Memory

Multiple Types of Memory

Types of Memory?

- Memory as a unitary storage bin for information
  - All types of information
- Multiple memory systems
  - Used for storing different types of information
  - Functionally different
- Distinctions in both content and function

Types of Memory

- Semantic versus Episodic Memory
- Declarative versus Procedural Memory
- Explicit versus Implicit Memory

- Penfield (1955)
  - Topographic mapping
- Patients would sometimes recall episodes from childhood
- Would not recall general facts
- Penfield's conclusions
  - Long-term memories may be permanent
- Other researcher's conclusions
  - Distinctions between memory systems in the brain

Semantic Memory

- Contains general world knowledge
  - Facts not unique to us
  - Not tied to the time when the information was learned.
- Involves a different memory system than episodic memories

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Episodic
(specific episodes)

Semantic
(general knowledge)

Episodic Memory

- Autobiographical memory
  - Personal experience
  - Context within which the experience occurred
- Research into episodic memory has focused on flashbulb memories

Flashbulb Memories

- **A**rousing, surprising or emotional.
- Usually more detailed
- Personal memories
- Shared memories
  - Dramatic public event
  - Loved by episodic memory researchers

Flashbulb Memory Characteristics

- Determinants of flashbulb memories
  - High level of surprise
  - High level of emotional arousal
  - High perceived importance
- More likely to be rehearsed
- Involve positive as well as negative life events

Flashbulb Memory Content

- Injuries or accidents to self or friends
  - 18%
- Sports, love relationships, animals, events from first week of college
  - Commonly listed
- Events of national importance
  - 3%

Flashbulb Memory
Duration and Accuracy

- What we believe
  - Flashbulb memories are especially vivid
  - Remember all the details surrounding the event
  - Memory endures
- What researchers believe
  - Flashbulb memories are no more accurate than normal memories
  - Fade with time
  - Just <u>feel</u> special because of the emotion surrounding the event

Semantic/Episodic Memory
Distinction

- Clear content distinction
  - General knowledge in semantic memory
  - Personal (autobiographical) information in episodic memory
- Not a clear functional distinction
  - No evidence of different support structures
  - No evidence of different encoding processes
- Procedural versus Declarative Memory

Declarative Memory

- **Declarative memories**
  - Memory for factual information
- Contains both episodic and semantic memory
- Contains information you can tell (declare) to someone else.

Procedural Memory

- **Procedural memory** is memory for actions, skills and operations
- Difficult to describe information stored in procedural memory
- Evidence supporting functional distinction between declarative and procedural memory
  - Amnesiacs

Implicit versus Explicit Memory

- Implicit memory
  - Incidental, unintentional and unconscious remembering
- Explicit memory
  - Conscious
  - Accessed directly
  - Best assessed through recall and recognition measures of memory

Implicit Memory and Amnesiacs

- Memory tasks
  - Poor recognition and recall of word lists
    - fireplace, mystery,couch, bear, mouse, motion, clock, village, agonize, maul, letter, flower
  - Savings in relearning
- Problem solving tasks
  - Tower of Hanoi
  - Improved with practice
- Physical skills
  - Improve with practice
- Amnesiacs retain their past without specifically recalling it.

Implicit Memory Tasks

- Explicit memory tasks
  - Recall, recognition
- Implicit memory tasks
  - Word Fragment Completion
  - Homophone Spelling
  - Word Stem Completion

Implicit Memory Tasks (cont.)

- Homophone spelling
  - More likely to use less common spelling if previously seen it spelled that way on a prior task
- Word stem completion task
  - Door-   Fire-
  - Given a word that could have several possible endings will produce those that have been seen in a previous task