

9.65 October 17, 2001 MEMORY IV: Remembering and Forgetting. HANDOUT.

Assigned: Chapter 7. Note that the reading assignment from Anderson on Learning for Oct. 24 will be handed out today.

Today: The nature of memory errors and forgetting

Re the demo from Monday's class with the lists of words: This is an experiment by Roediger & McDermott, 1995, that's discussed in your text.

door glass pane shade ledge sill house open curtain frame view breeze sash screen shutter

bed rest awake tired dream wake snooze blanket doze slumber snore nap peace yawn drowsy

queen England crown prince George dictator palace throne chess rule subjects monarch royal leader reign

The words on the lists were associates of window, sleep, and king, respectively--i.e., words that people are likely to produce as immediate associations to that word.

(From Roediger & McDermott, 1995; norms are Stadler, Roediger, & McDermott, 1999, M&C.) Experiments using lists of this kind have found that most participants make these errors, both in recall and when asked to recognize which words they saw: Re the demo from Monday's class with the lists of words: This is an experiment by Roediger & McDermott, 1995, that's discussed in your text. Both recall and recognition tests show these errors: the phenomena are called **false recall** and **false recognition**.

Shows that we rather automatically encode the associations brought to mind by a word, as well as the word itself.

The **king** list produced false recall for **10%** of the participants; **window** was falsely recalled by **65%** of participants and **sleep** by **61%**--not too different from this class.

Another memory exercise:

-Think of some incident from your childhood (when you were under 8) that you know you participated in, but for which you have no actual memory--so you know it from family accounts, photos, letters, or the like. Note it here, and estimate how old you were at the time of this event.

-Second, think of another event in your early childhood that you DO remember personally.

Estimate your age then.

Forgetting:

Failure to consolidate material immediately after reading or hearing it.

Slowly begin to forget some of the material as time passes.

What are the principles that determine what we forget?

Same mechanisms that make for good memory also make for memory distortions and forgetting.

Sulin & Dooling (1974) study:

Note the similarity and differences between this experiment and the experiment of Bransford & Johnson (1972) described in Chapter 5, p. 158: in the latter experiment, people tried to remember a paragraph that was vague: "The procedure is actually quite simple. First you arrange items into different groups. Of course one pile may be sufficient depending on how much there is to do...." etc. People had trouble recalling this paragraph, but could recall it more easily when they had been given a title in advance: "Doing the Laundry." (In this experiment, getting the title after you read the paragraph did not help much.)

So, in the Laundry experiment having a title improved memory for the paragraph, whereas in the Helen Keller experiment, having the more informative title led to a false recognition of a statement that had not been in the paragraph. These effects are two sides of the same coin: drawing on your previous knowledge helps to organize new information, but the old information becomes integrated with the new information in such a way that you can't easily tell the difference.

Would the ideal human memory system retain all the information that was ever experienced?

E.g., uselessness of having a perfect "photographic memory" for what we see all day long.

We need a lot of information at each moment to allow us to take effective action and to extract important information, but then we can safely discard most of the detail.

But how can we hang on to the right stuff, over time?

Assuming that we initially set up a meaningful interpretation of material, **how might a memory system gradually discard the less important information?**

Decay and disuse

Memories vary in **strength**: the stronger the memory, the greater the probability that it will be retrieved and the faster it will be retrieved. As time passes, memory strength is reduced: rapidly at first, and then more and more slowly

Each time you recall or recognize something, you boost its memory strength once more, slowing the rate of forgetting. (This is the mechanism underlying the **LAW OF FREQUENCY**, which we'll be talking about next week.)

Distributed better than **massed**.

Use it or lose it.

Interference

Surprisingly, simple decay is not the problem.

Interference is the way most forgetting takes place--interference is much more important than simple **decay**.

E.g., the Carol Harris/Helen Keller example, or recall of War of the Ghosts, or Proactive Inhibition (PI) in the lists-of-animals task, and many examples given in Reisberg.

Activated at the time of **encoding**:

Activated at **retrieved**: by **CONTENT-ADDRESSING**.

Benefits that go along with interference from content-addressed retrieval:

-Promotes the development of **general memories**

-**Partial information can be recovered**

-Memories are **updated**

Eyewitness testimony:

Studies by Loftus and her colleagues:

Loftus & Zanni 1975: "Did you see a/the broken headlight?"

"What happened when one car hit/smashed-into the other?"

Identification of individuals: Lineups

Childhood amnesia:

One's earliest memories start at about 3 years of age, and about half of us can't easily remember an event earlier than about 6 years. Your memories (from earlier exercise).

Why don't we remember much from early childhood?

The issue of children as eyewitnesses and the related question of **recovered memories** from childhood:

In a study **mentioned in your text** [p. 209] Ceci and colleagues asked preschoolers questions about an event in which they supposedly hurt their hand in a mousetrap and had to go to the hospital.

Loftus & Pickerall (1995):

Ceci and colleagues (1994) were able to cause the children to believe that they'd been lost in a mall.

So, *do* people recover genuinely lost memories?

Long, long memories and Bahrick's "permastore" idea.

Long-lasting memory for the names of one's classmates.

Bahrick and colleagues also did a study of memory for Spanish vocabulary items:

Conclusion: people can retain information that was once well-learned, for a surprisingly long time.

The end

(From earlier in lecture:)

Carol Harris's Need for Professional Help

Carol Harris was a problem child from birth. She was wild, stubborn, and violent. By the time Carol turned eight, she was still unmanageable....Her parents finally....hired a private teacher for Carol.

A week later subjects were given a recognition test in which they tried to recognize sentences from the passage. One test sentence was:

She was deaf, dumb, and blind.