



Get Ready....

Can you work out the topic of today's lesson?



SAMPLE

FORGETTING

Memory

Forgetting



Forgetting

Lesson Objectives:

- **Outline** and **evaluate** two explanations of forgetting, including:
 - **Interference Theory**
 - **Retrieval Failure**



Forgetting

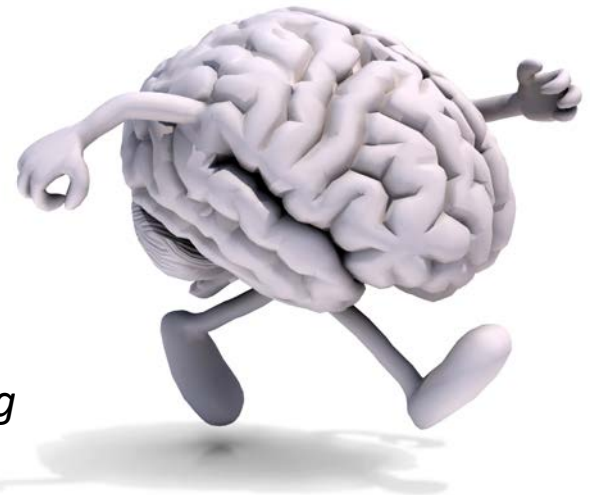
- Class Discussion: Why do we forget things? Is it because...
 - The information was never transferred to LTM.
 - The memory decayed over time.
 - The memory is in LTM but you can't access it.
- Which of the above ideas do you agree with the most and why?



Forgetting

- Forgetting in LTM is mainly due to **retrieval failure**. Information is available but you can't access it. This happens when you have insufficient **cues**.
- Question: What do you think can act as a cue?
 - Environmental cues
 - Mental cues

*You just need something
to jog your memory →*



Forgetting

- Tulving and Thompson (1973) proposed the encoding specificity principle. They said:

“Memory is most effective if the information that is present at learning is also present at the time of retrieval.”

- Therefore, the more cues a person is exposed to, whether environmental or mental, the more likely they are to remember.
- Question: According to the encoding specificity principle where should you sit your final exam?
- In this class room.

Forgetting

- **Godden and Baddeley (1975)** investigated the effect of contextual cues on recall, in a novel experiment using divers.
- **Task:** Read the summary of **Godden and Baddeley (1975)** and answer the six questions on your handout.

15 Minutes



Forgetting

Godden and Baddeley (1975) investigated the effect of contextual cues on recall, in a novel experiment using divers. Their aim was to see if memory for words learned and recalled in the same environment, was better than memory for words learned and recalled in different environments.

Their sample consisted of 18 participants (13 males and 5 female) from a university diving club, who were divided into four conditions: 1) learning words on land and recalling on land; 2) learning words on land and recalling underwater; 3) learning underwater and recalling underwater; and 4) learning underwater and recalling on land. The experiment used a **repeated measures design** with each participant taking part in all four conditions, over four separate days. In all four conditions, participants were presented with 38 words, which they heard twice. After hearing all 38 words, the participants were instructed to write all the words they could remember, in any order.

Godden and Baddeley found that the words learned underwater were better-recalled underwater and vice versa for words learned on land. The results of their experiment are shown below.

Learning environment	Recall environment					Total
	Dry		Wet			
	Mean recall score	S.D.	Mean recall score	S.D.		
Dry	13.5	5.8	8.6	(3.0)	22.1	
Wet	8.4	3.3	11.4	(5.0)	19.8	
Total	21.9	—	20.0	—	—	

The following results are taken from Godden and Baddeley (1975).

1. What do the data in table 1 show? (4 marks)

Forgetting

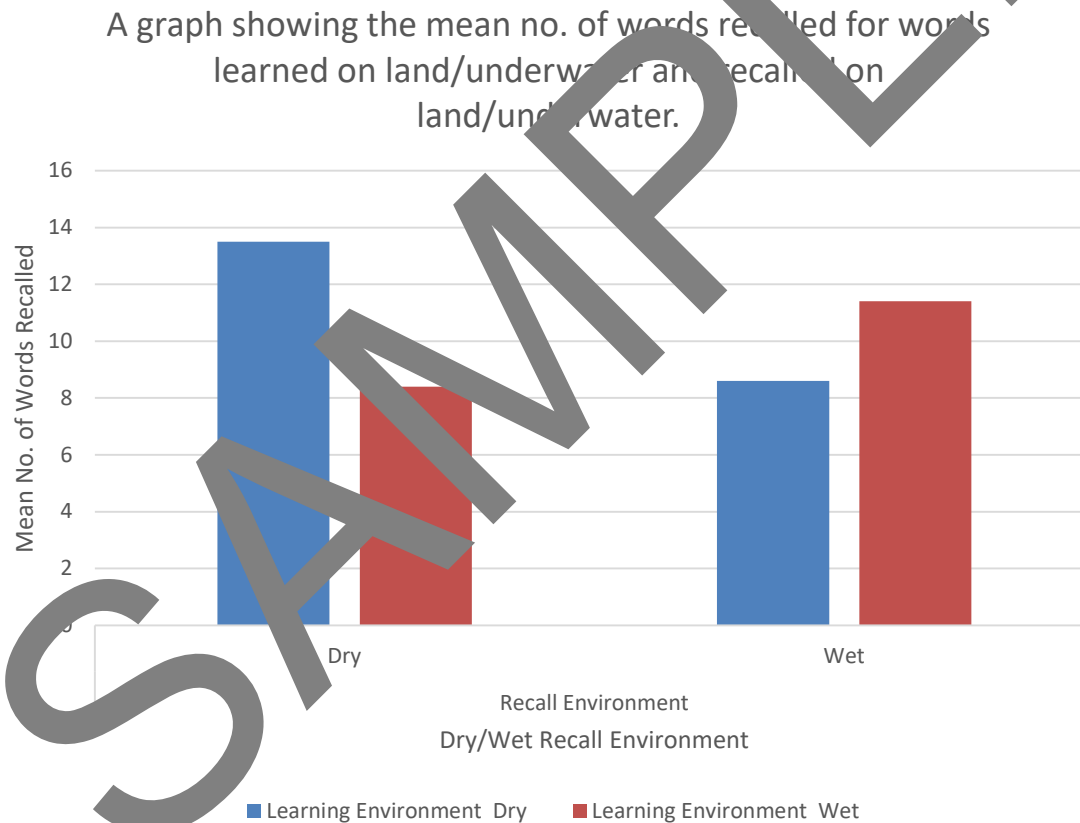
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1) What do the data in table 1 show? (4 marks)

The results show that memory for words learned on land are best recalled on land, and memory for words learned underwater are best recalled underwater. These results support the encoding specificity principle, as memory is most effective when the information that is present at the time of learning (dry land/underwater environment) is also present at the time of retrieval (the same dry land or underwater environment).

Forgetting

2) Using the data from table 1 draw and label an appropriate graph. (4 marks)



Forgetting

3. What experimental method did Godden and Baddeley (1975) use? (1 mark)

Field Study.

4. What experiment design did Godden and Baddeley (1975) use? (1 mark)

Repeated Measures.

SAMPLE

Forgetting

5. What was the independent variable in Godden and Baddeley's (1975) study? (2 marks)

Learning environment (words learned on land/underwater)

Recall environment (words recalled on land/underwater)

6. What was the dependent variable in Godden and Baddeley's (1975) study? (2 marks)

The number of words correctly recalled out of 38.

Forgetting

- Question: On the basis of the results, what can we conclude in relation to context-dependent learning?
- *The results support the encoding specificity principle and show that when we learn information in a particular context (e.g. on land or underwater), the information is best recalled in that particular context, as the context acts as a cue to trigger recall.*

Forgetting

- **Task:** In their discussion, Godden and Baddeley admit to several issues with their experiment, and these can be used as evaluation points. Read the discussion from Godden and Baddeley's study and highlight any issues they mention.
- The divers were on a pleasure holiday; they used an opportunity sample. **Why might this be an issue?**
- There was no control over the time of day and the time between sessions varied. **What type of variable and this result in?**
- One diver was nearly run over. **What ethical guidelines should have been considered?**
- The study used a repeated measures design. **Why could this be an issue?**

Task: In their discussion, Godden and Baddeley admit to several issues with their experiment, and these can be used as evaluation points. Read the discussion from Godden and Baddeley's study and highlight any issues they mention.

"Before accepting a context-dependent interpretation, however, some possible shortcomings of the experiment should be considered. The divers were on a pleasure-diving holiday at the time of the experiment, and it is entirely due to their good will in agreeing to participate, and tolerance in accepting the subsequent demands of the experiment that the latter was completed at all. Nevertheless, since the divers were in no way committed to the experiment, some limitations on what could reasonably be done were experienced. Thus, there was no control over the time of day at which subjects were tested. In addition, the experiment had to be run each day at the diving site chosen by the subjects, rather than at a constant location. Diving expeditions are notoriously difficult to organize and run smoothly; in an equipment-intensive operation which depends strongly on such local conditions as weather, fitness, etc., something will usually disrupt planned routine. Some divers may not, for medical reasons, dive each day. A dive may have to be aborted due to equipment failure, and so on. These problems were experienced to some degree, as was the unexpected.

One diver was nearly run over during an underwater experimental session by an ex-army, amphibious DUKW. Thus, it proved impossible to complete the session in four successive days, and the time between sessions varied both within and between subjects. None the less, under realistic open water conditions, and even subject to the above problems, a highly significant interaction between the environment of learning and that of recall emerged."

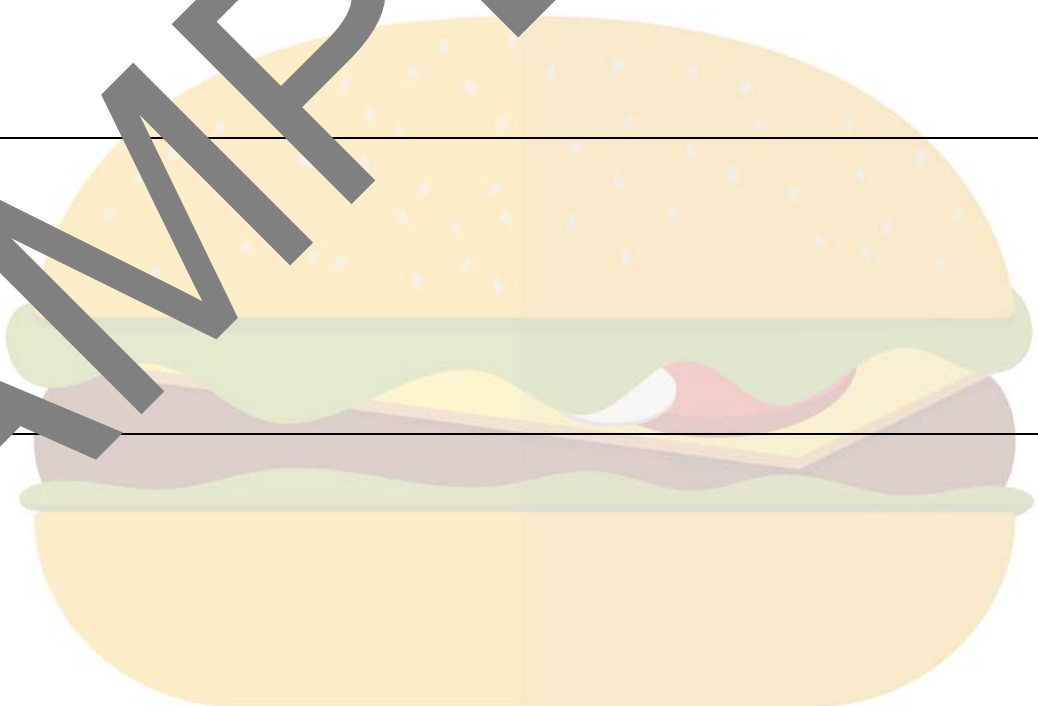
"There has been a suggestion (Strand, 1970) that context-dependent effects may not be due to environmental change per se, but instead to disruption caused by taking the subject from one environment to the other in the context-change conditions."

Godden and Baddeley (1975, pg. 328-329)

Forgetting

- Extension Task: Take one of the issues highlighted above and write a burger paragraph for Godden and Baddeley's study.

Point	
Evidence/ Example	
Explanation	



Forgetting

- Another explanation of forgetting is **interference theory**. This is when we forget things because one memory has disrupted or interfered with another memory.
- **Task: Let's try an activity. Find someone who has a different brand of phone to you and sit next to them.**



Forgetting

- **Task:** Time yourself typing the following message on your own phone. You must type the message EXACTLY as it appears below, including punctuation.



Hi Joseph! I'm running
really late!! Be there at
6 o'clock...hopefully



Forgetting

- Task: Now swap phones with the other person and time yourself typing the message on their phone.



Hi Lauren! I'm running
really early! Be there at
7 o'clock...honest



Forgetting



Question: Why do you think it took you significantly longer to type the message on the different phone?



Forgetting

- This is known as interference, in particular **proactive interference**.



Your old memories (knowledge of your existing phone) were interfering with your ability to form a new memory (knowledge of the new phone layout).



Forgetting

- **Proactive interference** is one type of interference. However, there is also **retroactive interference** (which is the opposite). An easy way to remember the two is:

Proactive

Past learning interfering with new learning.

Recent (new) learning interfering with old learning.

Retroactive

Forgetting

- Task: For each of the following scenarios decide whether the memory disruption is caused by proactive or retroactive interference and justify your answer.

Proactive Recent (new) learning interfering with old learning.		Retroactive Recent (new) learning interfering with new learning.
Task: For each of the following scenarios decide whether the memory disruption is caused by proactive or retroactive interference and justify your answer.		
Scenario	Proactive or Retroactive. Justification.	
Joseph has recently got a new mobile number and can finally remember it. After a few months, his mother asks him for his old number and he can no longer recall it.		
Michelle learned Spanish at primary school. However, when she started secondary school she learned French as well as Spanish. One day the French teacher asked her what the word for 'hello' is, and she replied 'Hola'.		
Ruth received her new credit card and memorises the PIN number 4159. However, when she is paying for shopping in Tesco she uses her old credit card and can no longer remember the PIN.		
David learned to drive a manual car, however has recently purchased an automatic. When on holiday, David rents a car which is a manual and keeps stalling the car because he forgets to press the clutch.		

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Scenario	Proactive or Retroactive. Justification.
Joseph has recently got a new mobile number and can finally remember it. After a few months, his mother asks him for his old number, and he can no longer recall it.	Retroactive – because his new mobile number is preventing him from remembering his old mobile number.
Michelle learned Spanish at primary school. However, when she started secondary school, she learned French as well as Spanish. One day the French teacher asked her what the word for 'hello' is, and she replied 'Hola'.	Proactive - because her old knowledge of Spanish is interfering with her ability to recall the French word for hello.
Ruth received her new credit card and memorised the PIN number 4159. However, when she is paying for shopping in Tesco, she uses her old credit card and can no longer remember the PIN.	Retroactive - because her new PIN number is interfering with her memory of her old PIN number.
David learned to drive a manual car however, has recently purchased an automatic. When on holiday, David rents a car which is a manual and keeps stalling the car because he forgets to press the clutch.	Retroactive – because David's new memory of driving an automatic is interfering with his old memory of driving a manual.

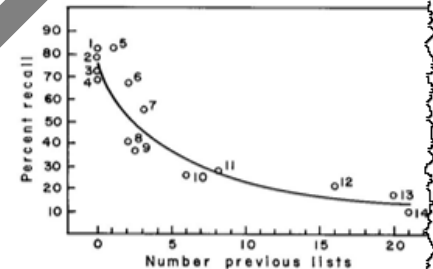
Forgetting

- Homework: You have outlined and evaluated retrieval failure, and outlined interference. Your task is to complete the evaluation questions on the handout to complete your notes on interference theory.

Evaluating Interference Theory

There is plenty of laboratory based support for interference as an explanation of forgetting. A laboratory experiment was conducted by Underwood (1957). He got a large sample of participants to memorise different lists of words.

Some participants just learnt one or two lists of words, while others learnt 10 or more lists of words. The next day Underwood invited them back and asked them to recall as many words as they could from the lists. The results can be seen in the graph below.



1. What can you conclude from the graph?

2. Can you identify and explain any problems with Underwood's experiment in relation to proactive interference?

Baddeley and Hitch looked at the effects of interference in an everyday, real life setting. He asked rugby players to recall the team names of the opponents they had played against that season. Some players played in every single game, while other players missed quite a few games. Results showed that the players who played the most games forgot significantly more team names compared to players that had played in less games.

3. How do these findings support the interference theory?

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Jenness (1932)

- **Jenness (1932)** was one of the first psychologists to study conformity. His experiment used an **ambiguous situation** involving a glass bottle filled with beans. He asked participants individually to estimate how many beans the bottle contained.
- Jenness then put the group in a room with the bottle, and asked them to provide a group estimate through discussion.
- **Question: What do you think Jenness (1932) found?**
- **Task: Answer questions 1 and 2 on the handout provided.**



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Full Lesson PowerPoint Key

- **Green = Key Word or Researcher**
- **Blue = Question / Discussion**
- **Purple = Task / Activity**

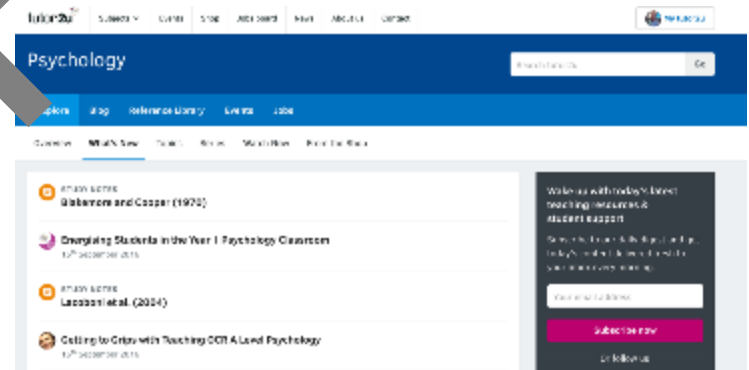
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Forgetting

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Reference: Godden, D. R., & Baddeley, A. D. (1975). Context-dependent memory in two natural environments: On land and underwater. *British Journal of psychology*, 66(3), 325-331.

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Point	
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Proactive

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Retroactive

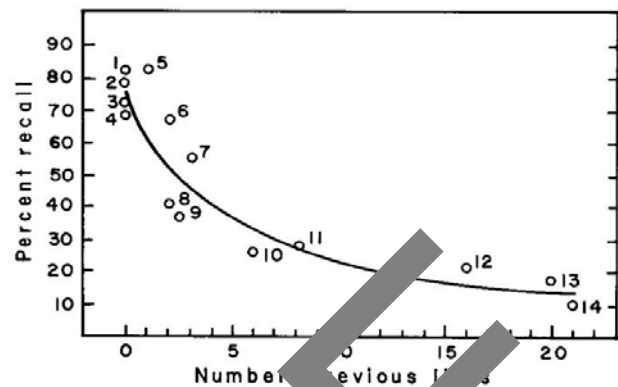
Task: For each of the following scenarios decide whether the memory is disrupted as a result of proactive or retroactive interference and justify your answer.

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How do these findings support the interference theory?

4. Why would many psychologists argue that this research provides stronger support for the interference theory in comparison to Underwood's research?
