

Encoding specificity

IIE 269: Cognitive Psychology
 Greg Francis
 Lecture 19

What to do if you are drunk while studying for an exam.

Context

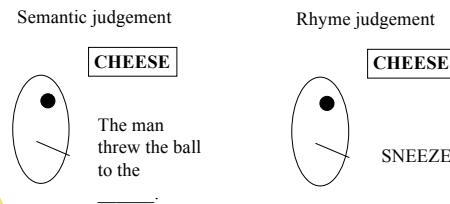
- The context within which you learn and recall can have a profound impact on your memory
 - e.g., part-set cueing
 - given part of a set that has been learned, subjects recall *fewer* of the *remaining items* than with normal free recall
- Demonstration

Context

- The effect of part-set cueing suggests that to measure memory you must consider the conditions at *test*
- More generally,
 - the effort and conditions at the time of learning must be consistent with the properties and conditions of the test
- *Encoding specificity principle*

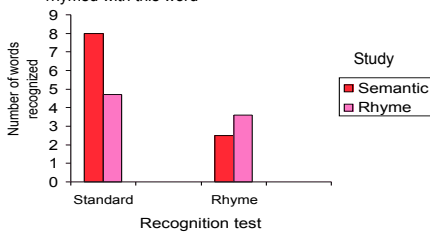
Representative study

- Subjects in two groups
 - see the same words, but have different tasks



Test

- Each group is then split into two subgroups
 - 1) Normal recognition task
 - 2) Shown a word and asked if any of the target words rhymed with this word



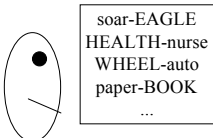
Significance

- It is not that one learning strategy is better than the other
 - or that one testing strategy is better than the other
- Encoding (learning) of information and recall of information need to match
 - “synergistic ecophory”
- This means it is very difficult to test for absolute memory
 - subject’s performance depends on *many* factors


Encoding specificity

- The cues available to recall must match the cues available during encoding
 - Tulving & Osler (1968)

Cue



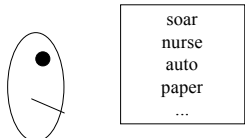
No cue



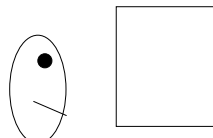
Encoding specificity

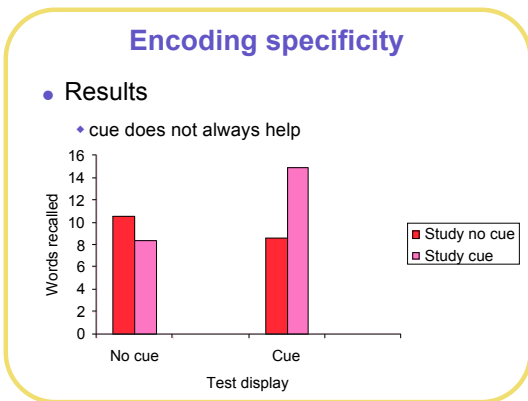
- Each group split into two groups for testing recall
 - cue is *always* related to target word

Cue



No cue

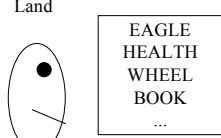





Surrounding context

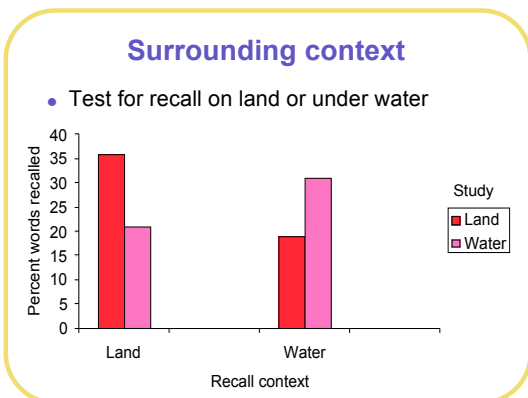
- Deep-sea divers learn words, either
 - on land
 - under water

Land



Water





Significance

- Decompression tables for divers
 - want to remember when under water
 - generally study while on land
- How do you know if something is forgotten?
 - changing context may allow subject to recall seemingly forgotten information
 - forgetting = retrieval problem?

Forgetting

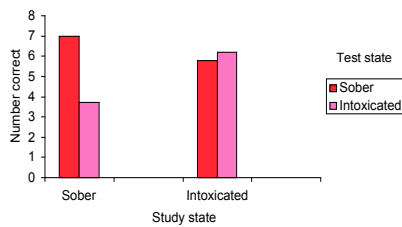
- Forgetting is not always a characteristic of a memory system, or your brain
 - ♦ although it could be in some cases, it is not always
- Forgetting *must* be defined operationally
 - ♦ specify the task and context of retrieval
 - ♦ You can never be certain that if you are placed in a different context you will still show forgetting

Internal context

- Goodwin et al. (1969)
 - ♦ Subjects drink 10 oz. 80 proof vodka
 - ♦ or a similar tasting drink
- Subjects are sober or intoxicated at
 - ♦ study
 - ♦ test
 - ♦ both
 - ♦ neither
- Test memory

Internal context

- Best recall if study and test states are the same

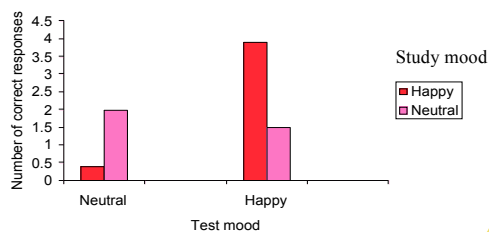


Testing

- So, if you are intoxicated while studying for an exam
 - ♦ and you didn't study before
- You should be intoxicated while taking the exam

Mood

- Subjects generally recall more if they are in an *unusual* state at study and at test
 - ♦ still show the encoding specificity effects



Classrooms

- Is memory better when you are tested in the same room as lectured?
 - ♦ significant for final exams!
- An early study found a drop in exam grades when exam was in a different room
- Modern studies do not find this drop
 - ♦ perhaps because modern classrooms are nearly all the same!

Conclusions

- Context
- Encoding specificity
 - ♦ memory best if study and test are similar
- Cues
- Environment
- State
- Mood

Next time

- How accurate are memories?
- How do we forget?
- Do we forget?
- Flashbulb memories
- CogLab on False memory due!

- *How good is eye-witness testimony?*