processed or is about to be rehearsed overtly.

- Martin and Romani (1994) suggested that verbal working memory is not a specialised subsystem dedicated to short-term memory storage and separate from the language system. Rather, it draws on the operation and storage capacities of a subset of components involved in language processing.
- They concluded that the different levels of representation involved in memory span and language processing draw on specific resources, which may be conceptualised either as buffers specialised for particular types of representations or in terms of rate of decay that may differ for different levels of representation.
- These views clearly differ from Baddeley's conception as they consider verbal short-term memory to be an integral part of the language system. For Baddeley, the working memory components are not strictly tied to any particular cognitive system.
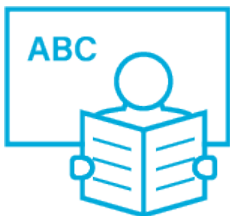
Conclusion

There are neuroimaging studies that agree with the existence of two separate phonological stores, as postulated by Baddeley et al. (1998).