

Memory Processes

Once label information has been attended to, it must be coded in memory. How do these memory processes work? Many researchers who study memory propose separate mechanisms for concrete sensory objects versus abstract language. Sensory impressions are easier to recall than facts/principles.

For an overview of memory processes applied to visitor learning see Bitgood (1994a), "A Primer on Memory for Visitor Studies Professionals" in *Visitor Behavior*, 9(2), 4-8. The article reviews many of the concepts and discussed their importance to visitor studies.

Encoding information in memory is a critical process. The following concepts are relevant for enhancing memory:

- *Selective attention*: Labels should help focus attention on important information including critical characteristics of exhibit objects.
- *Rehearsal*: Repetition of important information will aid memory.
- *Elaboration*: Label information should be related to the visitors' existing knowledge and to information on other labels in the exhibition. The more meaningful connections that are made to other information, the easier it is to remember.
- *Organization*: How the label material is organized is critical to memory. If there is no clear organization to the visitor (no matter how organized it may seem to the label writer), memory will be easily lost.
- *Level of processing*: Increased cognitive effort has been shown to improve memory. However, the label designer must weigh the risk of asking too much of the visitors in terms of mental effort. Increased mental effort must involve a motivating aspect such as a game-like activity.
- *Imagery*: Visual images can have a powerful effect on memory. Museum exhibits, more than anything else, encourage visual imagery. Two-dimensional, text-heavy exhibits are not easily recalled (nor are they particularly interesting to visitors).

Concepts important for retrieval of information are:

- *Associative strength*: Words and concepts with strong associative strength (e.g., salt and pepper) are easier to recall.
- *Encoding specificity*: It is easier to recall information if the conditions for recall are similar to the conditions for learning.
- *Retrieval failure* (more often called forgetting): Forgetting is mostly due to interference from information learned before or after exposure to the information trying to be retrieved.

- *Reconstruction*: Distortions of memory are common because of the way we reconstruct information from the fragments stored in our memory banks.

Types of Memory

Declarative Memory

1. *Episodic memory*: Includes information that is stamped by a time and place. Sometimes called "biographical memory."
2. *Semantic memory*: Includes general knowledge of the world such as words, concepts, and general facts.
3. *Visual memory*: Recall of visual or pictorial events.

Procedural Memory

Memory of knowledge/skills that does not involve conscious effort. Solving a math problem, riding a bicycle, driving a car and playing the piano are examples of procedures that become automatic once they are learned.

Bitgood, S., & Cleghorn, A. (1995). Measuring the impact of interpretation: Close encounters with different kinds of knowledge. *InterpEdge*, 2(1), Winter, 1995.

This study assessed recall of museum exhibitions a day or two after a museum visit. University students received extra credit for visiting the Anniston Museum of Natural History over a weekend. When they returned to class on Monday, they were asked to recall objects, label information, and sensory information from each major exhibition area.

For each exhibition area, objects were most likely to be recalled. Recall of label information varied with exhibit area. Two areas with short, interesting labels resulted in the highest recall. Sensory information (sounds, temperature, etc.) also varied depending upon the characteristics of the exhibition area. Sensory recall (sound of water dripping, darkness, cool air) were most common in the simulated walk-through cave and least common in the Egyptian Mummy exhibition which lacked multi-sensory experiences.

Other References

- Visitor Behavior* (1994). Volume 9(2). A special issue on memory.
- McManus, P. (1993). Memories as indicators of the impact of museum visits. *Museum Management and Curatorship*, 12, 367-380.
- Falk, J. & Dierking, L. (1990). The relations between visitation frequency and long-term recollection. In S. Bitgood, A. Benefield, & D. Patterson (eds), *Visitor studies: Theory, research, and practice, vol. 3*. Jacksonville, AL: Center for Social Design. Pp. 94-103.