

Senior Moments: Fact, Fiction, and Fixes

Catherine Weir, Summer term 2015

Introduction, Prospective Memory, Culture

Please pick up the handout and a pencil

F, F, and F

➤ **Fact:**

- a) Forgetting is important in memory.

➤ **Fiction:**

- a) Older adults in their absent-minded way miss more appointments than young adults.

➤ **Fix:**

- a) When there is an interruption in a prospective memory, take time to pause after dealing with the interruption to get back on track.

Outline & Task 1

- Outline for today's class:
 1. Basics about memory & studies of memory.
 2. Prospective Memory - remembering what you plan to do
 3. Cultural and Social Influences on Memory

- Tasks 1 & 2
 - True or False
 - Rating subjective age (how old you feel in general)
1 cm = 10 years

My objectives for this course

1. Help you understand more about *lapses of memory* -- such as going to a cupboard & forgetting what you went for
2. Acquaint you with some of the current research about memory.
3. Give a realistic idea about how memory can change with age.

Task 3 instructions

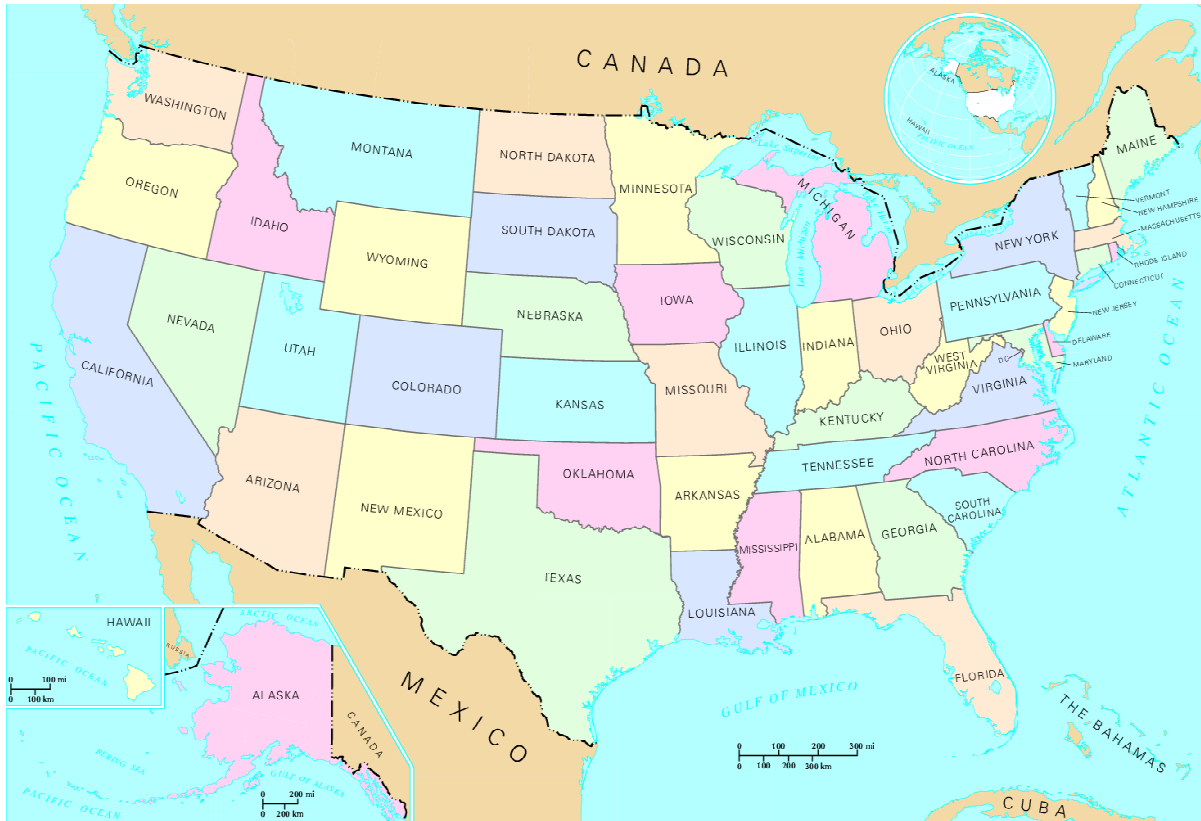
Essentials for memory to work



3 ways to test memory (retention, remembering)

1. **Recall: generate answers** - if you remember, you have greater accuracy
 - a. Have to generate own retrieval cues
2. **Recognition: choose from alternatives** - higher scores if you remember
 - a. Some cues are present in multiple-choice situations
 - b. Usually easier than recall; but some alternative options can make recognition more difficult
3. **Relearning** - if you remember, it is faster/better 2nd time
 - a. Cues to learning are present
 - b. Usually the easiest test of memory

Some possible retrieval strategies



- A. Alabama, Alaska, Arizona, Arkansas
- B. --
- C. California, Colorado, Connecticut
- D. Delaware, DC
- E. --
- F. Florida
- G. Georgia
- H. Hawaii
- I. Idaho, Illinois, Indiana, Iowa
- J. --
- K. Kansas, Kentucky
- L. Louisiana
- M. Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana

General points about memory

- Memory is remarkably good, but fallible.
- *Seven sins of memory*: memory's vices are probably the consequences of memory's virtues Schacter, 2001

Vice	Virtue

Authors I have relied on most for this class

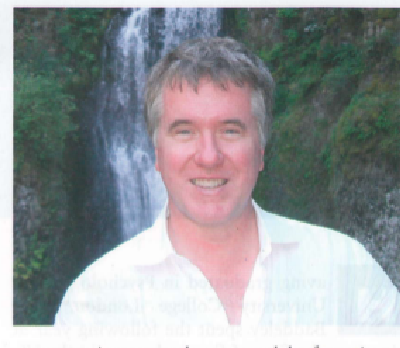
Alan Baddeley



Michael Eysenck



Michael Anderson



***Memory* (2009).** Psychology Press. Baddeley, Eysenck, Anderson

***Fundamentals of Cognition* (2013).** Psychology Press. Eysenck

Is there a natural order to talk about memory research?

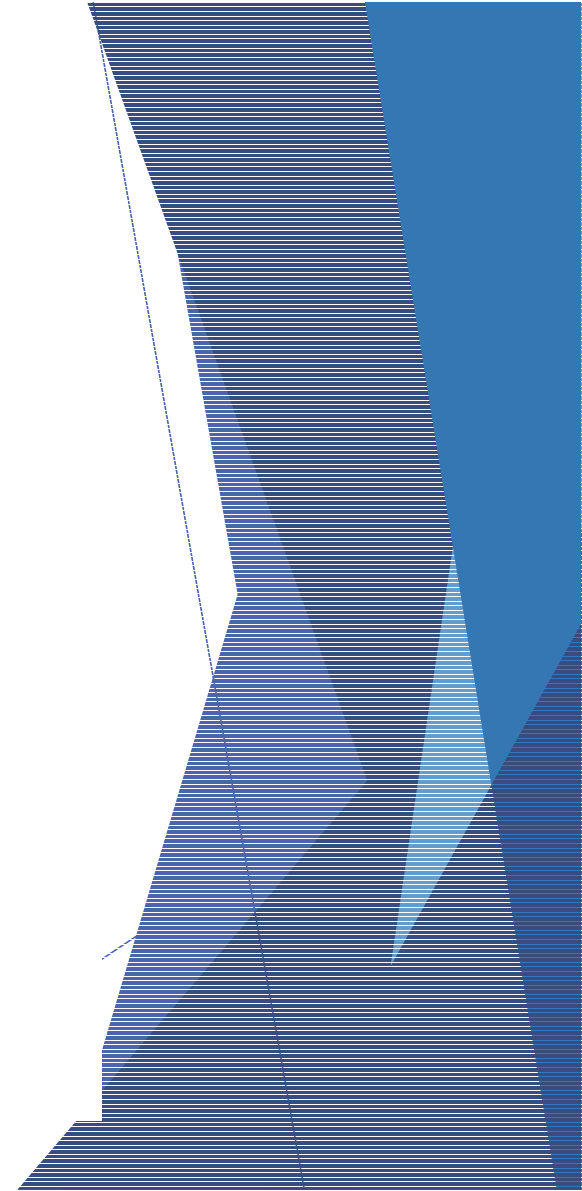
- Follow the **movement of information through memory system**.
 - 2nd, 3rd weeks ■ Perceive information, Short-term/Working memory, Long-term Memory, Retrieve
 - 1st, 4th weeks ■ Some research topics not covered: social-cultural influences on memory, prospective memory, physical exercise, dementia
- Follow a **chronological sequence** of studies - Historical approach.
 - This gives more weight to dates than concepts.
- Follow a **technological sequence** for assessing memory
 - Pen-and-paper studies, Reaction time studies (millisecond timers), Brain scans (\$\$\$), Microscopic look at neural function (DNA, RNA).
 - Might not focus on issues of special interest to OLLI members.

* Prospective memory * tasks

What is prospective memory? Remembering to do something in future without being prompted.

- Paying bills
- Grab jam from fridge
- Topic in conversation
- Child in car

Both prospective & retrospective memories often occur together. There are some differences.



What's known about prospective memory?

- ❑ TYPES: Time-based, Activity-based, vs. Event-triggered memories
 - TIME: Call Sally every Sunday. Or come to class on Monday 11:50.
 - ACTIVITY: Call Sally after you get home from OLLI lecture.
 - EVENT: Call Sally when you happen to meet Harry in town.

- ❑ **Event-based prospective memory is better**
 - Memory better for event (52%) than time-based (33%) tasks. Sellen, 1997
 - How often rehearse the memory - more rehearsal for time-based memories. Kvavilashcili & Fisher, 2007.
 - Event memories might be better because the retrieval cue is **specific**. Hicks et al. 2005

- ❑ Typically
 - People (of all ages) report 15 prospective memories/week. Only 3% forgotten.
 - Age paradox: Prospective memory declines with age but older adults are **better** than younger adults in naturalistic settings. Kvavilashcili

Age declines in prospective memory?

- Like retrospective memory, prospective memory declines with age (Uttl, 2008). Event-based memories are less affected by age than time-based or activity-based.
- Internet study (Maylor & Logie, 2010)
 - 73,000 participants completed questionnaires on BBC site (note that ~half sample were in 20s, less 1% in 70s).
 - Asked to “click the 😊 when it appears.
 - Findings: Decline in remembering to click 😊 with age.

	20's (34K)	30's (19K)	40's (11K)	50's (6K)	60's (2K)	70's (340)
Remember	65%	58%	51%	43%	35%	33%

Task complexity is important

Martin & Schumann-Hengsteler 2001

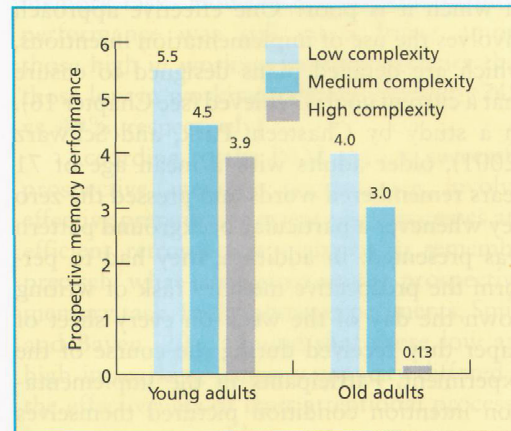


Figure 15.3 Prospective memory performance in young and older adults as a function of central task complexity. From Martin and Schumann-Hengsteler (2001). Copyright © Psychology Press.

24-year olds vs. 69-year olds

Main task: Mastermind game - discover colors & positions of a set of hidden pins. Complexity measured by number pins & informative feedback.

Prospective task: Change the response sheet every 3 minutes

Fixes: How to improve prospective memory?

➤ Suggestions?

- Write it down - calendar, smartphone, stickies
- Program reminders - tie string on finger, alarm clock, leave stuff near place where needed
- Avoid interruptions or take time to make new action plan after interruption
- Program cues for memory rather than leaving it to chance (reminder on Sunday night for Monday am)
- Use more specific cues (clean car windows *every time dirty* vs keep car windows clean)

RESEARCH on Overcoming Prospective Memory Lapses

1. AVOID INTERRUPTIONS

Example of pilot errors, driving interruptions. Preplanning or external mnemonic (event) helped get back on track after interruption.

- a) PLANNING equalized performance on prospective memory for young & old. Shum et al. 2013
- b) Interruption in time-based prospective memory overcome by EXTERNAL EVENT. McDaniel et al. 2004

2. CONTEXT - when planning for a prospective memory task, make note of a context when the task will be done.

- a) EXPECTED CONTEXT makes event-based prospective memory better: 71% memory when event was in the expected context (in 3rd part of study); only 48% when unpredictable. Cook 2005
- b) Memory was better when event cue MATCHED how you expect to retrieve the memory. Hanon & Daneman 2007

3. AVOID REPEATED CHECKING

Less likely to remember prospective memory task when it has been repeated over and over. Example of turning off stove (Radomsky et al., 2006).

4. REHEARSE PLANS TO DO PROSPECTIVE TASK -

71-year olds remembered words and pressed zero key when a specific pattern appeared. In one group, they pictured themselves writing day of week on response sheet and said this aloud. That group remembered the day-of-week task at 57% accuracy vs 22% without detailed plans (Chasteen et al., 2001).

Tip-of-the-tongue demonstration (Salthouse & Mandell 2013)

Recognition test after question. For instance --

11. Tatum Geisel Theodore Gunter

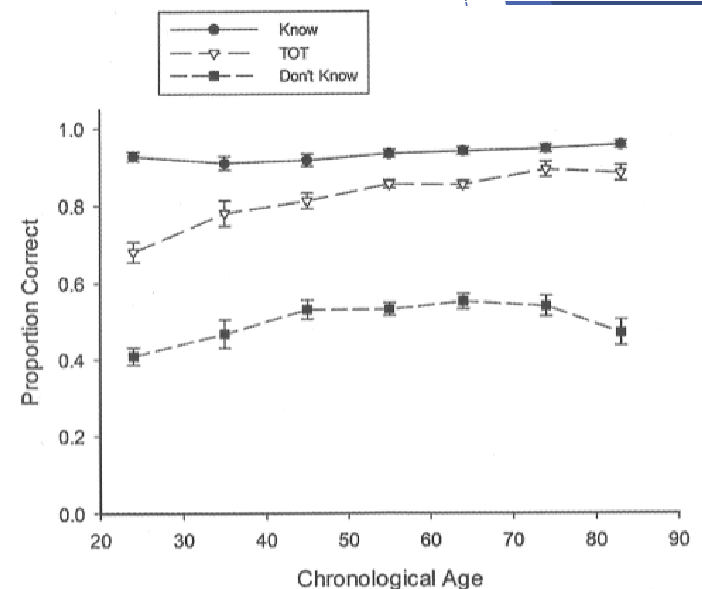
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In study, tip-of-the-tongue answers for ~25% of group of 300 people (25 to 85 years old)

When guessing about the words in “might-know” category,

- Mostly correct 1st letter
- Mostly correct on number of syllables
- Competing answers were often similar in sound

Retrieval
Individual's ideas



Social & Cultural Influences on memory



Basic Research on Social & Cultural Influences on Memory

- Attitudes - how people view an older adult
- Many factors contribute to memory performance Blanchard-Fields et al., 1992
 - Goals, ability, health of *individual*
 - Features of *task* itself
 - **Cultural context**
- Levy & Langer 1994

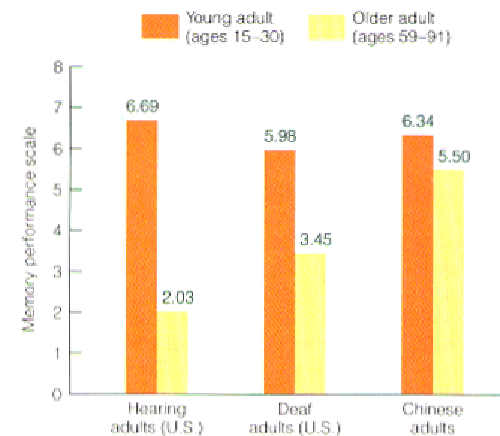


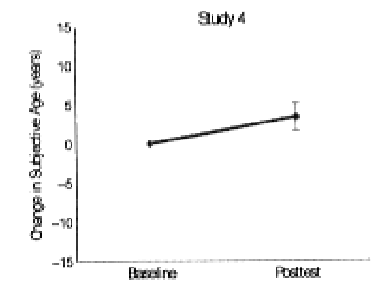
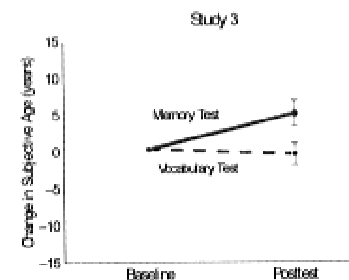
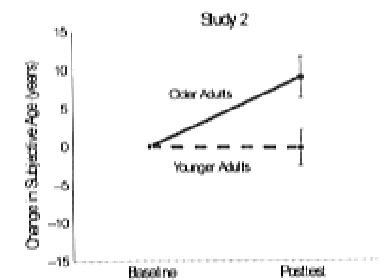
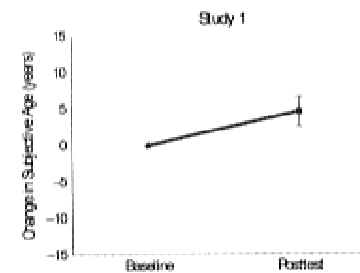
Figure 8.8 Declines in memory skills in old age are not universal. In deaf culture and in Chinese culture, elderly people are not stereotyped as forgetful or senile. Perhaps as a result, Chinese elders perform almost as well as young Chinese adults on memory tasks, whereas in the United States, elders, especially in the hearing population, perform poorly.

Source: Adapted from Levy & Langer (1994)

Aging 5 years in 5 minutes

Hughes, Geraci, DeForrest 2013

- Among demographic questions, people were asked to indicate how old they feel *before* other tests.
- Subjective age is usually underestimate of chronological age for older adults.
- Gave groups several cognitive tests including one on memory for 30 nouns.
- Participants rated how old they felt *after* the memory test. **BASE**
 - Study 1 75-yr olds increased by 4 yrs (59).
 - Study 2 61-yr olds increased by 10 yrs (51).
 - Study 3 59-year olds increased by 5 yrs (52).
 - Study 4 60-year olds increased by 5 yrs (51).



Inducing a Stereotype Becca Levy 1996

- 90 seniors (60+ years) participated in several tasks
 - Primed stereotype with words: too-fast-to-recognize, slow-enough-to-register
 - Positive group “saw” guidance, wise, alert, sage, learned, astute, insightful
 - Negative group “saw” decline, senile, forgets, confused, incompetent
- Participants took several memory tests
 - Visual dot location - recall where dots were - tested immediately, after 1 minute, after 8 minutes
 - Photo of face and activities (She swims every day), then showed face, remember activity
 - Verbal task - hear 15 words (1 per second) from 3 categories then recall them
- Results demonstrated that the type of stereotype suggested by the blurry words influenced the memory test results for the seniors.

Stereotype	Dots: immed memory	Dots memory 1-minute	Dots memory 8-minutes	Photo recall	Verbal recall
Positive aging	3.4 to 4.4	5.5 to 6.0	5.3 to 5.5	4.2 to 5.6	7.6 to 7.6
Negative aging	4.4 to 2.7	6.0 to 5.6	5.9 to 4.8	4.8 to 5.0	7.8 to 7.1

6/26/2015

How long does stereotype influence memory?

Levy et al. 2011 - An individual's attitude make a difference

- Recruited people from long-term study in Baltimore
 - Asked individual about stereotype of 'old people'
 - Given visual recall test - look at figure for 10 s, draw it
- Two groups were formed based on stereotype quiz
 - More positive stereotype for age had better memory scores than more negative stereotype group: 30% more decline for those who believed negative stereotype more.
 - The difference between the groups with positive and negative stereotypes was bigger the older the person was.
 - At 70 yr, memory like 73 year old for negative stereotype believers
 - At 80 yrs, memory like 86 year old
 - At 90 yrs, memory like 99 year old

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How long does stereotype influence a person?

Levy et al. 2011

- **Memory effects last over 38 years** Levy et al., 2011
- **Practical implications**
 - **Driving** Levy et al., 2013
 - ~900 seniors interviewed over 2 years about adverse driving events.
 - Those who thought they had better-than-average driving abilities had fewer adverse events.
 - **Balance & Posture** Levy & Leifheit-Limson 2009
 - ~115 seniors (60+ year, average 75) on task: sit down, rise without hands for 5 times
 - Those primed with positive physical words (fit, hardy) had better balance scores than those primed with negative physical words (feeble, shaky).

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SUMMARY OF CLASS

- Memory requires encoding, storage, & retrieving information.
- Memory is tuned to practical matters: its vices (remember gist, not details) probably give rise to its virtues.
- Prospective memory - remembering what you plan to do without prompting. Fix by rehearsing specific retrieval cues; setting up retrieval expectations; finding external cue.
- Social & Cultural aspects of memory: positive beliefs can enhance memory scores; negative beliefs can depress scores.

F, F, and F

➤ Fact:

- a) Forgetting is important in memory.
- b) Memory in older adults declines less in cultures with positive attitudes toward older adults.
- c) What individuals believe about aging influences their memory scores.

➤ Fiction: Older adults in their absent-minded way miss more appointments than young adults.

➤ Fixes:

- a) When there is an interruption in a prospective memory, take time to pause after dealing with the interruption to get back on track. Check-list is useful. Set up specific retrieval cues.
- b) Expose yourself to positive aspects of aging to enhance memory scores.