

# ECPS6005: COGNITION IN ACTION

## COGNITION IN EDUCATION SETTINGS

Dr Kate Williams

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## LEARNING AND MEMORY: CONSIDERATIONS FOR EDUCATION

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## INTERACTIVE TASK

- Your first task of the session is very important.
- It does not require any reading or writing, but it does require you to use your brain.
- Make sure you pay attention and make an effort, as it will likely pay off in the end.
- You are now going to be shown a number.....

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## THE PERVERSIVE NATURE OF MEMORY

# 139

- What number did you just see?
- Your task will now be to **forget** this number
- Do you think you will be able to forget the number.

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## MEMORY AND LEARNING: SKILLED PERFORMANCE



- From learning, we infer change in processing structures that represent that learning.
- Even without verbal report of learning
  - E.g., controlling a pushbike
- Need to consider type(s) of memory involved in performing different tasks.
- Implicit and procedural memories.
  - Relate to unconscious memories.

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## MEMORY STRATEGIES FOR LEARNING



- McDougall and Gruneberg (2002):
  - Notes made before writing essay in exam: indicator of memory strategy.
  - No notes: indication of no memory strategy
  - Ps who wrote down researcher names at start performed better than those who did not
    - → Provides a cue.

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## MEMORY STRATEGIES FOR LEARNING



- McDougall and Gruneberg (2002):
- Effects of spaced revision:
  - Memory is better if info is practiced over spaced amount of time than massed into one session.
  - If spending X number of hours learning material, better to learn spread over days/weeks rather than learn all at once

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## EFFECTS OF SPACING

- Instead of spending one day revising everything for exam, better to spend few hours per day over a few weeks.
- Baddeley and Longman (1978):
  - Teaching postal workers to type.
  - Placed into four different learning groups:
    - 2x2 hour sessions per day;
    - 1x2 hour session per day;
    - 2x1 hour session per day;
    - 1x1 hour session per day.

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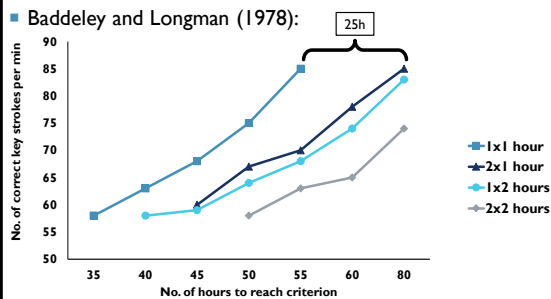
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## EFFECTS OF SPACING



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# MEMORY STRATEGIES

## ROTE LEARNING Vs. EXPANDED RETREIVAL

Benefits of Expanded Retrieval:

I. Long-term retention of info:

- Strengthens item to greater extent
- Requires less retrieval attempts to remember

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# MEMORY STRATEGIES

## ROTE LEARNING Vs. EXPANDED RETREIVAL

Benefits of Expanded Retrieval:

2. Maximises strength of trace

- Based on idea of spacing effect: increased spacing
- Longer interval between retrieval attempts, less likely success but greater benefit for long-term retention
- Read notes, put away and write down anything you can remember → makes use of LTM: Active learning.

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11

## ROTE LEARNING VS EXPANDED RETRIEVAL

### THE NAME GAME

- Let's have a go.....
  - Pick a new name for yourself:
    - First name and Surname only.
    - In turn say your "name" out aloud.
    - However, you must also say all the previous names heard in order before saying yours.

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12

## THE NAME GAME

- Time between 1<sup>st</sup> name and last name continually increases
- E.g., 6<sup>th</sup> member hears 5<sup>th</sup> members name once but must recall first 4 names before retrieving the 5<sup>th</sup>
- Makes retrieval of 5<sup>th</sup> name difficult but beneficial to learning

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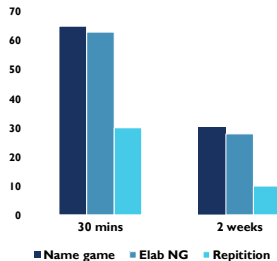
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## THE NAME GAME

- Morris and Fritz (2000): Three conditions:

1. Name game
  2. Elaborated name game: e.g., "Jane Smith likes dancing"
  3. Expanded repetition: read names on board
- Memory for names tested 30 mins and 2 weeks later:



14

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## EFFECT OF SELF-TESTING



- Testing yourself on learnt material increases retention
- Retrieval practice effect.
- But does testing benefit memory more than revision episode?

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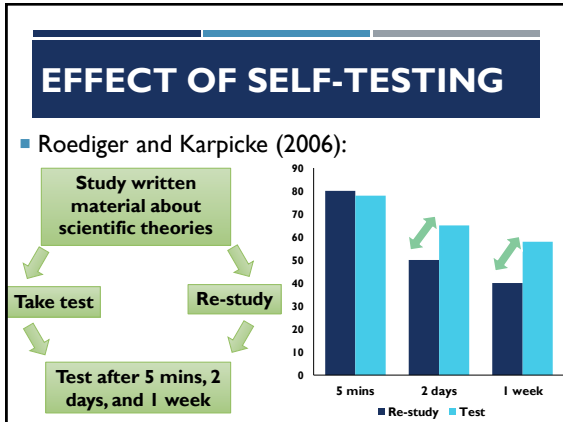
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## MEMORY STRATEGIES AND EXAMS

- Selective Revision: Macrae and MacLeod (1999)
  - Can be useful to save time and resources.
  - However, success depends on assumption that revised material will appear in exam.

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## MEMORY STRATEGIES AND EXAMS

- If studies material does appear, performance in exam should be good:
  - Retrieval practice effect - facilitation
- However, what if revised material does appear?
  - Would performance be as bad as not revising at all
  - Or could it be even worse
    - Retrieval-induced forgetting effect.

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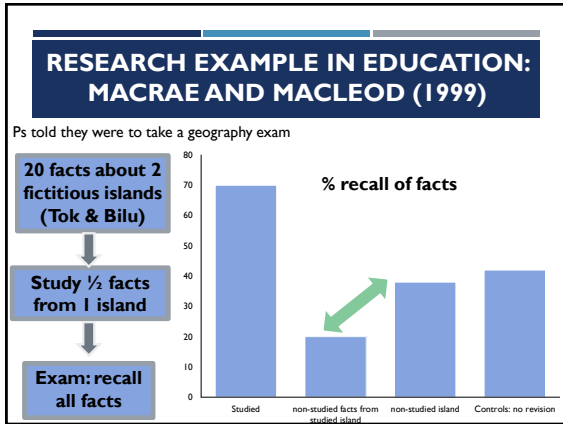
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### MEMORY STRATEGIES AND EXAMS

- What can be done if RIF occurs in exam?
  - Integration of information protects memories from RIF.
  - Make connections across materials
    - Work out what constitutes connections during revision (not during the exam – too late).

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### MEMORY STRATEGIES AND EXAMS

- Compose structures for mock essays
  - Make links explicit between items.
- If info is forgotten, cues provided by retrieval of other info/related connection, should help cue related forgotten info.
  - Make use of sub-headings.

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## HOW CAN EXAM PERFORMANCE BE IMPROVED?

- Distributed studying (as opposed to mass/crammed studying)
- Integration of information
- Retrieval of material: especially expanded and elaborative practice
- Administering self-tests
- Have understanding of material, not just learn parrot fashion
- Use memory strategies

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## FINALLY!

- What was the number presented at the start of the session?

**139**

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