



Memory & Learning





Cognitive Processes - Memory

Human Processes



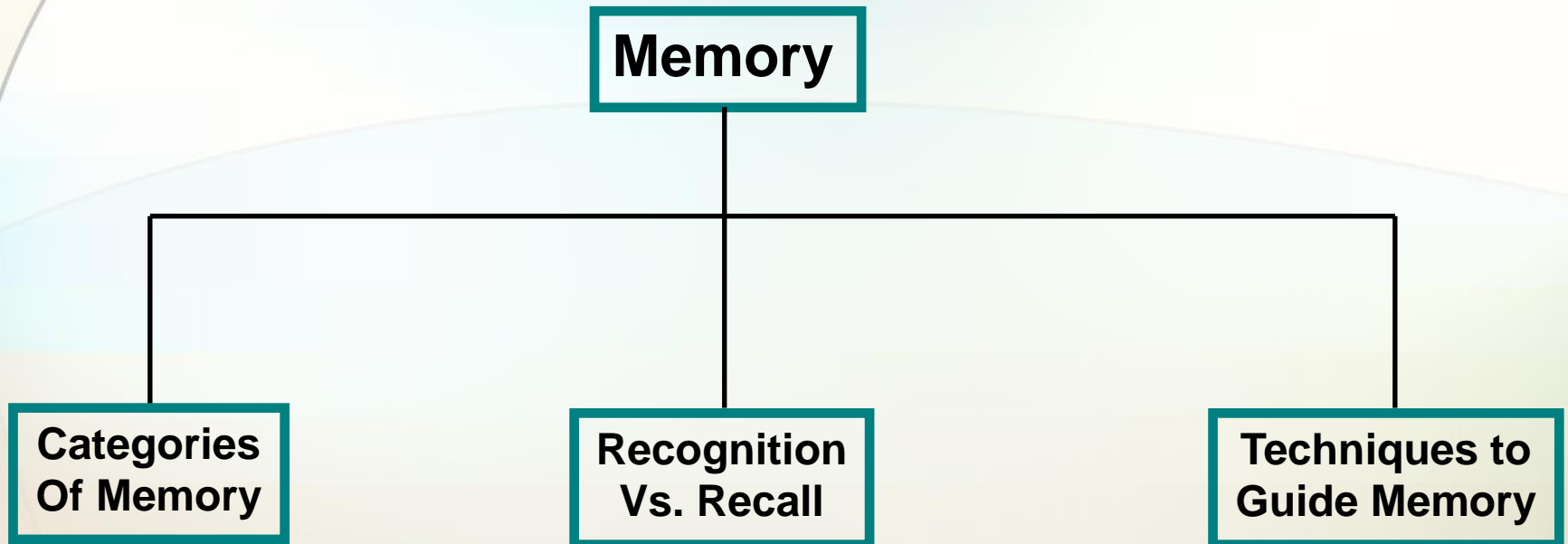


Exercise 1: The Conveyor Belt Game





Cognitive Processes - Memory





Cognitive Processes - **Memory**

Say aloud the numbers, 1, 7, 4, 2, 8.

Next, repeat them -> **Short-term memory**



Cognitive Processes - Memory

Say aloud the numbers, 1, 7, 4, 2, 8.

Next, repeat them -> Short-term memory

1, 7, 4, 2, 8

What were the 4 user groups discussed in a few week's ago?



Cognitive Processes - Memory

Say aloud the numbers, 1, 7, 4, 2, 8.

Next, repeat them -> **Short-term memory**

1, 7, 4, 2, 8

What were the 4 user groups discussed in last week's lecture?

Skills & Knowledge, Disabilities, Age & Cultural -> **Long-term memory**



Cognitive Processes - Memory

- Memory is involved in all our cognitive tasks and has 3 major components:

- **Sensory memory** –

- 'Snapshot' of our environment, stores this information for a short period
- Act as buffers for stimuli received through the senses
- Holds information for a short time e.g., visual information fades away in less than a second

- **Short-term memory** –

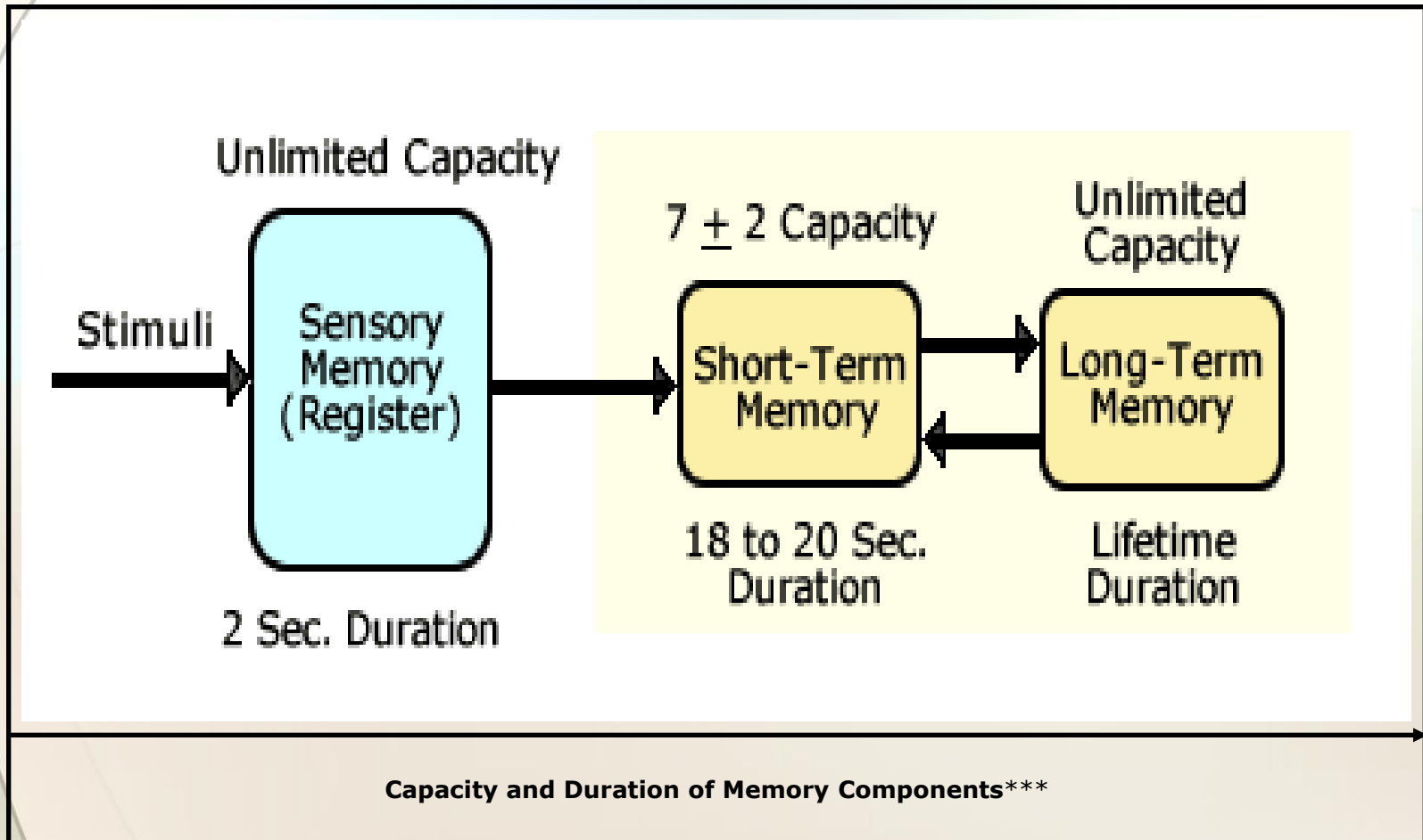
- Information of the present
- Information retained automatically and retrieved without effort
- Amount of information that can be retained is severely limited – Miller's *chunking* concept (7 ± 2)

- **Long-term memory** –

- Information of the past
- Amount of information that can be retained is unlimited



Cognitive Processes - Memory



***Values for the duration of sensory and short-term memory will vary by study & researcher



Cognitive Processes - Memory

Short-term Memory



Do you remember which of the shapes below were shown?



Cognitive Processes - Memory

Short-term Memory

Do you remember which of the shapes below were shown?





Cognitive Processes - Memory

Short-term Memory



Do you remember which of the shapes below were shown?





Cognitive Processes - Memory

Recognition vs Recall (Knowledge in the world vs knowledge in the head)

We can recognise material far better than we can recall it



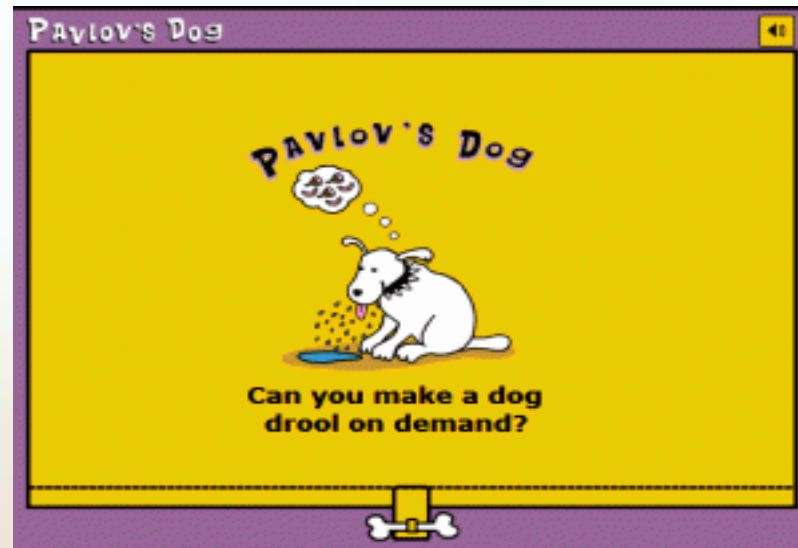
Cognitive Processes - Learning

How do we learn??



Cognitive Processes - Learning

Do we learn like a Behaviourist?



Before conditioning

**FOOD
(UCS)**

**SALIVATION
(UCR)**



BELL

NO RESPONSE



During conditioning

**BELL +
FOOD
(UCS)**

**SALIVATION
(UCR)**



After conditioning

**BELL
(CS)**

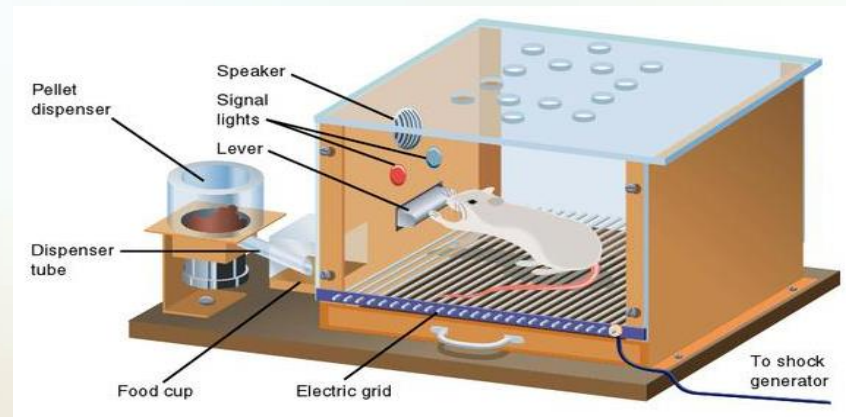
**SALIVATION
(CR)**





Cognitive Processes - Learning

Do we learn like a Behaviourist?





Cognitive Processes - Learning

Do we learn like a **Cognitivist**?

- What have we learned about cognitive processes?



Cognitive Processes - Learning

Do we learn like a Constructivist?

- Learners construct knowledge for themselves
- Learning is an active process
- Learning is a social activity



"sage on the stage"



"guide on the side"



Cognitive Processes - Learning

Do we learn like a Humanist?

- You decide how you learn!!!



Exercise

How are these theories applicable to interface design?



Terms of Reference

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