



Dr Charlotte Russell

Module:

Psychological Foundations of Mental Health

Week 2:

Cognitive Processes and Representations

Topic 3:

Memory

Part 1 of 2

Topic list



This week, we will be looking at the following topics:

- Topic 1: Perception
- Topic 2: Attention
- **Topic 3: Memory**
- Topic in Action 1: Control Processes

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Working Memory



Week 2 Cognitive processes & representations

Topic 3: Memory

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Digit span

The answers are:

2 5
Measuring working memory
7 3

3 8 5
Assess digit span
2 1 4

5 4 7 9
Assess your own digit span
1 4 2 8

9 3 2 7 5
I am now going to say a series of numbers.
3 8 2 6 4

6 8 2 1 5 7
Repeat the numbers you hear in the order they have been said.
4 9 3 8 2 1

9 5 3 4 2 7 1
If you want to test yourself properly, record yourself on your phone.
6 2 8 1 9 3 4

The correct answers will be supplied at the end of the exercise.
8 1 7 9 3 6 2 5
2 6 1 9 4 3 8 7

You can now replay this slide and repeat the exercise, this time repeating the numbers backwards.

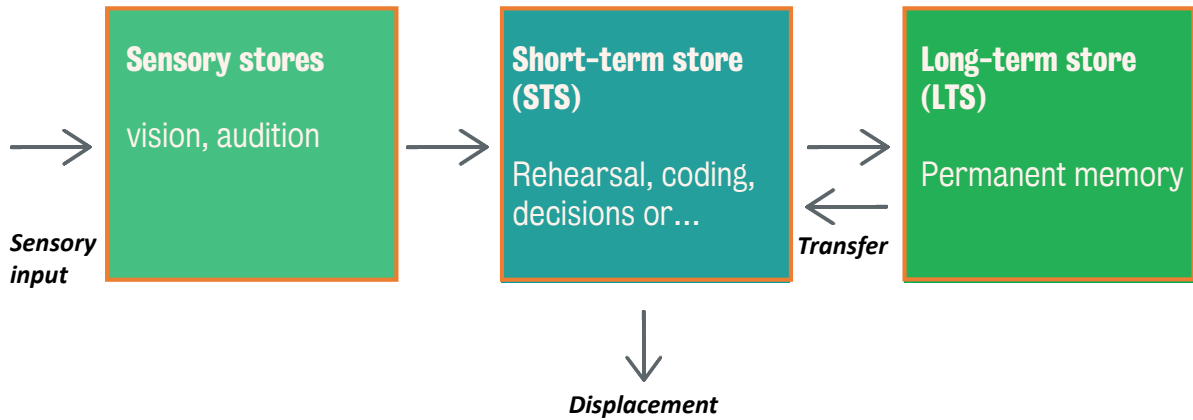
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Modal Model

Atkinson and Shiffrin (1968): Modal Model of Memory



Atkinson & Shiffrin (1968), Shallice & Warrington (1970)

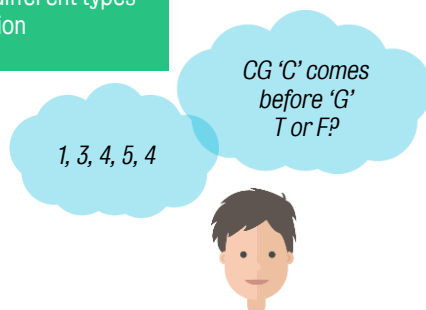
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Working Memory

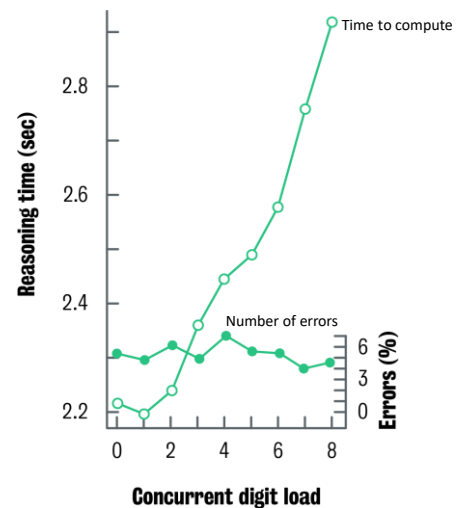
Separate short-term stores for different types of information



Both tasks need short-term memory

So they don't rely on the same resources

Working memory



Baddeley & Hitch (1974)

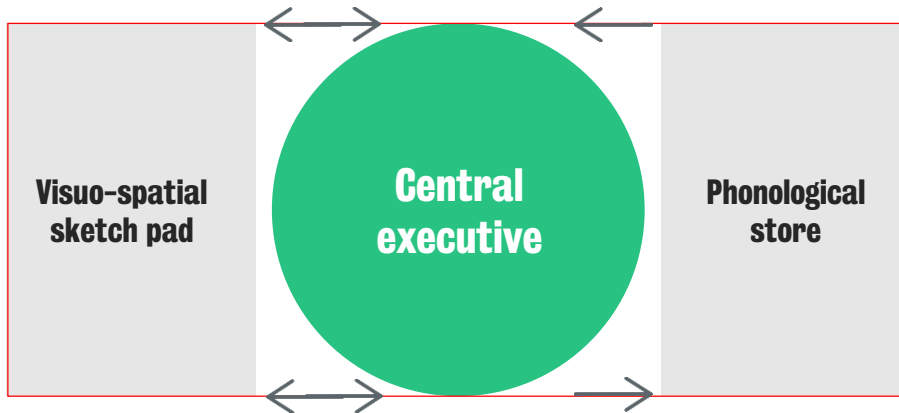
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Working Memory model

Baddeley and Hitch (1974) Model of Working Memory



Key assumptions of model:

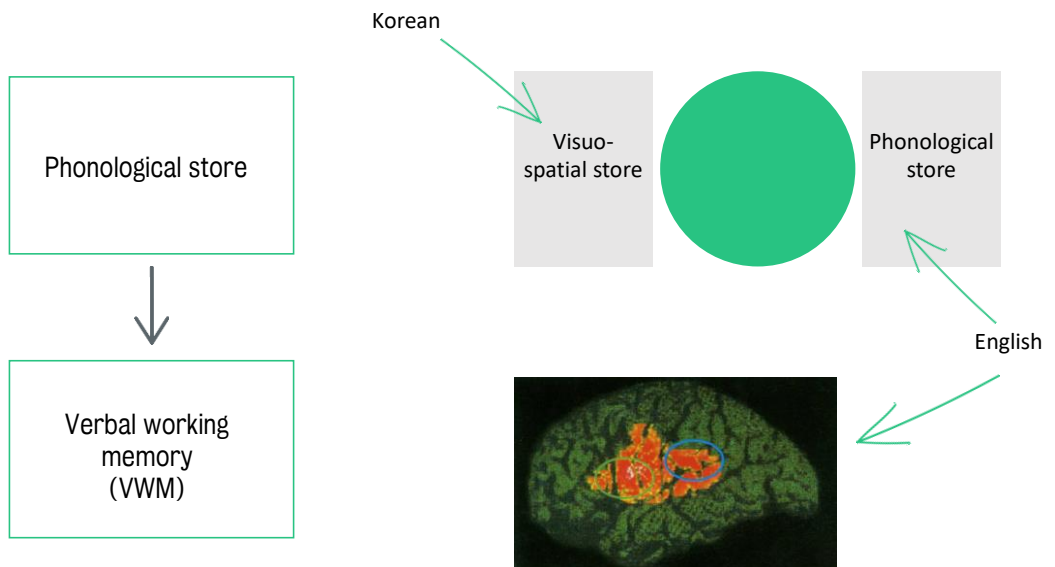
- 1) If two tasks use the same part of working memory they cannot be carried out well
- 2) If the two tasks are using different parts, they should be completed accurately.

Baddeley & Hitch (1974)

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Model of working memory: Phonological store/loop (1)



Paulesu, Frith & Frackowiak (1993)

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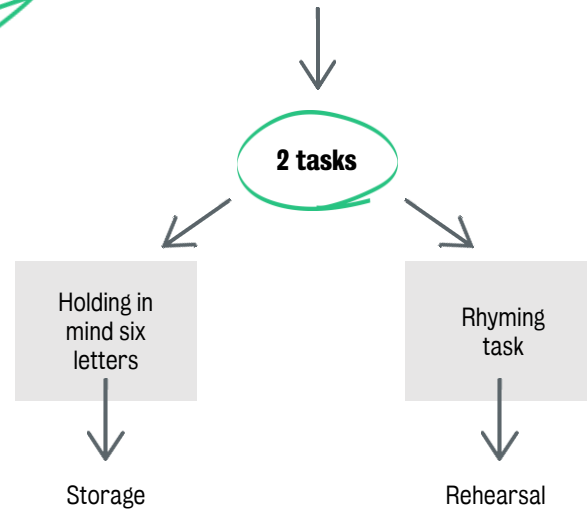
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Model of working memory: Phonological store/loop (2)

Do the **two** areas differ in roles?

1. Memory storage
2. Rehearsal of letter sounds

Phonological store compared to articulatory loop



Paulesu, Frith & Frackowiak (1993)

Model of working memory: Phonological store/loop (3)

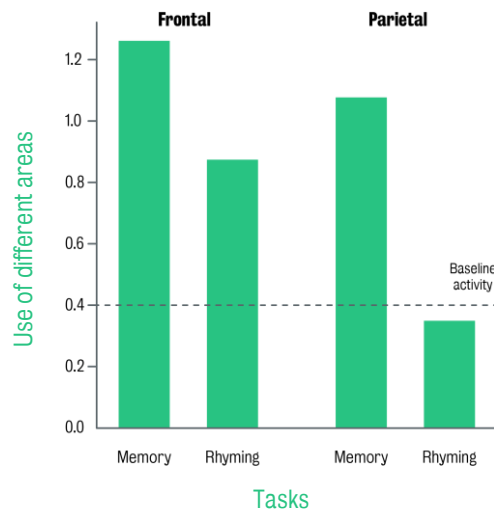
Phonological Store and Loop – evidence from PET

Memory task: Storing in mind six letters

Rhyming task: Does letter they have in mind rhyme with 'b'?

Left parietal: Verbal memory store

Left frontal: Neural correlate of articulatory loop



Paulesu, Frith & Frackowiak (1993)

Model of working memory: Visuo-spatial sketch pad (1)

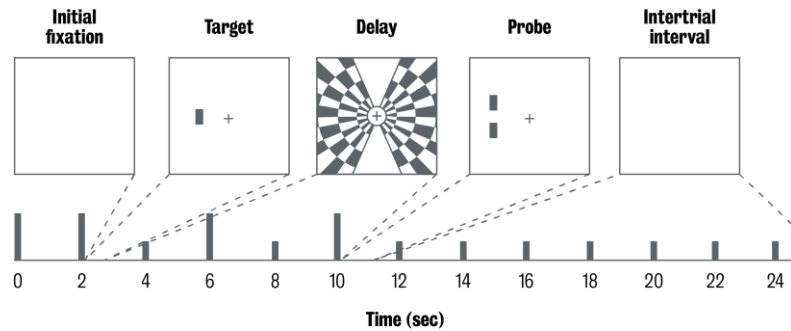
Visuo-spatial sketch pad



Used for creating visual mental images



Spatial working memory



Postle et al. (2004).

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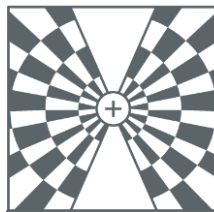
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Model of working memory: Visuo-spatial sketch pad (2)

Visual cortical activity in V1



During



Left parietal regions

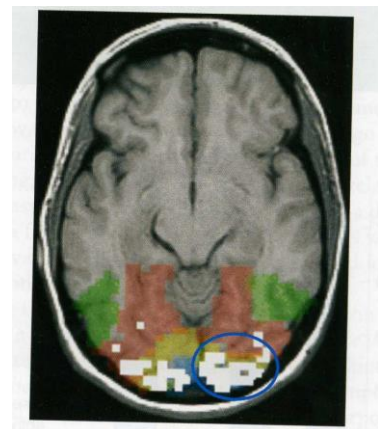


Verbal working memory

Right parietal regions



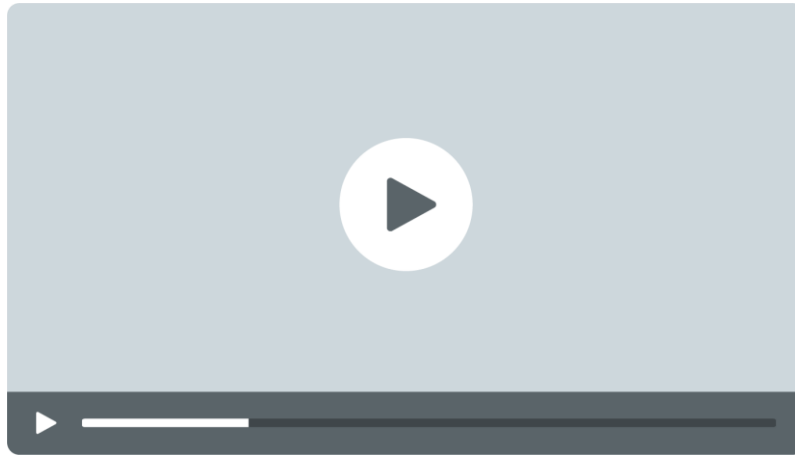
Spatial working memory



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Model of working memory: Visuo-spatial sketch pad (3)

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Model of working memory: The central executive

Central Executive

Decides what information should go
into the different stores

Organises which store the information
should go to

Is also used to inspect, transform,
manipulate the information being held in
the stores

Baddeley & Hitch (1974).

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