PSYU2246 Cognitive Processes 1

Session 1, 2020

Final Summary Notes:

Content Covered:

- Intro & Research methods
- Working memory
- Attention
- Episodic memory
- Semantic Memory
- Language Production
- Word recognition & reading
- Concepts & Categories
- Thinking & Reasoning
- Cognitive Neuropsychology

SAMPLE:

WORKING MEMORY(Baddeley):

- Replaces concept of 'short-term store' with 'working memory'
- Composed of smaller components

1.CENTRAL EXECUTIVE: Control system which coordinates the peripheral storage system(phonological loop, episodic buffer and visuospatial sketchpad)

- Resembles attention
    - Limited capacity
- Deals with cognitively demanding tasks
- Uses slave systems
- Modality free

Based off Normon + Shallic's model of attentional control

- Identified the central executive with their SAS (supervisory attentional system) presumed to be located in the prefrontal cortex

2.PHONOLOGICAL LOOP: (inner voice):

- Stores information in a speech-based form
- Involved in learning new word forms (e.g., learning of foreign vocabulary; new words)
- Components:
    - Phonological store
    - Articulatory control system (encodes visual -> verbal)

Those unable to hear use visuospatial sketchpad instead:

3.VISUOSPATIAL SKETCHPAD: (inner eye):

- Specialised for spatial and/or visual coding
- Stores information in visual form
- Components:
    - Visual cache: stores information about visual forms and colour
    - Inner Scribe:
        - Processes spatial and movement information

        - Involved in rehearsal of information in visual cache
        - Transfers information from the cache to the central executive

4.EPISODIC BUFFER:

- Added recently to account for criticism
    - Components in the original model were too separate in their functioning
    - Didn't explain how long-term memory could influence immediate recall (e.g., chunking – H S C T V C I A)
- Limited capacity system
- It integrates information from a range of sources
    - Acts as an intermediary between the phonological loop and the visuo-spatial sketchpad
- A process of active binding

EVIDENCE FOR THE PHONOLOGICAL LOOP: Holding information in a speech based form

Studies:

- Phonological similarity effect
- Word length effect

Findings:

1.Phonological similarity: Conrad (1964)

- tested immediate serial recall of visually presented letters
- Visually presented words -> acoustic errors (E.g. *T&D are acoustically similar, not visually similar)*
    - resembling letter names heard against noisy background

THEREFORE short-term memory uses a phonological code, even for visually presented stimuli

2.Phonological similarity: (Baddeley):

- Immediate serial recall of visually presented words on a phonologically similar list, compared to a dissimilar list:
- Also had concurrent articulatory suppression
    - E.g., saying "blah, blah, blah"; "see-saw, see-saw, .."; counting repeatedly (1,2,3,4; 1,2,3,4..);
    - *Assumption:* Prevents (subvocal) articulatory rehearsal which refreshes the decaying memory trace.
    - **Eliminates the phonological similarity effect for visually presented stimuli - but has no effect on auditorily presented stimuli**
- **Results:**
    - *Quite: Recalled more dissimilar words*
    - *Suppression: Similar = Dissimilar*

3. Word length effect: (Baddeley, Thompson & Buchanan)

- After list of words spoken recall them in order
- Results: Memory span (immediate serial recall) is worse for words that take longer to say
    - Suggests that capacity of phonological store is determined by articulatory duration (not phonological complexity/number of syllables)
    - e.g., bishop (short vowel duration) HARDER TO REMEMBER THAN harpoon (longer vowel duration)