


Constructive memory


PSY 200
Greg Francis
Lecture 19

How good is eye-witness testimony?

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Memory test

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Discrimination

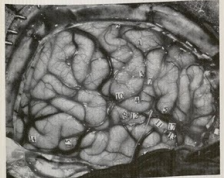
- The task is difficult because you have to do several things
 - Recall information that might be related to the task from memory
 - Determine if the memory is actually for the correct event
 - Determine if the memory is actually for the correct moment in time
 - Gauge your confidence in the memory's validity
- All of this suggests that performance on a memory task involves discriminating information
- To address the discrimination problem, people engage in a *constructive process* to report memories


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No forgetting?

- Brain surgeon (Penfield, 1959)
 - Epilepsy patients
 - stimulate brain regions before operating
 - want to know what is being removed
- Conscious patients report vivid memories
 - unable to recall normally
 - » "she saw herself as she had been while giving birth to her baby."
 - stimulation of temporal lobes
- In the image, numbers indicate places where stimulation evoked different reported experiences

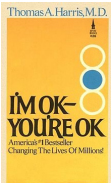



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No forgetting?

- Suggests that memories are stored but normally unreachable (context things again)
- Basis for ideas of memory repression (and a few self-help books)
 - The results are usually misunderstood
 - Actually only occurred for 5% of patients




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Penfield (1959)

- Even worse...
 - the memories are nearly impossible to verify
 - the few attempts find that the "memories" are not true
 - » people describe places they have never visited, impossible events, fantasy,....
 - The patients have epilepsy
 - » Stimulation may have triggered something like an epileptic seizure (which can have hallucinations)
- It is more likely that stimulation "feels like" a memory, even though it is not
 - your awareness of "remembrance" is a product of your brain
 - it can be stimulated, even without a real memory
- What do we mean by a valid **memory**?

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Flashbulb memories

- Highly emotional events tend to produce strong memories
- e.g.
 - JFK assassination
 - Challenger explosion
 - Oklahoma City bombing
 - Earthquakes
 - September 11, 2001
 - ...





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Flashbulb memories

- People *vividly* recall details surrounding event
 - where they were when they heard
 - what people said
 - clothing worn
 - time of day...
- People are *confident* about their reports
 - however...

THE FAR SIDE



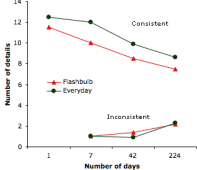
More facts of nature: All forest animals, to this very day, remember exactly where they were and what they were doing when they heard that Bambo's mother had been shot.

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Flashbulb memories

- Talarico & Rubin (2003)
- On *September 12, 2001*
- Asked volunteers to answer questions about their memory of
 - The WTC attack
 - An ordinary event (volunteer's choice)
- Three groups for follow up
 - 7 days later
 - 42 days later
 - 224 days later
- Recalling of details was the same for WTC attack and ordinary event



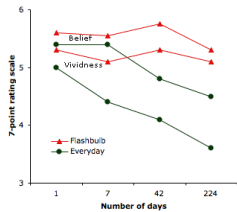
Number of days	Flashbulb	Everyday
1	~11	~12
7	~9	~11
42	~7	~10
224	~6	~9

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Flashbulb memories

- The memories of the WTC attack were more vivid
- Subjects believed those memories were more likely to be reliable
- Ordinary memories
 - Faded in vividness
 - Belief decreased over time



Number of days	Flashbulb Belief	Flashbulb Vividness	Everyday Belief	Everyday Vividness
1	~5.5	~5.2	~4.8	~4.5
7	~5.4	~5.1	~4.6	~4.3
42	~5.6	~5.3	~4.4	~4.1
224	~5.2	~5.0	~4.2	~3.8

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Flashbulb memories

- Subjects *confidence* in their memory can be misleading
 - retelling of the story ("I remember vividly when Kennedy was shot. I was...") probably reinforced the *story*
 - Maybe not the true memory
- Flashbulb memories are a real phenomenon about the *experience* of memory,
 - but probably not "super-memory"

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Memory misattribution

- Donald Thomson was accused of rape and picked out of a lineup by the victim (Schacter, 1996)
- He was on live TV at the time of the rape
 - Ironically, he was discussing memory of faces for eyewitness testimony
- The victim
 - had the TV on at the time of rape
 - misattributed the face on TV for the face of her attacker
 - very accurate report of the crime, otherwise

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Eyewitness testimony

- I will show you a series of slides and then ask you some questions

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Questions

- Did the bus, which came by, come from the left or the right?
- Did another car pass the Red Datsun while it was at the intersection with the stop sign?
- Did you see a bicycle?
- Did you see the taxi cab?
- Did you see if the policeman wrote anything down?

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Eyewitness testimony

- Later, show slides and ask subjects if they were part of the original set
- Key test is for a pair of slides (between subjects)
 - real slide contains YIELD sign
 - fake slide contains STOP sign



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Eyewitness testimony

- “Misinformation effect”
 - Loftus & Palmer (1974)
- Compare accuracy according to pre-test questions
 - Subjects without a misleading question--90% accurate
 - Subjects with a misleading question -- 20% accurate
 - In a follow-up, the experimenters asked those with misleading questions if they thought they were misled
 - » 90% say no
- Paying money for correctness also had no effect

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Eyewitness testimony

- Loftus, Miller & Burns (1978)
- The misinformation effect gets stronger with a week delay before the memory test

Types of questions	Delayed (Percentage correct)	Immediate (Percentage correct)
Consistent	~70	~70
None	~55	~65
Misleading	~30	~45

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Memory implants

- Loftus has a procedure that “implants” a memory of being lost in a mall
 - Basically just have subject read a plausible story (with some details that could be true)
 - Get family members to pretend the story is true
 - Later the subject “remembers” the story as something that happened to him/her
- It is very easy for a therapist to “implant” false memories into patients

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Conclusions

- Many techniques believed to provide accurate memories, do not
 - flashbulb memories
 - brain stimulation
- Memory is constructive
- Memories can be easily influenced by questions, interpretation, and context

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Next time

- Amnesia
- Anterograde amnesia
- Retrograde amnesia
- Unusual characteristics
- Repression
- CogLab on Forgot it all along due.
- *What’s wrong with my wife?*

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