Study Guide: Working Memory

Do you understand this paragraph:

The key notion of Miller's chunk idea is that short-term storage, though possibly subject to certain constraints, is not rigid but amenable to strategies, such as chunking, that can expand its capacity. This notion is still very much present in cur- rent thinking about working memory. However, although the notion of a "magical number" is still part of current ideas regarding short-term storage capacity, recent work has suggested that this number might not actually be 7 2, as Miller suggested, but instead may be much less—3 plus or minus 1. This revised estimate comes from a review of studies suggesting that storage capacity is much lower than seven when participants are prevented from using strategies such as chunking or rehearsal (Cowan, 2001).

What is the Brown-Peterson task?

Why does the chapter state in regards to this task that:

The debate over whether information is lost from short-term memory because of decay, in addition to interference, has not been resolved, and the question is still studied today?



Why did I write"...appear to...."?

What is meant by the "modal model" of memory?

Do you understand the following: Yet today the modal model does not have the influence it once had, and most psychologists favor a different conceptualization of short-term storage, one that is not exclusively focused on its relationship to long-term storage and includes a more dynamic role than storage alone. This shift was reflected in the increasing use of the term "**working memory**" which better captures the notion that a temporary storage system might provide a useful workplace in which to engage in complex cognitive activities.

Describe the Baddeley-Hitch model of working memory.

Answer the comprehension check questions on page 250.

What is the evidence that verbal working memory includes both the "mind's voice" and the "mind's ear"?

In formulating your answer, make use of the following two variables: (i) *word length* and (ii) *auditory* (another term is *acoustic*) confusability.

The Baddeley-Hitch model suggests that the central executive and the visuospatial scratchpad take over and with the phonological loop out of operation phonological similarity and word length should no longer have an effect on working memory. *How* was this hypothesis tested?

What is the true function of the phonological loop? How does it help us cope with various tasks in the real world?

What is the **task** that generated the results in figure (b)?

What **variable** is being manipulated?



What evidence supports the following claim?

It is thought that paying attention to a spatial location will enhance perceptual processing at that location. If the systems for spatial working memory are the same as those for spatial attention, then keeping a particular location in spatial working memory should also enhance perceptual processing of visual information that is physically presented at the remembered location .

Answer the comprehension questions check on page 262

What results are being referred to in the following paragraph?

These results are critical because they inform our notions regarding the nature of short-term storage in the brain. First, they suggest that the distinction between long-term memory and short-term memory—at least in many cases—is not so much in terms of structurally distinct brain systems, but rather in terms of the mechanisms by which the information is maintained. For short-term storage, information is maintained in the form of sustained neural activity, whereas for long-term storage this is unlikely to be the case. Second, for at least some brain regions, short-term memory storage is not like RAM in a computer at all, because RAM is completely flexible with regard to what information gets stored in different locations. Instead, in the brain some neural populations appear to be specialized for the storage of very selective kinds of information, such as a particular location on a screen in front of you.

Do you understand the sentence in red ? And the sentence in green?

What is the N-back task?

Answer the comprehension check questions on page 273.

Answer the comprehension check questions on page 276.