

for example, and try to visualize that person's face. Does he or she wear eye-glasses, and can you remember what they look like? Chances are you may remember verbally whether your friend wears glasses and then try to reconstruct visually what he/she looks like.

Researchers assume a strong connection between the verbal and imaginal systems, and for this reason, directions to form images and visual aids to instruction are both likely to enhance learning of some verbal material. Kosslyn (1980) suggested that images may be important to learning in enabling learners to represent what is not depicted in the instruction and then to transform these representations to facilitate comprehension and problem solving. Visual aids can function in the same way, particularly for learners with poor verbal skills (cf. Levin, 1983).

Retrieval of Learned Information

Once information has been stored in long-term memory, no matter in what form, it can be retrieved for use, retained over time, or forgotten. The process of **retrieval** from long-term memory is relatively simple to understand. Previously learned information is brought back to mind, either for the purpose of understanding some new input or for making a response. Using previous knowledge to understand and learn new material has already been discussed as encoding. But making a response based on previous knowledge raises the question, What kind of response? Consider the two questions below. Which question is likely to be more difficult to answer?

1. What does the word *esoteric* mean?
2. Which of the following words is the best synonym for *esoteric*?
 - a. essential
 - b. mystical
 - c. terrific
 - d. evident

Clearly, the first question is harder than the second because it provides fewer clues as to what the answer might be. This distinction between cued and noncued retrieval is the same as the difference between recall and recognition. To recall information, learners must both generate an answer and then determine whether it correctly answers the question. In recognition, however, potential answers are already generated, and the learner must only recognize which one is correct.

Recall. In free recall situations, learners must retrieve previously stored information with no cues or hints to help them remember. Subjects in many memory experiments, for example, are exposed to target information and then told to "write down everything you can remember about what you just read." Similarly, instructors ask such recall questions on tests as, "Write an