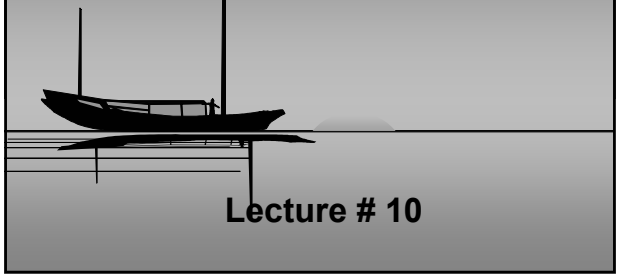
Cognitive Psychology

PSYC230-03B



Lecture # 10

Review – Retrieval processes

Why do we forget?

"Forgetting" is a failure to retrieve

Decay theory: Information disappears with disuse

Interference theory: Proactive and retroactive interference

Encoding specificity: depends on the amount of contextual overlap between encoding and retrieval

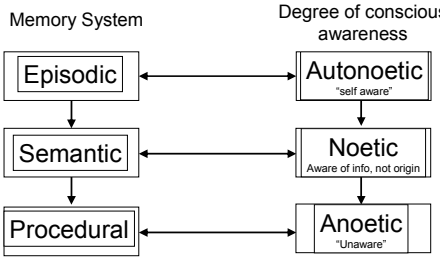
Other causes of forgetting:

1. medicines
2. exercise
3. stress
4. blood sugar
5. stimulants
6. sleep
7. organic amnesia
8. TGA & dissociative amnesia

Review – Retrieval processes

Different patterns of forgetting suggest different types of memories

Tulving's (1985) model



Today

Constructive Processes in Retrieval

Repressed & Recovered Memories

Memory for Names, People & Faces

Memory for Dreams

Remembering the Future

Constructive Processes in LTM

Recalling or recognising events and facts you've never seen, heard, or read

Memory contains a rich set of inter-related information present during encoding

Memory is not static!

Every time you access a memory trace the new context and new information can be added to the stored information.

Constructive Processes in LTM

Bransford & Franks (1971)

Presented participants with 1-idea, 2-idea, or 3-idea sentences:

The cat was scared.

The scared cat was running.

The cat running from the barking dog jumped on the table.

Tested with 1, 2, 3, or 4 idea sentences

The scared cat running from the barking dog jumped on the table.

Subjects were most confident that they had previously heard the 4 idea sentences (but they had never heard them)

Constructive Processes in LTM

Loftus & Palmer (1974)

Showed students a film of a multiple car accident

asked questions about what they had seen one week later

How fast were the cars going when they hit each other?

OR

How fast were the cars going when they smashed into each other?

Students who heard the word *"smashed"* rated the speed 10.5 mph faster than students who heard *"hit"*

Constructive Processes in LTM

Loftus & Palmer (1974)

When asked if they saw any broken glass 32% of those who heard *"smashed"* said they did, 14% of those who heard *"hit"* said they did, 12% of controls who had not been asked about speed said they did

There was no broken glass in the film

The students reconstructed the memory; combined the original memory with new information & car crash schema

Loftus and her colleagues have conducted more than 200 experiments involving over 20,000 individuals that document how exposure to misinformation causes memory distortion

Constructive Processes in LTM

Loftus (1975)

Phase 1: All participants watch film of car crash

Phase 2: Post-event questioning

Control group: *How fast was the white sports car going when it passed the stop sign?*

Misled group: *How fast was the white sports car going when it passed the barn while traveling along the country road?*

Phase 3: Later recall of film events

3% of controls reported seeing white barn
17% of misled group reported seeing white barn

There was no white barn in the film

Constructive Processes in LTM

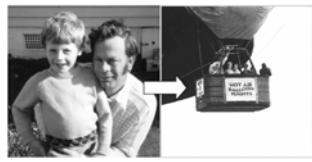
A picture is worth a thousand lies: Using false photographs to create false childhood memories

Wade, Garry, Read, & Lindsay (2002)
Victoria Uni & Uni of Victoria

20 "confederates" recruited a family memory to be in the study

3 true photos and one false photo

"Step-Wise" interview procedure -- 3 interviews over 2 weeks



Constructive Processes in Children's LTM

Sam Stone Experiment

Leichtman & Ceci (1995)

4 groups of children aged 3 to 6 yrs

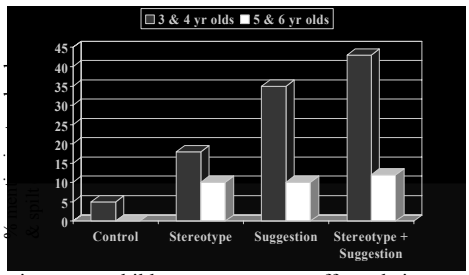
Control group – *"Sam Stone" visits pre-school classroom, strolls around & makes bland comments*

Stereotype group – *told stories about Sam Stone (nice but clumsy & bumbling) 1 a week for 3 weeks prior to visit*

Suggestion group – *two incorrect suggestions after visit; Sam Stone had ripped a book & spilled chocolate on a white teddy bear*

Stereotype + suggestion group – *told stories before visit & given suggestions afterwards*

Ten weeks later a new interviewer visits the class and asks individual children what Sam Stone had done during his visit



Exposing young children to stereotypes affects their memory

Young children are very suggestible witnesses

Constructive Processes in Children's LTM

Ceci & Bruck (1995)

For 10 consecutive weeks, preschool children were interviewed by a trained adult
Child shown set of cards, each w/ different event
Card read to child, asked if event ever happened to them

e.g., Got finger caught in a mousetrap and had to go to hospital to get the trap off.

"*Think real hard, and tell me if this ever happened to you. Can you remember going to the hospital with the mousetrap on your finger*?"

Constructive Processes in Children's LTM

After 10 wks, tested by new adult

Tell me if this ever happened to you… (e.g., mousetrap)
Can you tell me more? What did you see? Who was with you? etc. depending on each child's answers.

"*My brother Colin was trying to get Blowtorch from me, and I wouldn't let him take it from me, so he pushed me into the wood pile where the mouse trap was. And then my finger got caught in it. And then we went to the hospital, and my mommy, daddy, and Colin drove me there, to the hospital in our van, because it was far away. And the doctor put a bandage on this finger [indicating which].* "

58% of the preschoolers produced false narratives to one or more of the fictitious events, with 25% of the children doing so to most of the false events!

Constructive Process Theories

Vacant slot: original info never stored, post-event info inserted into vacant slot

Co-existence: both memories stored, most recent is usually recalled

Response bias: original info forgotten, choosing most recent information

Demand characteristics: both memories stored, recall what you think is wanted

Substitution: new information modifies/overwrites old information

Source monitoring: failure to discriminate source of information

Constructive Process Theories

Vacant slot: original info never stored, post-event info inserted into vacant slot

But -- evidence that 90% of subjects tested immediately after witnessing event (with no post-event information) are correct

Co-existence: both memories stored, most recent is usually recalled

No evidence that the original memory is recoverable (can't un-ring the bell)
Also maintaining two contradictory memories is a very inefficient system

Constructive Process Theories

Response bias: original info forgotten, choosing most recent information

No strong evidence for it (hard to test) & it appears to conflict with state-dependent memory experiments

Demand characteristics: both memories stored, recall what you think is wanted

Loftus offered students $25 for accurate recall (to change response incentive) -- still found distortions produced by misleading questions

Constructive Process Theories

Substitution: new information modifies/overwrites old information

Loftus' current favourite, accurately predicts initial memory strength & context effects

Source monitoring: failure to discriminate source of information

Ask 5 year-olds to imagine what it would *feel like* to do *X,* they will often report that *X actually happened*

They fail to report that the action had been imagined

Constructive Process Theories

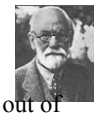
Little evidence for co-existence or demand hypotheses

Source monitoring failure accounts for some of the data, particularly with young children

Issue is whether new information can change an old memory or just add to it.
Some evidence for both; same effect, the original information is not available even though you may think it is

Repressed & Recovered Memories

Repression was one of Freud's defense mechanisms



Painful feelings or memories are pushed out of consciousness, though they still influence behavior

In psychoanalysis, patient is encouraged to speak freely, allowing the unconscious to come to the fore

"...the principal point is that I should guess the [traumatic] secret and tell it to the patient straight out... it is of use if we can guess the way in which things are connected up and tell the patient before we have uncovered it."

Repressed & Recovered Memories

Case #1: Nadean Cool - 1986

Nadean Cool, a nurse's aid in Wisconsin, sought therapy from a psychiatrist to help her cope with her reaction to a traumatic event experienced by her daughter

Psychiatrist used hypnosis and other techniques to uncover repressed memories of abuse that Cool herself had experienced

Ms Cool became convinced that she had repressed memories of: having been in a satanic cult, eating babies, being raped, having sex with animals, and being forced to watch murder of her 8-year-old friend

Repressed & Recovered Memories

Case #1: Nadean Cool - 1986

Dr. Kenneth Olson convinced her that she had 120 personalities (including a duck and angels), then billed her insurance company $300,000 for group therapy.

Cool eventually came to believe that false memories had been implanted and sued psychiatrist for malpractice (joined by her insurance carrier) in March, 1997, after 5 weeks of trial, her case was settled for $2.4 million

Repressed & Recovered Memories

Increasing numbers of people believe that they were sexually abused as children, but repressed the memory until it was later recovered, often with help of therapist

Stakes are high:
must find justice and safety for victims of abuse;
must prevent perpetrators from harming others;
must protect individuals from false charges that can destroy their lives

Are repressed memories real or false?

Repressed & Recovered Memories

The Two Camps

Recovered Memory Camp
- memories recovered in therapy must be taken seriously
- "false" memories are rare
- to doubt the memory is to betray children and support abusers

Pseudomemory Camp
- memories recovered in therapy should be viewed skeptically
- "false" memories can be manufactured by naïve/unscrupulous therapists
- there have been many false accusations

Expert panels convened by APA & BPA

Repressed & Recovered Memories

Expert panel convened by British Psychological Association

3 criteria required for evidence of a recovered memory

1. Whether the event actually occurred
2. Whether the event was actually unavailable from the time it happened until much later
3. Whether forgetting was result of repression or some other process

Panel concluded that so far there is no case that meets all 3 criteria
repression may occur (but very rare)
repression is certainly over-diagnosed

Repressed & Recovered Memories

Expert panel convened by American Psychological Association

3 clinicians & 3 memory researchers, after 2 years of work, unable to reach an overall consensus

Agreed:
most people abused as children remember what happened
it is possible to forget for a long time, then remember
it is possible to construct psuedomemories

Disagreement over:
"rules of evidence" for testing hypotheses
accuracy of memory over time
the frequency of psuedomemories
ease of distinguishing real memories from psuedomemories

"two different world views"

Repressed & Recovered Memories

Hypnosis and Past Life Regression

Spanos et al. (1991)

asked hypnotised subjects to "regress" back past birth to a past life

1/3 reported being able to do so

asked subjects to name leader of country, to say whether country was at peace or war, and to describe currency

subjects couldn't answer questions correctly

Repressed & Recovered Memories

Because false memories and errors are so common in hypnotically induced memories, the APA and the AMA (American Medical Association) oppose the use of "hypnotically refreshed" testimony in courts of law

My view:

Research data do not support repressed memory claims
(most contain gross inaccuracies and are the result of constructive processes or faulty source monitoring)

Victims of trauma often try not to think about event, sometimes they succeed

Not thinking about trauma does not imply that there is no memory for it

Memory for Names, People & Faces

Most of the time you don't have to work hard to find an item in memory

Retrieval is usually automatic, but when it's not you have to search

context failure & response competition
Tip-of-the-tongue (TOT) & blocking phenomena

"know and feel you ought to remember, but for the moment it is tantalisingly out of reach."

Memory for Names, People & Faces

Diary studies of TOT

Reason & Lucas (1984) Cohen & Faulkner (1986)

Most blocks were for proper names (77%)
friends, acquaintances, famous people, pop groups

Most of the names were remembered eventually
but 62% took more than 1 hour to recall

30% of the blocked names will spontaneously be remembered after some period of time
"Pop-ups"/ spontaneous recovery

Memory for Names, People & Faces

Diary studies of TOT

Search strategies used to find names included:

1. Generating names to fit partial information
"*girl's name, short, begins with A, Ann, Alice, …"*

2. Generating names to fit context
For a politician, search through names of all the politicians you can remember

3. Generating enriched context
re-living past encounters with the target person

Memory for Names, People & Faces

Williams & Hollan (1981)

Asked subjects aged 22 to 37 to recall as many names of their schoolfellows as possible

Recall sessions spread over a 2-week period, 10 hours total

Number of names recalled ranged from 84 to 214, new names were still being recalled at the end of the last session

Searching continued to produce more names, even though the participants had earlier been convinced they couldn't remember any more

Memory for Names, People & Faces

Williams & Hollan (1981)

"I'm trying to remember the name of this guy who used to - Art- He was in our 10 grade art class - He would also bring a whole lot of people to - At his house was the first time I heard a Jefferson Airplane album."

"I remember this girl who used to play the oboe, and it was junior year, she was our age - or was she older?"

Searching memory by constructing a context, using schemas, lifetime periods, and general events

When asked to recall names, what you find are the people and places, and then the names

Memory for Names, People & Faces

Names of Teachers

Whitten & Leonard (1981)

Asked university students to recall names of their schoolteachers, one from each of 12 years of school.

Some students told to search chronologically, beginning with the 1st grade

Some students told to search in backward order, beginning with the 12th grade

Other students allowed to search randomly

Backward-ordered search was best, faster and more names recalled correctly

Memory for Names, People & Faces

Memories of faces are stored holistically (not as individual elements) in the right hemisphere

Injury to the right cerebral cortex can result in prospagnosia, inability to recognise familiar faces

Memory for voices; separate from face memory, a different area of the right hemisphere

phonoagnosia – inability to recognise familiar voices

names are separate (left hemisphere)
anomia – inability to recall proper names

Memory for Names, People & Faces

Voice alone: 58% correct recognition
Face + voice: 99% recognition

But a high rate of false positives!

Both are difficult to recall

We recognise people, not their faces or voices

Little Red Riding Hood Effect
even a wolf looks like Grandma when its wearing her clothes

Constructive processes & memory for names, people & faces have significant implications for the justice system (forensic psychology)

Memory for Dreams

Why can't I remember my dreams?

Dream information shows a recency effect
if recall is not immediate it disappears

Dreams show state dependency effect
the dream disappears when you change the context (get out of bed, eat breakfast, etc.)

Dreams don't fit most schemas and scripts
you can't reconstruct what probably happened

Dreams show distinctiveness and emotion effects
unusual & emotional dreams are recalled better

Memory for Dreams

What if I want to remember my dreams?

Set the alarm for 1 hr prior to usual awakening

Rehearse dream while still in bed,
before the context is changed

Allow the cues to lead the recall,
don't try to force a linear or daytime script

Don't make too big a deal out of it!

Remembering the Future

Prospective Memory

Wilkins & Baddeley (1978)

Remembering intentions, plans, lists,
things to do in the future

Maintained for relatively short periods of time
(hours, days or weeks) and then discarded

Prospective memory is often negatively
correlated with retrospective memory!

(the absent-minded professor)

Remembering the Future

Prospective Memory

Prospective memory shows even greater
effects of ageing than other types of memory

People often resort to salient reminders
(string on the finger, writing on the hand)

The best method is to associate the tasks with
specific times *("pulses")* much better then
sequential "to-do" lists *("steps")*

"Go to library at 3.15" is better than
"Must get to the library before it closes"

Cue is in the environment (and it won't wash off)

Feeling of Knowing
(metaknowledge)

Refers to a range of knowledge states
about the accessibility of a memory

You're sure you don't know something
Confident you could recall if given enough time
You're sure that you know the right answer

If made quickly (no deliberation or reconstruction)
FOK judgements can be accurate indicators of
correct answers

Lesson: *don't change your test answers!*

No Laboratories next week
Tuesday -- Review for test

Questions?