

## STUDY GUIDE

### 7A: Memory

#### UNIT OVERVIEW

Unit 7A explores human memory as a system that processes information in three steps. Encoding refers to the process of putting information into the memory system. Storage is the purely passive mechanism by which information is maintained in memory. Retrieval is the process by which information is accessed from memory through recall or recognition.

Unit 7A also discusses the important role of meaning, imagery, and organization in encoding new memories, how memory is represented physically in the brain, and how forgetting may result from failure to encode or store information or to find appropriate retrieval cues. The final section of the unit discusses the issue of memory construction. How “true” are our memories of events? A particularly controversial issue in

this area involves suspicious claims of long-repressed memories of sexual abuse and other traumas that are “recovered” with the aid of hypnosis and other techniques. As you study this unit, try applying some of the memory and studying tips discussed in the text.

#### UNIT REVIEW

First, skim each section, noting headings and boldface items. After you have read the section, review each objective by answering the fill-in and essay-type questions that follow it. As you proceed, evaluate your performance by consulting the answers. Do not continue with the next section until you understand each answer. If you need to, review or reread the section in the textbook before continuing.

#### The Phenomenon of Memory and Information Processing (pp. 255-278)

1. Learning that persists over time indicates the existence of \_\_\_\_\_ for that learning.

Objective 1: Describe Atkinson-Shiffrin’s classic three-stage processing model of memory, and explain how the concept of working memory clarifies the processing that occurs in short-term memory.

2. Both human memory and computer memory can be viewed as \_\_\_\_\_ - \_\_\_\_\_ systems that perform three tasks: \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. The model called \_\_\_\_\_ views memory as emerging from interconnected \_\_\_\_\_.
3. The classic model of memory has been Atkinson and Shiffrin’s \_\_\_\_\_ - \_\_\_\_\_ model. According to this model, we first record information as a fleeting \_\_\_\_\_, from which it is processed into \_\_\_\_\_ - \_\_\_\_\_ memory, where the information is \_\_\_\_\_ through rehearsal into \_\_\_\_\_ - \_\_\_\_\_ memory for later retrieval.
4. A modified form of this model accommodates two important new concepts. First, some information is processed \_\_\_\_\_ and \_\_\_\_\_ into long-term memory, without our \_\_\_\_\_ awareness.
5. Second, the phenomenon of short-term memory has been clarified by the concept of \_\_\_\_\_ memory, which focuses more on the \_\_\_\_\_ processing of briefly stored information. This form of memory processes incoming \_\_\_\_\_ as well as information retrieved from \_\_\_\_\_ - \_\_\_\_\_ memory.

Objective 2: Describe the types of information we encode automatically, and contrast effortful processing with automatic processing, giving examples of each.

6. Most computers engage in \_\_\_\_\_ processing of information. The human brain is capable of

\_\_\_\_\_ . Some processing requires effort at first but with \_\_\_\_\_ it becomes effortless.

Give examples of material that is typically encoded with little or no effort.

7. Encoding that requires attention and conscious effort is called \_\_\_\_\_ .
8. With novel information, conscious repetition, or \_\_\_\_\_ , boosts memory.
9. A pioneering researcher in verbal memory was \_\_\_\_\_. In one experiment, he found that the longer he studied a list of nonsense syllables, the (fewer/greater) the number of repetitions he required to relearn it later. Additional rehearsal (or \_\_\_\_\_ ) increases retention.
10. Memory studies also reveal that distributed rehearsal is more effective for retention; this is called the \_\_\_\_\_ .
11. The tendency to remember the first and last items in a list best is called the \_\_\_\_\_ .
12. People briefly recall the last items ill. a list quickly and well, called the \_\_\_\_\_ effect. Following a delay, first items are remembered (better/less well) than last items, called the \_\_\_\_\_ effect.

Objective 3: Compare the benefits of visual, acoustic, and semantic encoding in remembering verbal information, and describe some memory-enhancing encoding strategies.

13. Encoding the meaning of words is referred to as \_\_\_\_\_ encoding; encoding by sound is called \_\_\_\_\_ encoding; encoding picture images of words is \_\_\_\_\_ encoding.
14. Comparing visual, acoustic, and semantic encoding has shown that memory is best with \_\_\_\_\_ encoding. We have especially good recall for information we can meaningfully relate to ourselves, called the \_\_\_\_\_ effect.
15. Memory that consists of mental pictures is based on the use of \_\_\_\_\_ .
16. Concrete, high-imagery words tend to be remembered (better/less well) than abstract, low-imagery words.
17. Memory for concrete nouns is facilitated when we encode them both \_\_\_\_\_ and \_\_\_\_\_ .
18. Our tendency to recall the high points of events such as family vacations illustrates the phenomenon of \_\_\_\_\_ .
19. Memory aids are known as \_\_\_\_\_ devices.
20. Using a jingle, such as the one that begins "one is a bun," is an example of the \_\_\_\_\_ - \_\_\_\_\_ system.
21. Memory may be aided by grouping information into meaningful units called \_\_\_\_\_. An example of this technique involves forming words from the first letters of to-be-remembered word-; the resulting word is called an \_\_\_\_\_ .
22. In addition, material may be processed into \_\_\_\_\_ , which are composed of a few broad concepts

Objective 4: Contrast two types of sensory memory, and describe the duration and capacity of working/ short-term memory. .

23. Stimuli from the environment are first recorded in \_\_\_\_\_ memory.
24. George Sperling found that when people were briefly shown three rows of letters, they could recall (virtually all/about half) of them. When Sperling sounded a tone immediately after a row of letters was flashed to indicate which letters were to be recalled, the subjects were much (more/less) accurate. This suggests that people have a brief photographic, or \_\_\_\_\_, memory lasting about a few tenths of a second.
25. Sensory memory for sounds is called \_\_\_\_\_ memory. This memory fades (more/less) rapidly than photographic memory, lasting for as long as \_\_\_\_\_.
26. Peterson and Peterson found that when \_\_\_\_\_ was prevented by asking people to count backward, memory for letters was gone after 12 seconds. Without \_\_\_\_\_ processing, short-term memories have a limited life.
27. Our short-term memory capacity is about \_\_\_\_\_ chunks of information. This capacity was discovered by \_\_\_\_\_.
28. Short-term memory for random (digits /letters) is slightly better than for random (digits/letters), and memory for information we hear is somewhat (better/worse) than that for information we see.
29. Both children and adults have short-term recall for roughly as many words as they can speak in \_\_\_\_\_ (how many?) seconds.

Objective 5: Describe the capacity and duration of long-term memory, and discuss the biological changes that may underlie memory formation and storage.

30. In contrast to short-term memory – and contrary to popular belief – the capacity of permanent memory is essentially \_\_\_\_\_.
31. Psychologist \_\_\_\_\_ attempted to locate memory by cutting out pieces of rats' \_\_\_\_\_ after they had learned a maze. He found that no matter where he cut, the rats (remembered/forgot) the maze.
32. Researchers believe that the physical basis of memory, or the \_\_\_\_\_, involves a strengthening of certain neural connections, which occurs at the \_\_\_\_\_ between neurons.
33. Kandel and Schwartz have found that when learning occurs in the sea slug *Aplysia*, the neurotransmitter \_\_\_\_\_ is released in greater amounts, making synapses more efficient.
34. After learning has occurred, a sending neuron needs (more/less) prompting to fire, and the number of \_\_\_\_\_ it stimulates may increase. This phenomenon, called \_\_\_\_\_ - \_\_\_\_\_, may be the neural basis for learning and memory. Blocking this process with a specific \_\_\_\_\_, or by genetic engineering that causes the absence of an \_\_\_\_\_, interferes with learning. Rats given a drug that enhances \_\_\_\_\_ will learn a maze (faster/more slowly).
35. After LTP has occurred, an electric current passed through the brain (will/will not) disrupt old memories and (will/will not) wipe out recent experiences.
36. Hormones released when we are excited or under stress often (facilitate/impair) learning and memory.

37. Two emotion-processing clusters, the \_\_\_\_\_, in the brain's \_\_\_\_\_ system increase activity in the brain's memory-forming areas.
38. Drugs that block the effects of stress hormones (facilitate/ disrupt) memories of emotional events.
39. Memories for surprising, significant moments that are especially clear are called \_\_\_\_\_ memories. Like other memories, these memories (can/ cannot) err.

Objective 6: Distinguish between implicit and explicit memory, and identify the main brain structure associated with each.

40. The loss of memory is called \_\_\_\_\_. Studies of people who have lost their memory suggest that there (is/is not) a single unified system of memory.
41. Although amnesia victims typically (have/have not) lost their capacity for learning, which is called \_\_\_\_\_ memory, they (are/are not) able to declare their memory, suggesting a deficit in their \_\_\_\_\_ memory systems.
42. Amnesia patients typically have suffered damage to the \_\_\_\_\_ of their limbic system. This brain structure is important in the processing and storage of \_\_\_\_\_ memories. Damage on the left side of this structure impairs \_\_\_\_\_ memory; damage on the right side impairs memory for \_\_\_\_\_ designs and locations. The rear part of this structure processes \_\_\_\_\_ memory.
43. The hippocampus seems to function as a zone where the brain (temporarily/ permanently) stores the elements of a memory. However, memories (do/ do not) migrate for storage elsewhere. The hippocampus is active during \_\_\_\_\_ sleep, as memories are processed for later retrieval. Recalling past experiences activates various parts of the \_\_\_\_\_ and \_\_\_\_\_ lobes.
44. The cerebellum is important in the processing of \_\_\_\_\_ memories. Humans and laboratory animals with a damaged cerebellum are incapable of simple \_\_\_\_\_ conditioning.
45. The dual explicit-implicit memory system helps explain \_\_\_\_\_ amnesia. We do not have explicit memories of our first three years because the \_\_\_\_\_ is one of the last brain structures to mature.

Objective 7: Contrast the recall, recognition, and relearning measures of memory, and explain how retrieval cues can help us access stored memories.

46. The ability to retrieve information not in conscious awareness is called \_\_\_\_\_.
47. Bahrick found that 25 years after graduation, people were not able to (recall/ recognize) the names of their classmates but were able to (recall/ recognize) 90 percent of their names and their yearbook pictures.
48. If you have learned something and then forgotten it, you will probably be able to \_\_\_\_\_ it (more/less) quickly than you did originally.
49. The best retrieval cues come from the associations formed at the time we \_\_\_\_\_ a memory.
50. The process by which associations can lead to retrieval is called \_\_\_\_\_.

Objective 8: Describe the impact of environmental contexts and internal emotional states on retrieval.

51. Studies have shown that retention is best when learning and testing are done in (the same/different) contexts.

Summarize the text explanation of the déjà vu experience.

52. 'The type of memory in which emotions serve as retrieval cues is referred to as \_\_\_\_\_ - \_\_\_\_\_ memory.

53. Our tendency to recall experiences that are consistent with our current emotional state is called \_\_\_\_\_ - \_\_\_\_\_ memory.

Describe the effects of mood on memory.

54. People who are currently depressed may recall their parents as \_\_\_\_\_ . People who have recovered from depression typically recall their parents about the same as do people who \_\_\_\_\_ .

### Forgetting (pp. 278-285)

Objective 9: Explain why we should value our ability to forget, and discuss the roles of encoding failure and storage decay in the process of forgetting.

1. Without the ability to \_\_\_\_\_ , we would constantly be overwhelmed by information.
2. Memory researcher Daniel Schacter has identified the seven sins of memory, divided into three categories that identify the ways in which our memory can fail: the three sins of \_\_\_\_\_ , the three sins of \_\_\_\_\_ , and the one sin of \_\_\_\_\_ .
3. The first type of forgetting is caused by \_\_\_\_\_ failure.
4. This type of forgetting occurs because some of the information that we sense never actually \_\_\_\_\_ .
5. One reason for age-related memory decline is that the brain areas responsible for \_\_\_\_\_ new information are (more/less) responsive in older adults.
6. Studies by Ebbinghaus and by Bahrick indicate that most forgetting occurs (soon/a long time) after the material is learned.
7. This type of forgetting is known as \_\_\_\_\_ , which may be caused by a gradual fading of the physical \_\_\_\_\_ .
8. When information that is stored in memory temporarily cannot be found, \_\_\_\_\_ failure has occurred.

Objective 10: Explain what is meant by retrieval failure, and discuss the effects of interference and motivated forgetting on retrieval.

9. Research suggests that memories are also lost as a result of \_\_\_\_\_ , which is especially possible if we simultaneously learn similar, new material.

10. The disruptive effect of previous learning on current learning is called \_\_\_\_\_ .  
The disruptive effect of learning new material on efforts to recall material previously learned is called \_\_\_\_\_ .
11. Jenkins and Dallenbach found that if people went to sleep after learning, their memory for a list of nonsense syllables was (better/worse) than it was if they stayed awake.
12. In some cases, old information facilitates our learning of new information. This is called \_\_\_\_\_ .
13. Freud proposed that motivated forgetting, or \_\_\_\_\_ , may protect a person from painful memories.
14. Increasing numbers of memory researchers think that motivated forgetting is (less/more) common than Freud believed.

### Memory Construction (pp. 285-293)

Objective 11: Explain how misinformation, imagination, and source amnesia can distort our memory of an event, and discuss why it is difficult to distinguish between true and false memories.

1. Research has shown that recall of an event is often influenced by our experiences and assumptions. The workings of these influences illustrate the process of memory \_\_\_\_\_ .
2. When witnesses to an event receive misleading information about it, they may experience a \_\_\_\_\_ and misremember the event. A number of experiments have demonstrated that false memories (can/cannot) be created when people are induced to imagine nonexistent events, that is, these people later experience \_\_\_\_\_ . People who believe they have recovered memories of alien abduction and child sex abuse tend to have \_\_\_\_\_ .

Describe what Loftus' studies have shown about the effects of misleading post-event information on eyewitness reports.

3. At the heart of many false memories is \_\_\_\_\_ , which occurs when we \_\_\_\_\_ an event to the wrong source.
4. Because memory is reconstruction as well as reproduction, we (can/cannot) be sure whether a memory is real by how real it feels.
5. The persistence of a memory (does/does not) reveal whether it derives from an actual experience. Whereas real memories have more \_\_\_\_\_ , gist memories are more \_\_\_\_\_ .
6. Eyewitnesses' confidence in their memories (is/is not) related to the accuracy of those memories.
7. Memory construction explains why memories "refreshed" under \_\_\_\_\_ are often inaccurate.

Objective 12: Discuss whether young children's eyewitness reports are reliable and the controversy over reports of repressed and recovered memories.

8. Research studies of children's eyewitness recall reveal that preschoolers (are/are not) more suggestible than older children or adults. For this reason" whether a child produces an accurate eyewitness memory depends heavily on how he or she is \_\_\_\_\_ .

9. Children are most accurate when it is a first interview with a \_\_\_\_\_ person who asks \_\_\_\_\_ questions.
10. Researchers increasingly agree that memories obtained under the influence of hypnosis or using other “memory work” techniques (are/are not) reliable.
11. Memories of events that happened before age \_\_\_\_\_ are unreliable. This phenomenon is called \_\_\_\_\_.

### Improving Memory (pp. 293-294)

Objective 13: Explain how an understanding of memory can contribute to effective study techniques.

1. The SQ3R study technique identifies five strategies for boosting memory: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

Discuss several specific strategies for improving memory.

### PROGRESS TEST 1

#### Multiple-Choice Questions

Circle your answers to the following questions and check them with the answers beginning on page 162. If your answer is incorrect, read the explanation for why it is incorrect and then consult the appropriate pages of the text (in parentheses following the correct answer)...

1. The three steps in memory information processing are
  - a. input, processing, output.
  - b. input, storage, output.
  - c. input, storage, retrieval.
  - d. encoding, storage, retrieval.
2. Visual sensory memory is referred to as
  - a. iconic memory.
  - b. echoic memory.
  - c. photo memory.
  - d. semantic memory.
3. Echoic memories fade after approximately .
  - a. 1 hour.
  - b. 1 minute.
  - c. 1 second.
  - d. 3 to 4 seconds.
4. Which of the following is NOT a measure of retention?
  - a. recall
  - b. recognition
  - c. relearning
  - d. retrieval
5. Our short-term memory span is approximately \_\_\_\_\_ items.
  - a. 2
  - b. 5
  - c. 7
  - d. 10
6. Memory techniques such as acronyms and the peg-word system are called
  - a. consolidation devices.
  - b. imagery techniques.
  - c. encoding strategies.
7. One way to increase the amount of information in memory is to group it into larger, familiar units. This process is referred to as
  - a. consolidating.
  - b. organization.
  - c. encoding.
  - d. chunking.
8. Kandel and Schwartz have found that when learning occurs, more of the neurotransmitter \_\_\_\_\_ is released into synapses.
  - a. ACh
  - b. dopamine
  - c. serotonin
  - d. noradrenaline
9. Research on memory construction reveals that memories
  - a. are stored as exact copies of experience.
  - b. reflect a person’s biases and assumptions.
  - c. may be chemically transferred from one organism to another.
  - d. even if long term, usually decay within about five years.
10. In a study on context cues, people learned words while on land or when they were underwater. In a later test of recall, those with the best retention had
  - a. learned the words on land, that is, in the more familiar context.
  - b. learned the words underwater, that is, in the more exotic context.
  - c. learned the words and been tested on them in different contexts.
  - d. learned the words and been tested on them in the same

11. The spacing effect means that
  - a. distributed study yields better retention than cramming.
  - b. retention is improved when encoding and retrieval are separated by no more than 1 hour.
  - c. learning causes a reduction in the size of the synaptic gap between certain neurons.
  - d. delaying retrieval until memory has consolidated improves recall.
12. Studies demonstrate that learning causes permanent neural changes in the \_ of animals' neurons.
  - a. myelin
  - b. cell bodies
  - c. synapses
  - d. dendrites
13. In Sperling's memory experiment, research participants were shown three rows of three letters, followed immediately by a low, medium, or high tone. The participants were able to report
  - a. all three rows with perfect accuracy.
  - b. only the top row of letters.
  - c. only the middle row of letters.
  - d. anyone of the three rows of letters.
14. Studies of amnesia victims suggest that
  - a. memory is a single, unified system.
  - b. there are two distinct types of memory.
  - c. there are three distinct types of memory.
  - d. memory losses following brain trauma are unpredictable.
15. Memory for skills is called
  - a. explicit memory.
  - b. declarative memory.
  - c. prime memory.
  - d. implicit memory.
16. The eerie feeling of having been somewhere before is an example of
  - a. state dependency.
  - b. encoding failure.
  - c. priming.
  - d. déjà vu.
17. When Gordon Bower presented words grouped by category or in random order, recall was
  - a. the same for all words.
  - b. better for the categorized words.
  - c. better for the random words.
  - d. improved when participants developed their own mnemonic devices.
18. The three-stage processing model of memory was proposed by
  - a. Richard Atkinson and Richard Shiffrin.
  - b. Herman Ebbinghaus.
  - c. Elizabeth Loftus and John Palmer.
  - d. George Sperling.
19. Hypnotically "refreshed" memories may prove inaccurate-especially if the hypnotist asks leading questions-because of
  - a. encoding failure.
  - b. state-dependent memory.
  - c. proactive interference.
  - d. memory construction.
20. Which area of the brain is most important in the processing of implicit memories?
  - a. hippocampus
  - b. cerebellum
  - c. hypothalamus
  - d. amygdala
21. Which of the following terms does NOT belong with the others?
  - a. misattribution
  - b. blocking
  - c. suggestibility
  - d. bias

### Matching Items

Match each definition or description with the appropriate term.

#### Definitions or Descriptions

- \_\_\_\_\_ 1. sensory memory that decays more slowly than visual sensory memory
- \_\_\_\_\_ 2. the process by which information gets into the memory system
- \_\_\_\_\_ 3. mental pictures that aid memory
- \_\_\_\_\_ 4. the blocking of painful memories
- \_\_\_\_\_ 5. the phenomenon in which one's mood can influence retrieval
- \_\_\_\_\_ 6. memory for a list of words is affected by word order
- \_\_\_\_\_ 7. "one is a bun, two is a shoe" mnemonic device
- \_\_\_\_\_ 8. word that chunks to-be-remembered information into a more familiar form
- \_\_\_\_\_ 9. new learning interferes with previous knowledge
- \_\_\_\_\_ 10. a measure of memory
- \_\_\_\_\_ 11. old knowledge interferes with new learning
- \_\_\_\_\_ 12. misattributing the origin of an event
- \_\_\_\_\_ 13. the fading of unused information over time
- \_\_\_\_\_ 14. the lingering effects of misinformation

#### Terms

- a. repression
- b. relearning
- c. serial position effect
- d. persistence
- e. peg-word system
- f. acronym
- g. proactive interference
- h. transience
- i. retroactive interference
- j. source amnesia
- k. suggestibility
- l. imagery
- m. mood-congruent memory
- n. echoic memory
- o. encoding

## PROGRESS TEST 2

Progress Test 2 should be completed during a final unit review. Answer the following questions after you thoroughly understand the correct answers for the section reviews and Progress Test 1.

### *Multiple-Choice Questions*

- Which of the following best describes the typical forgetting curve?
  - a steady, slow decline in retention over time
  - a steady, rapid decline in retention over time
  - a rapid initial decline in retention becoming stable thereafter
  - a slow initial decline in retention becoming rapid thereafter
- Jenkins and Dallenbach found that memory was better in people who were
  - awake during the retention interval, presumably because decay was reduced.
- Which of the following measures of retention is the least sensitive in triggering retrieval?
  - recall
  - recognition
  - relearning
  - They are equally sensitive.
- Amnesia victims typically have experienced damage to the
  - frontal lobes
  - cerebellum
  - thalamus
  - hippocampus
- According to the serial position effect, when recalling a list of words you should have the greatest difficulty with those
  - at the beginning of the list.
  - at the end of the list.
  - at the end and in the middle of the list.
  - in the middle of the list.
- Experimenters gave people a list of words to be recalled. When the participants were tested after a delay, the items that were best recalled were those
  - at the beginning of the list.
  - in the middle of the list.
  - at the end of the list.
  - at the beginning and the end of the list.
- Which type of word processing-visual, acoustic, or semantic-results in the greatest retention?
  - visual
  - acoustic
  - semantic
  - Acoustic and semantic processing are equally beneficial.
- Lashley's studies, in which rats learned a maze and then had various parts of their brains surgically removed, showed that the memory
  - was lost when surgery took place within 1 hour of learning.
  - was lost when surgery took place within 24 hours of learning.
  - was lost when any region of the brain was removed.
  - remained no matter which area of the brain was tampered with.
- The disruption of memory that occurs when football players have been knocked out provides evidence for the importance of
  - consolidation in the formation of new memories.
  - consolidation in the retrieval of long-term memories.
  - nutrition in normal neural functioning.
  - semantic encoding of recent information.
- Long-term potentiation refers to
  - the disruptive influence of old memories on the formation of new memories.
  - the disruptive influence of recent memories on the retrieval of old memories.
  - our tendency to recall experiences that are consistent with our current mood.
  - the increased efficiency of synaptic transmission between certain neurons following learning;
- Repression is an example of
  - encoding failure.
  - memory decay.
  - motivated forgetting.
  - a memory trace.
- Studies by Loftus and Palmer, in which people were quizzed about a film of an accident, indicate that
  - when quizzed immediately, people can recall very little, due to the stress of witnessing an accident.
  - when questioned as little as one day later, their memory was very inaccurate.
  - most people had very accurate memories as much as 6 months later.
  - people's recall may easily be affected by misleading information.
- Which of the following was NOT recommended as a strategy for improving memory?
  - active rehearsal
  - distributed study
  - speed reading
  - encoding meaningful associations
- The process of getting information out of memory storage is called
  - encoding.
  - retrieval.
  - rehearsal.
  - storage.
- Amnesia patients typically experience disruption of
  - implicit memories.
  - explicit memories.
  - iconic memories.
  - echoic memories.
- Information is maintained in short-term memory only briefly unless it is
  - encoded.
  - rehearsed.
  - iconic or echoic.
  - retrieved.

17. Textbook chapters are often organized into \_\_\_ to facilitate information processing.
- mnemonic devices
  - chunks
  - hierarchies
  - recognizable units
18. Memory researchers are suspicious of long-repressed memories of traumatic events that are “recovered” with the aid of drugs or hypnosis because
- such experiences usually are vividly remembered.
  - such memories are unreliable and easily influenced by misinformation.
  - memories of events happening before about age 3 are especially unreliable.
  - of all of these reasons.
19. It is easier to recall information that has just been presented when the information
- consists of random letters rather than words.
  - is seen rather than heard.
  - is heard rather than seen.
  - is experienced in an unusual context.
20. The misinformation effect provides evidence that memory
- is constructed during encoding.
  - is unchanging once established.
  - may be reconstructed during recall according to how questions are framed.
  - is highly resistant to misleading information.
21. According to memory researcher Daniel Schacter, blocking occurs when
- our inattention to details produces encoding failure.
  - we confuse the source of information.
  - our beliefs influence our recollections.
  - information is on the tip of our tongue, but we can't get it out.

### True-False Items

Indicate whether each statement is true or false by placing T or F in the blank next to the item.

- \_\_\_ 1. Studying that is distributed over time produces better retention than cramming.
- \_\_\_ 2. Generally speaking, memory for random digits is better than memory for random letters.
- \_\_\_ 3. Preschool children can be induced to report false events through the use of suggestive interview techniques.
- \_\_\_ 4. Most people do not have memories of events that occurred before the age of 3.
- \_\_\_ 5. Studies by Ebbinghaus show that most forgetting takes place soon after learning.
- \_\_\_ 6. The persistence of a memory is a good clue as to whether or not it derives from an actual experience.
- \_\_\_ 7. Recall of newly acquired knowledge is no better after sleeping than after being awake for the same period of time.
- \_\_\_ 8. Time spent in developing imagery, chunking, and associating material with what you already know is more effective than time spent repeating information again and again.

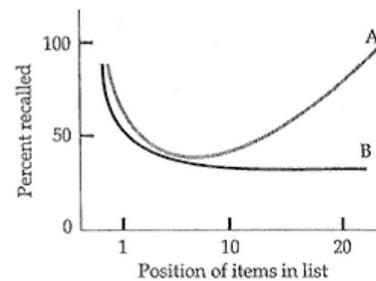
- \_\_\_ 9. Although repression has not been confirmed experimentally, most psychologists believe it happens.
- \_\_\_ 10. Overlearning material by continuing to restudy it beyond mastery often disrupts recall.

### PSYCHOLOGY APPLIED

Answer these questions the day before a test as a final check on your understanding of the unit's terms and concepts.

#### Multiple-Choice Questions

1. Complete this analogy: Fill-in-the-blank test questions are to multiple-choice questions as
- encoding is to storage.
  - storage is to encoding.
  - recognition is to recall.
  - recall is to recognition.



2. The above figure depicts the recall of a list of words under two conditions. Which of the following best describes the difference between the conditions?
- In *A*, the words were studied and retrieved in the same context; in *B*, the contexts were different.
  - In *B*, the words were studied and retrieved in the same context; in *A*, the contexts were different.
  - The delay between presentation of the last word and the test of recall was longer for *A* than for *B*.
  - The delay between presentation of the last word and the test of recall was longer for *B* than for *A*.
3. Darren was asked to memorize a list of letters that included *v*, *q*, *y*, and *j*. He later recalled these letters as *e*, *u*, *i*, and *k*, suggesting that the original letters had been encoded
- automatically.
  - visually.
  - semantically.
  - acoustically.
4. After finding her old combination lock, Janice can't remember its combination because she keeps confusing it with the combination of her new lock, she is experiencing
- proactive interference.
  - retroactive interference.
  - encoding failure.
  - storage failure.
5. Which of the following sequences would be best to follow if you wanted to minimize interference-induced forgetting in order to improve your recall on the AP psychology exam?
- study, eat, test
  - study, sleep, test

6. Being in a bad mood after a hard day of work, Susan could think of nothing positive in her life. This is best explained as an example of
  - a. priming.
  - b. memory construction.
  - c. mood-congruent memory.
  - d. retrieval failure.
7. In an effort to remember the name of the classmate who sat behind her in fifth grade, Martina mentally recited the names of other classmates who sat near her. Martina's effort to refresh her memory by activating related associations is an example of
  - a. priming.
  - b. déjà vu.
  - c. encoding.
  - d. relearning.
8. Walking through the halls of his high school 10 years after graduation, Tom experienced a flood of old memories. Tom's experience showed the role of
  - a. state-dependent memory.
  - b. context effects.
  - c. retroactive interference.
  - d. echoic memory.
9. The first thing Karen did when she discovered that she has misplaced her keys was to re-create in her mind the day's events. That she had little difficulty in doing so illustrates
  - a. automatic processing.
  - b. effortful processing.
  - c. state-dependent memory.
  - d. priming.
10. Which of the following is the best example of a flashbulb memory?
  - a. suddenly remembering to buy bread while standing in the checkout line at the grocery store
  - b. recalling the name of someone from high school while looking at his or her yearbook snapshot
  - c. remembering to make an important phone call
  - d. remembering what you were doing on September 11, 2001, when terrorists crashed planes into the World Trade Center towers.
11. When Carlos was promoted, he moved into a new office with a new phone extension. Every time he is asked for his phone number, Carlos first thinks of his old extension, illustrating the effects of
  - a. proactive interference.
  - b. retroactive interference.
  - c. encoding failure.
  - d. storage failure.
12. Elderly Mr. Flanagan, a retired electrician, can easily remember how to wire a light switch, but he cannot remember the name of the president of the United States. Evidently, Mr. Flanagan's '\_\_\_memory is better than his \_\_\_memory.
  - a. implicit; explicit
  - b. explicit; implicit
  - c. declarative; non-declarative.
  - d. explicit; declarative
13. Although you can't recall the answer to a question on your psychology test, you have a clear mental image of the textbook page on which it appears. Evidently, your encoding of the answer was \_\_\_
  - a. semantic; automatic
  - b. visual; automatic
  - c. semantic; effortful
  - d. visual; effortful
14. You're visiting your elementary school for the first since you graduated. You cannot remember the last name of your fourth-grade teacher. Your failure to remember is most likely the result of
  - a. encoding failure.
  - b. storage failure.
  - c. retrieval failure.
  - d. state-dependent memory.
15. Brenda has trouble remembering her new five-digit ZIP plus four-digit address code. What is the most likely explanation for the difficulty Brenda is having?
  - a. Nine digits are at or above the upper limit of most people's short-term memory capacity.
  - b. Nine digits are at or above the upper limit of most people's iconic memory capacity.
  - c. The extra four digits cannot be organized into easily remembered chunks.
  - d. Brenda evidently has an impaired implicit
16. Lewis cannot remember the details of the torture he experienced as a prisoner of war. According to Freud, Lewis' failure to remember these painful memories is an example of
  - a. repression.
  - b. retrieval failure.
  - c. state-dependent memory.
  - d. flashbulb memory.
17. Which of the following illustrates the constructive nature of memory?
  - a. Janice keeps calling her new boyfriend by her old boyfriend's name.
  - b. After studying all afternoon and then getting drunk in the evening, Don can't remember the material he studied.
  - c. After getting some good news, elated Kareem has a flood of good memories from his younger years.
  - d. Although Mrs. Harvey, who has Alzheimer's disease, has many gaps in her memory, she invents sensible accounts of her activities so that her family will not worry.
18. Brad, who suffered accidental damage to the left side of his hippocampus, has trouble remembering
  - a. visual designs.
  - b. locations.
  - c. all nonverbal information.
  - d. verbal information.

19. During basketball practice Jan's head was painfully elbowed. If the trauma to her brain disrupts her memory, we would expect that Jan would be most likely to forget
  - a. the name of her teammates.
  - b. her telephone number.
  - c. the name of the play during which she was elbowed.
  - d. the details of events that happened shortly after the incident.
20. After suffering damage to the hippocampus, a person would probably
  - a. lose memory for skills such as bicycle riding.
  - b. be incapable of being classically conditioned.
  - c. lose the ability to store new facts.
  - d. experience all of these changes.
21. When he was 8 years old, Frank was questioned by the police about a summer camp counselor suspected of molesting children. Even though he was not, in fact, molested by the counselor, today 19-year-old Frank "remembers" the counselor touching him inappropriately. Frank's false memory is an example of which "sin" of memory?
  - a. blocking
  - b. transience
  - c. misattribution
  - d. suggestibility

*Essay Question*

Discuss the points of agreement among experts regarding the validity of recovered memories of child abuse. (Use the space below to list the points you want to make, and organize them. Then write the essay on a separate piece of paper.)

### KEY TERMS

Using your own words, on a separate piece of paper write a brief definition or explanation of each of the following terms.

1. memory
2. encoding
3. storage
4. retrieval
5. sensory memory
6. short-term memory
7. long-term memory
8. working memory
9. parallel processing
10. automatic processing
11. effortful processing
12. rehearsal
13. spacing effect
14. serial position effect

16. acoustic encoding
17. semantic encoding
18. imagery
19. mnemonics
20. chunking
21. iconic memory
22. echoic memory
23. long-term potentiation (LTP)
24. flashbulb memory
25. amnesia
26. implicit memory
27. explicit memory
28. hippocampus
29. recall
30. recognition
31. relearning
32. priming
33. déjà vu
34. mood-congruent memory
35. proactive interference
36. retroactive interference
37. repression
38. misinformation effect
39. source amnesia