

Forgetting

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"I'm terrible with names - what's mine?"

search ID: mst0045



FORGETTING

NO SINGLE THEORY IS
ABLE TO EXPLAIN ALL
INSTANCES OF
FORGETTING

Study Design Dot Point: Strengths and limitations of psychological theories of forgetting:

- * Retrieval failure theory including tip of the tongue phenomenon
- * Interference theory
- * Motivated forgetting as informed by the work of Sigmund Freud including repression and suppression
- * Decay theory

Forgetting



- **Definition:** The loss of information or the inability to access previously encoded information within memory.

Retrieval cue

- **Retrieval cue:** “Any stimulus that assists the process of locating and recovering information stored in memory” (Grivas et al 2011)



**What are
some
retrieval
cues for
you?**

Examples of retrieval cues

- * Photos
- * Music/songs/sounds
- * Places
- * Questions
- * Smells
- * Objects
- * Emotional and physical states
- * People
- * Even letters of the alphabet!

Who was the first person you kissed? (you know, seriously)

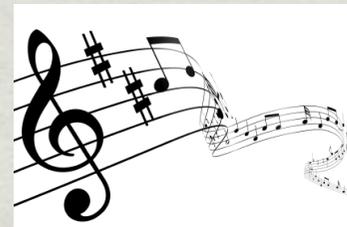
QUESTIONS



DRAWINGS



PLACES



MUSIC/SONGS



PHOTO ALBUMS

Retrieval cues...

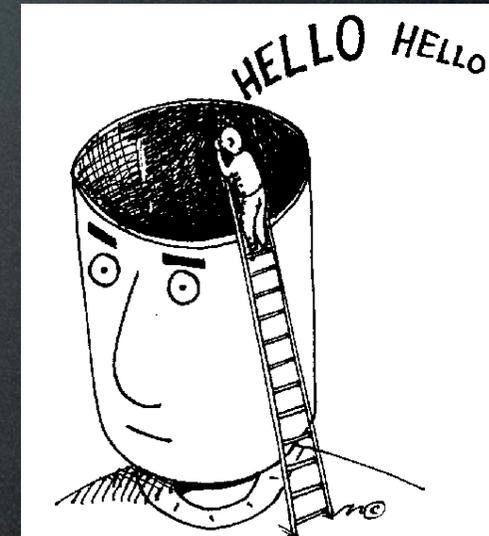
- Examples of retrieval cues include:
 - **questions**
 - **emotional states** such as happiness or depression
 - **physical states** such as being intoxicated or in pain
 - **environmental cues** such as sights, sounds and smells within that specific situation



A retrieval cue is like a hook that allows you to pull an obscure memory from its hiding place

Retrieval failure theory

- According to this theory, we forget because we lack or are not able to use the correct cues to retrieve or access information stored in long-term memory.
- Forgetting occurs when information is available in LTM but is not accessible. Memories stored in LTM are not actually forgotten but are inaccessible because of an absent, inappropriate or faulty cue.



**I know you're
in there
somewhere!**

Retrieval failure theory

- Also known as **cue-dependent forgetting**
- The reason for this is that many memories are “forgotten” because the **cues or stimuli** that were present at the time of learning or encoding are **not present** at the time when one needs to retrieve the information from memory

Examples of cue-dependent forgetting

- ▶ You meet someone in an environment in which you have never seen him/her in before, e.g. an old teacher at a supermarket, a distant relative at a cinema... You recognise the person but cannot place him/her. You dart away to avoid the embarrassment of your retrieval failure.



Tip of the tongue phenomenon



- A type of retrieval failure is the tip of the tongue phenomenon (TOT).
- **Definition:** The **tip-of-the-tongue phenomenon** is the term for the temporary inability to remember something you know, accompanied by a feeling that it is just out of reach.
- **Explanation:** There is a failure to retrieve information from memory, but there is often partial recall such as the first letter or how many syllables it has and the feeling that you know the information and that you will eventually remember it.

Learning Activity 7.7 (GDC, p.374)

Examining the tip-of-the-tongue phenomenon

Which of the definitions in the list on the next slide cause you to think that you have the answer on the tip of your tongue? Skip over the ones that do not cause that feeling. If you know the word or name immediately, or if you think you don't know it, then you are not in a TOT state.

For the TOT definitions (when you feel you know the answer but cannot think of it immediately), do the following:

*Write down all the words or names that come to mind even if you know that they are not correct. If the correct word or name comes to you as you do that, underline the answer in your list.

*If the answer does not come to you:

- (1) try to guess the letter that the word or name starts with
- (2) try to identify how many syllables it has, and
- (3) try to think of one or two words that sound similar to the one you're trying to recall.

Learning Activity 7.7 (GDC, p.374)

continued

- 1 The arched upper surface of the human foot between the toes and the ankles**
- 2 The former premier of Victoria after whom the bridge near the Docklands is named**
- 3 A meeting of people who seek to receive a message from the dead**
- 4 Deer's flesh as food**
- 5 Reddish-purple colour**
- 6 A jewelled ornament worn in the hair by women**
- 7 The highest waterfall on Earth**
- 8 The lead singer of the rock group The Doors**
- 9 The main site of the Sydney 2000 Olympic Games**
- 10 The American term for tomato sauce.**

The answers to these questions are on page 823.

THE TIP OF THE TONGUE PHENOMENON IS SIGNIFICANT BECAUSE IT SHOWS US...

- * that we can retrieve part of the information stored in memory
- * that information can be stored in LTM but not accessible without the right retrieval cues
- * how LTM is organised.

Explanation: TOT experiences indicate that information stored in LTM is organised and connected in a relatively organised way. Often when we retrieve connected pieces of information, that provides cues for whatever we are trying to remember. The connected piece of information is linked to the piece that is difficult to remember.



For instance, if you want to remember the name of your first cat, you might think about all the pets you had as a child, or visualise the cat in your mind. You might try to remember your mother calling your cat to get its food. These cues will be like links in a chain that might lead you to the memory you actually want.

Retrieval Failure Theory

Summary, questions and evaluation

- It has been suggested that the TOT phenomenon involves a 'partial retrieval process'. What does this mean?
- Does the TOT phenomenon provide evidence for or against the semantic network theory?



The answer
is...umm...

Retrieval Failure Theory

Summary, questions and evaluation

- **Question 1:** What is **forgetting**?
- **Question 2:** According to **retrieval failure theory**, why do we sometimes forget?
- **Question 3:** What is **another name** for retrieval failure theory?
- **Question 4:** What is a **retrieval cue**?



Retrieval Failure Theory

Summary, questions and evaluation

- **Question 1:** What is forgetting?
- **Answer:** The inability to retrieve previously stored information.
- **Question 2:** According to retrieval failure theory, why do we sometimes forget?
- **Answer:** Because we lack or fail to use the right retrieval cues to retrieve information stored in memory.
- **Question 3:** What is another name for retrieval failure theory?
- **Answer:** Cue-dependent forgetting.
- **Question 4:** What is a retrieval cue?
- **Answer:** Any stimulus that assists the process of locating and recovering information stored in memory.

Strengths and limitations of retrieval failure theory

❖ **STRENGTHS...**

- ❖ **There is research evidence to support it. Studies of recall versus recognition show that the amount of forgetting can be greatly reduced when retrieval cues are made available, e.g. Meyer & Hilterbrand (1984) study.**
- ❖ **The tip-of-the-tongue phenomenon is a frequent reminder that we have information stored in memory that we cannot access, until we find the right cue.**

● **LIMITATIONS...**

- **The theory doesn't explain why there is a failure to retrieve some memories but not others.**

INTERFERENCE THEORY

- **Definition: Interference:** the tendency for new memories to impair retrieval of older memories, and the reverse
- According to this theory, we forget because other memories interfere when we try to retrieve information, especially if it is similar. Other memories disrupt or disturb the process of retrieval.
- If material is similar and learnt close in time interference is more likely to occur.



- **There are two kinds of interference:**
 1. **Retroactive interference**
 2. **Proactive interference**

Interference Theory

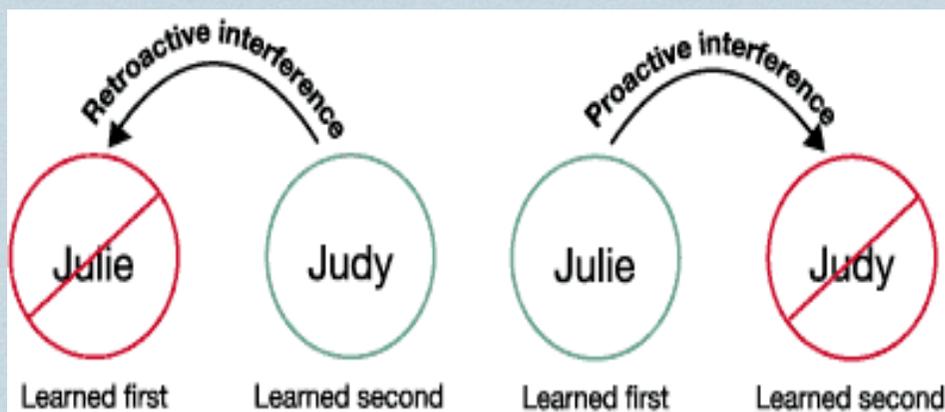
Proactive interference

Definition: Tendency for prior learning to inhibit recall of later learning, i.e. the interference goes forward

(pro = forward)

More explanation:

Proactive interference occurs when you cannot learn or have trouble learning a new task because of an old task that has already been learnt. In this case, what we already know interferes with what we are currently learning; old memories disrupt new memories.



Proactive interference: Old information interferes with new information



Learn Asian dancing



Learn Spanish
dancing

Old info interferes with new info
Time



Spanish dancing
test-
FAIL

Proactive Interference - An Experimental Design

Interference theory: experimental designs to test for interference

A teacher wants to see whether the memory for French vocabulary is affected by learning German vocabulary before or afterwards. She therefore wants to test for both proactive and retroactive interference, by using a vocabulary test.

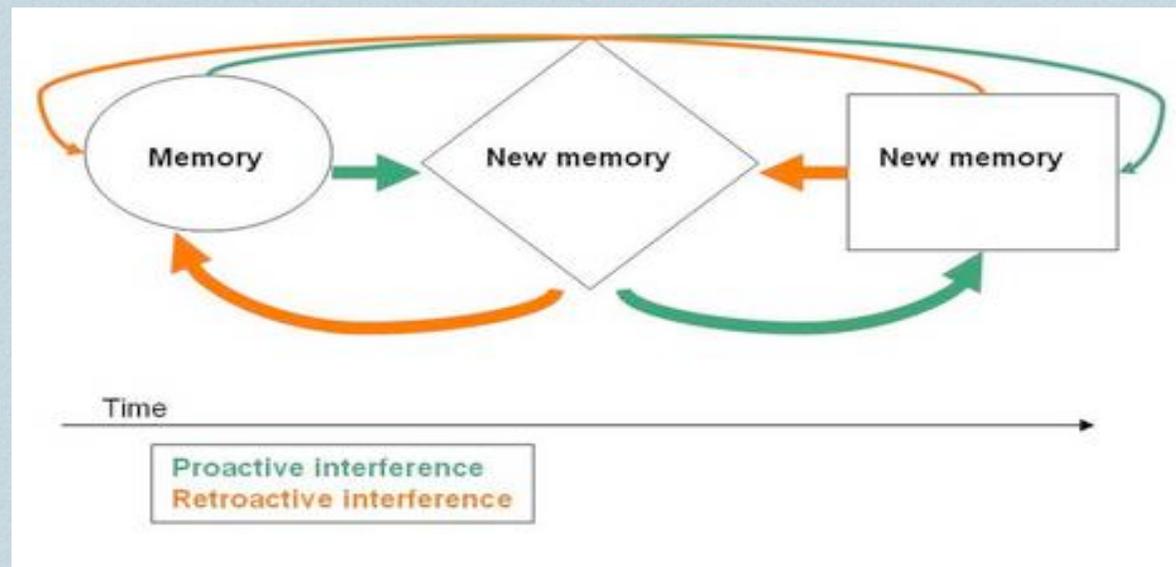
Design an experiment for **PROACTIVE INTERFERENCE** first in the table below by filling in the blanks:

GROUP	Period 1	Period 2	Period 3
Control Group	What should the control group do here? _____	Learn French vocabulary	French vocab test
_____ Group	Learn German vocabulary	Learn _____ vocabulary	_____ vocab test

Draw an arrow to illustrate why this is an experiment testing for **proactive interference**.

Interference Theory

- **Retroactive interference** (retro=backward) occurs when you forget a previously learnt task due to the learning of a new task. In other words, later learning interferes with earlier learning - where new memories disrupt old memories.



Retroactive interference: New information interferes with old



Learn Asian
dancing



Learn Spanish
dancing



Asian dancing test-
FAIL

New info interferes with old info

Retroactive Interference

Now design an experiment to test for **RETROACTIVE INTERFERENCE** in the table below. Draw the arrow to show the direction of interference occurring (assuming that it does).

GROUP	Period 1	Period 2	Period 3
Control Group			French vocab test

- © Why would there be more likely to be interference in this case than say if the subjects that are being learned happened to be maths and English?
- © What could be some confounding or extraneous variables you would need to control for in the experiments above?
- © What is the IV for each experiment? What is the DV?

Interference Theory - Questions and Summary

- What are some strategies that could be used by students preparing for their mid-year Psychology exam that could prevent or at least reduce retroactive and proactive interference? In other words, how could students reduce the likelihood of forgetting the information needed to successfully complete the exam?

Possible Answers

- Choose information that is dissimilar to study close together
- Study unrelated subjects close to Psych exam
- Timetable a rest break before and after learning Psych to minimise information loss or disruption
- Only revise Psych and don't worry about the other subjects (joke)

Hey, I've figured out how to avoid forgetting due to interference...

I'll just avoid studying at all!

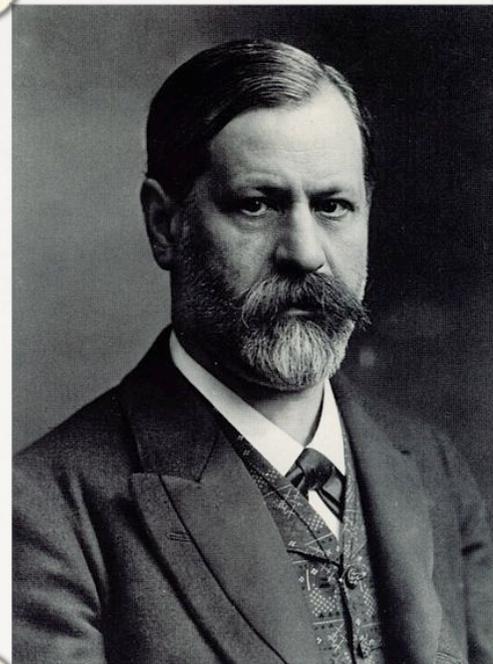


**Teachers: WRONG ANSWER!
Agggh!**

MOTIVATED FORGETTING

ANOTHER THEORY OF FORGETTING

- This theory describes forgetting as a defence mechanism in which people are motivated or desire to forget unwanted or disturbing memories, either consciously (**suppression**) or unconsciously (**repression**).
- Motivated forgetting is based on Freud's theory that people create a **defence mechanism** to protect themselves from painful experiences.



Motivated forgetting

- Motivated forgetting has been an aspect of psychological study relating to such traumatising experiences as rape, torture, war, natural disasters, and homicide.
- Some of the earliest documented cases of memory suppression and repression relate to veterans of the Second World War. The number of cases of motivated forgetting was high during war times, mainly due to factors associated with the difficulties of trench life, injury and shell shock. (Source: Wikipedia)



Motivated forgetting

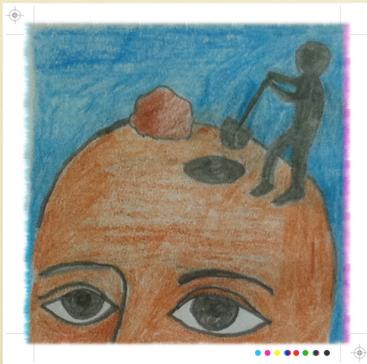
- **Other examples:** A car accident as a young child or other traumatic event. A repressed memory may be retrieved into one's normal waking consciousness through counselling, in dreams or when a conversation or experience triggers emotion associated with the unpleasant event.



MOTIVATED FORGETTING

Repression

- Unconsciously blocking a memory of an experience from entering your conscious awareness because it is psychologically painful or unpleasant to remember.
- This is a defence mechanism used by the ego to protect us from anxiety.
- It is not lost from memory but not easily accessible during normal waking consciousness.



Suppression

- Deliberately making a conscious effort to keep it out of your conscious awareness.
- People are aware of the event however make an effort not to think about it.
- It may be even be possible to deliberately forget information.



MOTIVATED FORGETTING

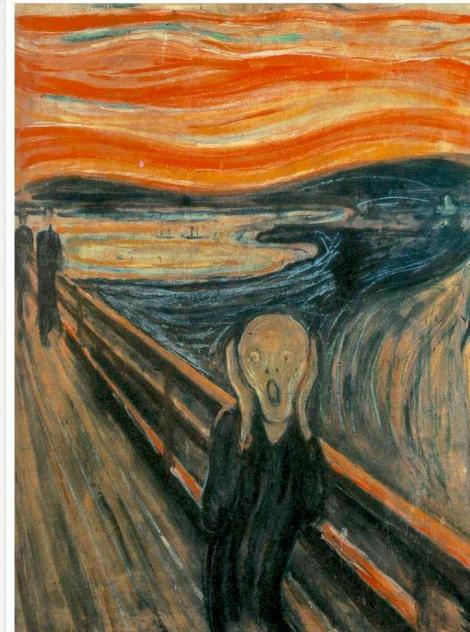
USES AND LIMITATIONS

Uses

- Useful for explaining people's tendency to forget crucial, traumatic experiences

Limitations

- Cannot however explain all forgetting experiences
- Applies only to quite specific, distressing experiences



Decay Theory

Earliest Theory and the Most Commonly Believed

- According to this theory, we forget because memory traces fade through not using them over time.
- A **memory trace** is a physical change in nerve cells or brain activity that store memories (Coon)
- This theory assumes that when something new is learned a physical or chemical trace called an engram containing stored information is formed in the brain as the information is consolidated in LTM. This is therefore a physiological explanation of forgetting.



Evaluation of Decay Theory



- Time does appear to be a factor in forgetting in sensory memory and short term memory.
- However, as an explanation for forgetting from LTM decay theory is limited, because...
 - many people remember information they have not thought about for a long period of time. Older people, for instance, often remember childhood experiences quite clearly but cannot recall what happened yesterday.
 - doesn't explain why some memories fade and some don't
 - often we can eventually recall material we appear to have lost, if the right cues are present, as shown by the TOT phenomenon. TOT contradicts the decay theory because it shows that the memory may not have decayed at all; all that was needed to retrieve it from LTM was the right cue.

Set Work

- Learning activities 7.8, 7.9, 7.13
- Psych book Activity 6: Forgetting theories in practice

