PSYC 20007
Cognitive Psychology
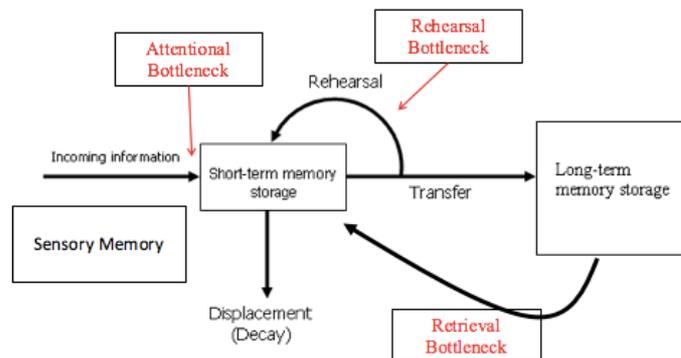
CONTENT

# Lecture 2: Recognition and Eyewitness Testimony

A. The Nature of Memory
   1. "Memory, like all other cognitive processes, is inherently constructive. Information from encoding and cues from retrieval…are all exploited to construct a response to a cue." – Surprenant & Neath (2009; *Principles of Memory*)
   2. Standard Model of Memory

   a.

B. Memory only as good as the details which are encoded
   1. Sensory limitations prevent all of the details of a scene or an event from being registered in memory
   2. Attentional bottleneck limits the amount of information that is perceived
   3. Distance affects perception
      a. The visual system spatially removes details (in proportion to distance)
   4. Distraction impairs encoding (which impairs memory)
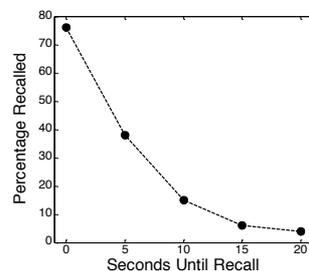
      a.
      b. Distraction interferes with memory
      c. The amount of interference increases, the longer you have to wait before recall
   5. Distinctive features attract attention (and are remembered better)
      a. Faces which are dissimilar to prototypical or average faces are easier to remember
      b. Attractive & Unattractive faces are recalled better than moderately attractive faces
      c. Weapon focus = the concentration of some witness's attention on a weapon – the barrel of a gun or the blade of a knife – during a crime, leaving less attention available for viewing other items
         i. People fixate faster and for longer on unusual (i.e. salient) or highly informative (i.e. valid) objects

C. Memory is reconstructive
   1. What we retrieve from memory depends on the details which cue that memory
   2. **Schema**
      a. A schema is a concept or set of ideas or a framework for representing some aspect of the world.
      b. Also called frames, mental sets or scripts but can be generally thought of as a concept.
      c. Schemata influence how you interpret new information and play a large role in determining what you pay attention to when learning (i.e., what is valid for your current understanding of the situation). Schema determine what you learn and how you represent that knowledge.

- i. This is often very beneficial. Providing a schema improves comprehension and recall for passages.
- ii. But it can also lead to distortions in memory:
  - Information which is inconsistent with the schema is often reinterpreted or distorted to fit the schema
  - Schema are very hard to change; even in the face of contradictory information

Condition 1:
"Study this item. This is a pair of eye glasses"

Condition 2:
"Study this item. This is a dumbbell"

- d. E.g.
  - i. The middle image is stereotyped towards the condition given previously
3. Sir Frederick Barlett (1932)
   - a. Studied memory by having subjects memorize stories or pictures and examining how those memories changed over time
   - b. Presented British participants with a Native American folk tale called The War of the Ghosts:
   - c. Bartlett's Experiment
     - i. Bartlett read the story aloud, then immediately asked the person to repeat it back.
     - ii. <u>Repeated Reproduction</u>: Several days or weeks later, go back and have the same person repeat what he remembered again.
     - iii. Analysis of changes
       - General outline stays constant for each subject after first recall →whatever you get wrong at the first recall will be remembered longer
       - Style and rhythm are altered
       - Forms and items become stereotyped
       - Story is rationalized; meaning of various symbols is added
       - With infrequent reproduction, details are omitted or simplified and items be transformed to more familiar forms

D. Expectations can be manipulated
1. Because memory for detail is poor, people can be influenced by questions which suggests specific expectations
2. E.g. People are not accurate when reporting numerical details (e.g., time, speed & distance)
   - a. Speed estimates ranged between 10 and 50 mph for a car travelling at 12 mph
3. Loftus & Palmer (1974)
   - a. Participants viewed slides of a traffic accident
   - b. Following the slides, they were asked to make an estimate of how fast the car was going when it _____ into the other car
     - i. Hit, smashed, collided, bumped, contacted
   - c. the word provides a cue which is used to extract a schema of the events
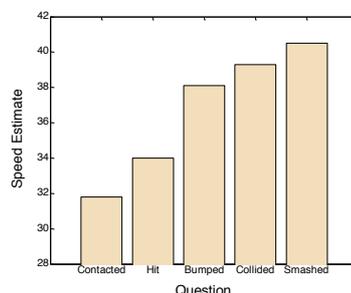
4. False Memories
   - a. People can remember entire scenes that did not happen
   - b. The number of false assertions incorrectly remembered increases
5. Misinformation
   - a. When you KNOW the cue is misleading
   - b. It is very difficulty to remove the influence of misinformation
   - c. *Continued influence effect*

     i. The persistent reliance on misinformation even when people can recall a correction or retraction

  d. Johnson & Seifert (1994) – Warehouse fire

     i. Control Condition

     ii. Immediate discounting condition

     iii. Delayed discounting condition


Use of Negligence Misinformation
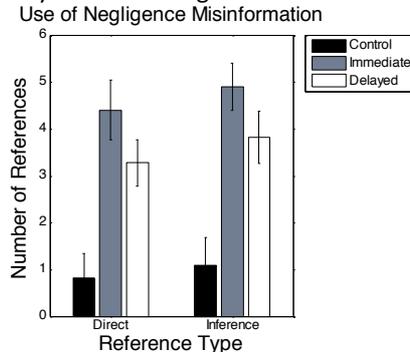
     iv.

      - Misinformation results in more references to negligence

      - No difference in recall of retraction (100% immediate vs 90% delayed)

      - Even when you KNOW something has been retracted, it still influences your memory

  e. The causal role of misinformation

     i. Inferences based on misinformation only occurred when the volatile materials could have been the cause of the fire

     ii. No increase in misinformation when the volatile materials were mentioned as being located in a store across the street

     iii. Not just recall alone but incorporation into the overall schema of the event

     iv. Implication: Corrections are more effective when they contain an alternative causal story

     v. Alternative theory group:

      - No volatile materials were found but suspicious petrol soaked rags were found near the closet (not negligence but arson)

      - In this case, the number of negligence inferences drops back to control levels

  f. Practical Importance of Misinformation

     i. Mock jurors continue to rely on inadmissible evidence even when they claim to have obeyed instructions to ignore it

     ii. Misinformation and Propaganda

      - E.g. MMR vaccines cause autism

      - E.g. Iraq had WMD's, that is why the USA invaded

6. Skepticism

  a. If memory is mostly expectation, then having a causal alternative explanation can shield you from misinformation

E. Memory is context-dependent

  1. Context and Memory

    a. Stimuli are made up of a multitude of different features or dimensions that can be used to guide attention (encoding) and retrieval

    b. Examples: Words

      i. Orthography, Semantic Meaning, Grammar, Syntax

    c. Memory Traces (more generally)

      i. Perceptual features, Semantic Meaning, Action

      ii. <u>Context</u>

    d. Divers learned lists of words

      i. on dry land

      ii. Or underwater

    e. Recalled the words in

      i. original learning environment
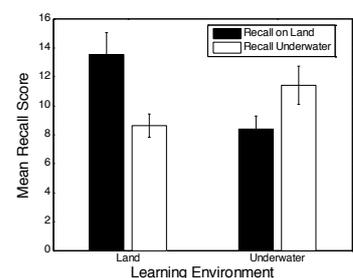
ii. or in the alternative environment
f. Lists learned underwater were best recalled underwater, and vice versa
g. Testing effect: Context helps later retrieval
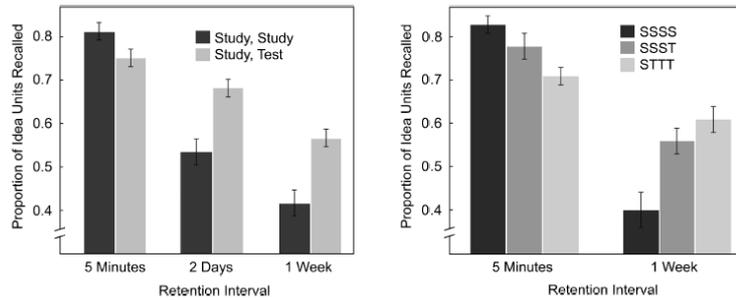
i.
ii. Because the final test will be a recall test, practicing that recall by testing yourself under similar conditions means that there will be a context match between study and the final test

SUMMARY
1. **Memory only as good as the details which are encoded**
   - Memory of details is only as good as the perception of those details
   - Attention, salience & distraction affect what "gets in" to memory
2. **Memory is reconstructive**
   - **Schema**
     - Recollections were altered in the direction of the label
     - Knowledge of the item superseded the actual details of the studied item
   - Memory is comprised of specific details & theory or expectation of how those details fit together
   - If not recalled, the details gradually are forgotten until only the gist of what occurred remains
3. **Expectation is manipulated**
   - Memory for details is poor and expectations can be easily manipulated
   - **False memory**
     - Providing a misleading cue affects how the schema is retrieved and altered to explain that detail
     - Big picture: Cues are data, the schema is a hypothesis which adapts to explain that data
   - **Misinformation**
     - Memory is comprised of a few salient details, but is "knitted together" at retrieval by expectation
     - Expectation can be altered through asking leading questions or presenting people with misinformation
     - Once misinformation is present, its influence is difficult to remove
   - **Skepticism**
     - Because our expectations affect what we remember, it makes particularly susceptible to misinformation
     - People are bad discounting incorrect information even when we know it is false
     - Unless we have a alternative theory (or schema) which explains the incorrect information
4. **Memory is context-dependent**
   - Memory is tied to the context in which it is formed