Workbook

Cognition and Perception after Stroke

Central South Regional Stroke - Ontario

Virtual Workshop

19 October 2021 09.00 – 12 noon

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Workshop Outline

09.00 am Introduction

09.10 am Cognition Recap

09.25am Consolidation Quizzes – Attention, Memory and Executive Function (Breakout session 1)

10.10 am Scenarios (Breakout session 2)

10.30 am Break (20 minutes)

10.50 am Hidden Effects of Stroke – perception and apraxia recap

11.00 am Scenarios (Breakout Session 3)

11.40 am Summary and Key Points

11.45 am Questions and Discussion

12.00 noon Close

Attention Types

(Berger & Posner, 2000)

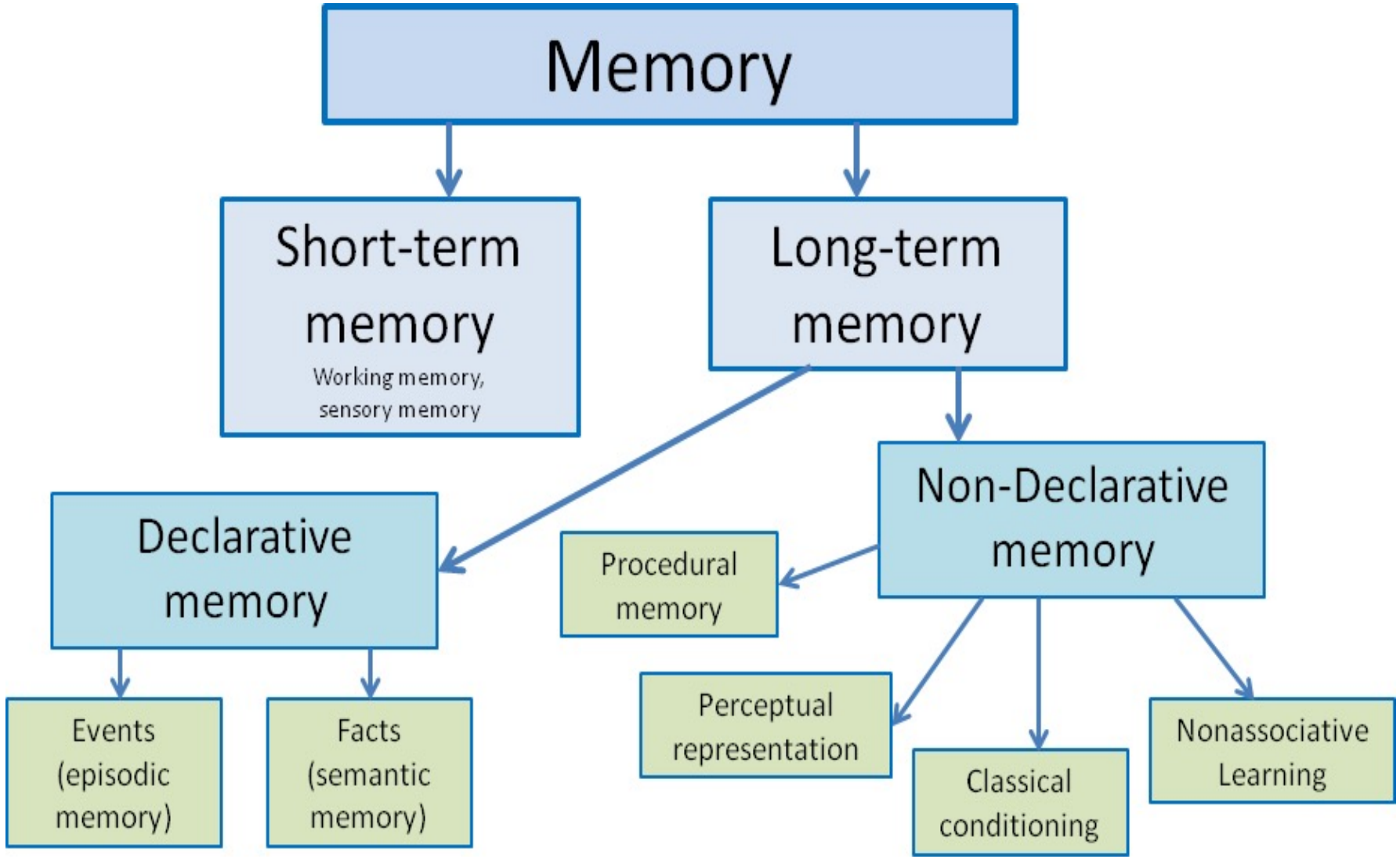
Focused	• Directing attention to a stimulus • Can be voluntary (executive system)or automatic (orienting system)
Sustained	• Maintaining attention over time • Associated with the alerting network (anterior thalamus)
Selective	• Picking out a stimulus from competing stimuli • Orienting network (right temporo-parietal complex)
Divided	• Attending to more than one stimulus • Executive control network (bilateral pre-frontal and premotor areas

Cognition Quiz

Please circle what type of attention is represented in the following statements:

Focused-F Sustained-Su Selective-Se Divided-D

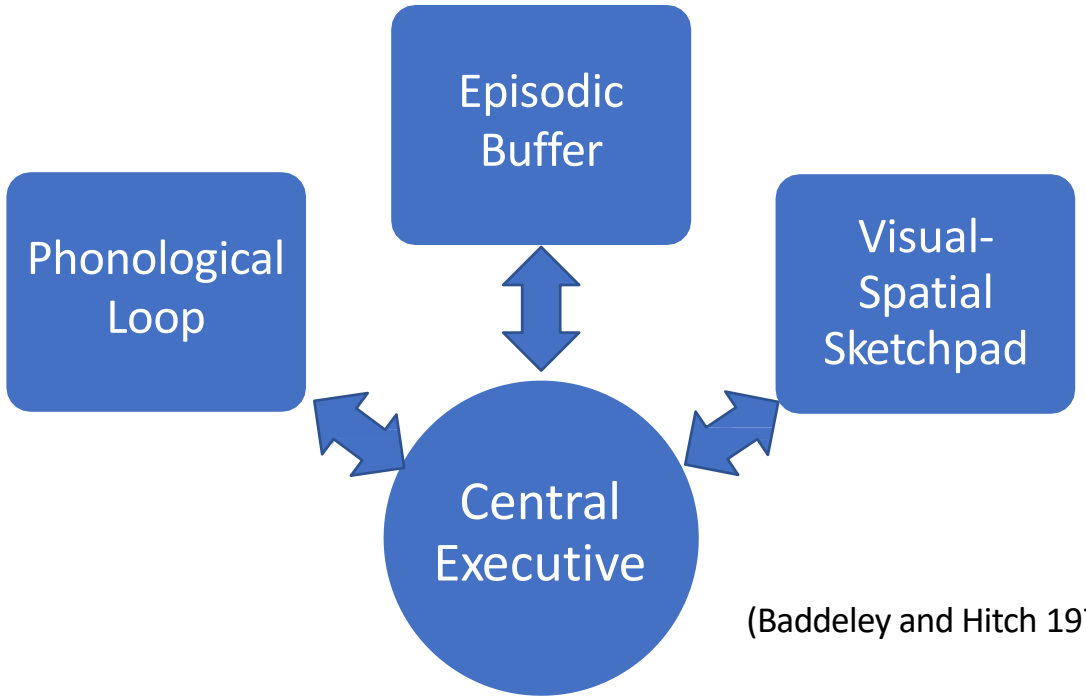
1. Following a recipe from an iPad while baking. F Su Se D
2. Finding a specific serving spoon from a cutlery drawer. F Su Se D
3. Having a conversation while driving. F Su Se D
4. Reading a book in a quiet room. F Su Se D
5. Turning your head in response to an object falling off a table. F Su Se D
6. Sitting up when someone suddenly speaks to you. F Su Se D
7. Picking out a conversation in a noisy room. F Su Se D
8. Working through a series of simple calculations. F Su Se D
9. Counting the number of repetitions during exercise. F Su Se D
10. Stepping on the brake when a ball bounces in front of your car. F Su Se D


Memory
Short-term memory
Working memory, sensory memory
Long-term memory
Declarative memory
Non-Declarative memory
Procedural memory
Events (episodic memory)
Facts (semantic memory)
Perceptual representation
Classical conditioning
Nonassociative Learning

Remembering to do things that are scheduled in the future

Prospective Memory

Working Memory



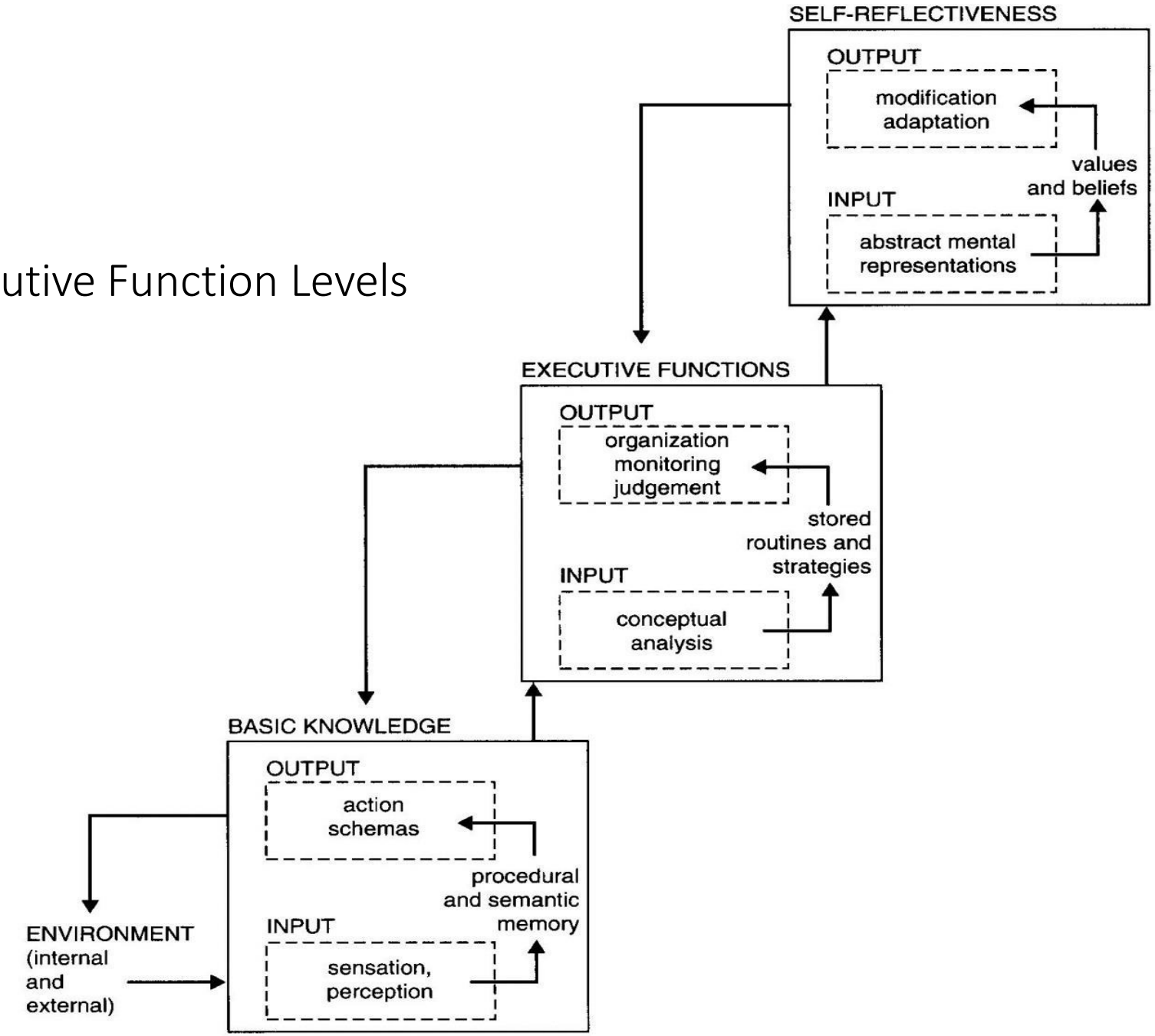
(Baddeley and Hitch 1974)

Cognition Quiz - Please circle what type of memory is represented in the following statements:

Episodic-E Procedural-Prcd Semantic-Se Prospective-Prspc Working-W

1. Talking about your last holiday. E Prcd Se Prsp W
2. Answering a history question in a quiz. E Prcd Se Prsp W
3. Riding your bike on a familiar route. E Prcd Se Prsp W
4. Performing a complex mental calculation. E Prcd Se Prsp W
5. Keeping a shopping list in your head before going to the shop. E Prcd Se Prsp W
6. Putting everyday clothes on. E Prcd Se Prsp W
7. Remembering to keep an appointment with the dentist E Prcd Se Prsp W
8. Keeping a procedure in mind while performing the actions. E Prcd Se Prsp W
9. Knowing that the capital of Italy is Rome. E Prcd Se Prsp W
10. Remembering your last trip to the supermarket. E Prcd Se Prsp W

Executive Function Levels



Activities which are routine or require executive function

Please circle whether you think the following activities are routine or would require executive function:

1. Walking along a familiar level pathway.	Routine/Executive
2. Getting dressed in a new jacket with several buttons and buckle	Routine/Executive
3. Preparing tea in an unfamiliar kitchen.	Routine/Executive
4. Putting an old pair of pyjamas on.	Routine/Executive
5. Chairing a meeting for the first time at work.	Routine/Executive
6. Preparing dinner for friends using a new recipe.	Routine/Executive
7. Working out why a new TV sound system is not working.	Routine/Executive
8. Walking along a familiar, but icy pathway.	Routine/Executive
9. Driving home using a familiar route after work.	Routine/Executive
10. Getting dressed for the first time after a shoulder injury.	Routine/Executive

Concept Formation	Planning	Initiation	Inhibition	Flexibility
Perception of sensory information	Strategy choice through supervisory attentional system	Schema activation through contention scheduling and supervisory attentional system	Choosing to discontinue a response which is no longer relevant for the current goal	Spontaneous flexibility characterised by free-flowing between ideas
Access to memory (semantic and episodic)	Strategy choice through contention scheduling	Balance between arousal and reduction in purposeful activity	Stopping prepotent responses	Reactive flexibility characterised by switching and adapting responses to environmental demands
Simultaneous processing (utilising working memory)	Self-regulation	"Apathetic" executive function type is characterised by lack of initiation	Stopping responses to irrelevant stimuli	
Comparing between current and desired states	Goal maintenance		Removing irrelevant information from working memory	
Identification of goals	Understanding the relationship between subgoals and goals			

Following a traumatic brain injury, 33-year-old Dorothy was observed by her occupational therapist to not follow her program of activities. She had worked with the occupational therapist on developing the program and continued to appear motivated, but when left to undertake the tasks, failed to get started.

Which executive function component is Dorothy having difficulty with?

- Concept Formation
- Planning
- Initiation
- Inhibition
- Flexibility

83-year-old Peter had returned home after being in hospital for rehabilitation after a left hemisphere stroke which left him with a dense right weakness. Despite several sessions of dressing practice when in hospital, his family found him only half dressed when they visited. He told them that he was trying to put his clothes on but just couldn't get his head around what he should do first and then what he should do next.

Which executive function component is Peter having difficulty with?	Concept Formation
	Planning
	Initiation
	Inhibition
	Flexibility

During a phased return-to-work program, 56-year-old Joan was in work for two hours for the first time since being admitted to hospital with a subdural hematoma. This was challenging as she appeared to be in a hurry and would get caught up in cleaning everything that she came across, often taking too long in one area, and the quality of her cleaning was low as a result.

- Which executive function component is Joan having difficulty with?

  - Concept Formation
  - Planning
  - Initiation
  - Inhibition
  - Flexibility

45-year-old Beverley was in the occupational therapy kitchen for the first time after being admitted to the stroke unit with a left partial anterior circulatory stroke. During her assessment of preparing an omelette, she required prompts on two occasions, once to move from beating the eggs, and the second to turn the gas off and serve the omelette onto the plate.

Which executive function component is Beverley having difficulty with?

- Concept Formation
- Planning
- Initiation
- Inhibition
- Flexibility

60-year-old Michael experienced an anoxic brain injury following a cardiac arrest on a flight. He was fully dependent for all personal care in the hospital ward, and although he would open his eyes and follow people moving, and say appropriate phrases occasionally when spoken to, the team remained uncertain on his level of cognition.

Which executive function component is Michael having difficulty with?	Concept Formation
	Planning
	Initiation
	Inhibition
	Flexibility

Breakout Session 2 – discuss each scenario and explain which cognitive domain is affecting the person and what you would do to reduce the impact of the impaired cognition

Scenario 1: Tom is working in his first Physical Therapy session in the gym. When the Physical Therapist explains the plan for the session, Tom looks around the gym and is drawn to any sounds or movements that are happening elsewhere

Which cognitive domain is affected?

How would you reduce the impact of this?

Breakout Session 2 – discuss each scenario and explain which cognitive domain is affecting the person and what you would do to reduce the impact of the impaired cognition

Scenario 2: Mary is at home and the speech-language pathologist (SLP) is working with her on an object naming exercise. The session works out fine, but on the next visit, one week later, Mary has no recollection of what they had discussed despite being able to provide details of the previous session

Which cognitive domain is affected?

How would you reduce the impact of this?

Breakout Session 2 – discuss each scenario and explain which cognitive domain is affecting the person and what you would do to reduce the impact of the impaired cognition

Scenario 3: Christina is preparing soup in the Occupational Therapy kitchen. She chops the vegetables and continues to do this even though she had already described how she was going to prepare a pot with stock

Which cognitive domain is affected?

How would you reduce the impact of this?

Breakout Session 3 – consider the scenario and explain how you would address the difficulties that are presented

Scenario: Michael was recently admitted to hospital after his second stroke. His first stroke was a left PACS one year ago which affected his word finding ability. He initially had a mild right weakness, but this resolved as did his speech and he regained his previous functional level. This time, CT confirmed a right MCA stroke, and he presents with left side weakness, difficulty walking, difficulty selecting and using items for washing, and he has also lost his word finding ability. He appears to understand verbal commands by facial expression and nodding but has difficulty executing instructions.

Which functions may be affected?

How would you adapt your therapy approach to optimise his performance in sessions?