

ANSWERS TO TEST YOURSELF QUESTIONS: CHAPTER 4

1. What is the relationship between perception and cognition?

Perception was used to refer to the receiving of sensory inputs, while cognition referred to mental processes. But perception is based on a number of internal organizing principles. For example, perceiving involves recognizing a stimulus and recognition of something as familiar requires making use of memory (a cognitive process). In the same way, thinking does not occur in the absence of something to think about, and much of the content of thought relates to present and past sensory stimuli. Hence, while clearly not synonyms, perception and cognition are also not totally distinct terms.

2. How much material can STM store? For how long?

*STM appears to be limited to between five and nine independent items (7 ± 2 meaningful items, or **chunks**), such as random letters, numbers or words. Information held in STM will normally be lost after several seconds, unless it is transferred to LTM or rehearsed.*

3. How does forgetting occur in LTM?

*The traditional explanation offered by associationism is **interference**, or competition between various items of information. The concept of interference implies that as our store of information grows, it becomes harder and harder to uniquely identify a piece of information. Interference may be **retroactive**, which involves the effect of recent experiences making it more difficult to recall something learned earlier, or it may be **proactive** when prior experiences making learning and recall of subsequent experiences more difficult. An alternative explanation is that of cue-dependent coding. According to this view, remembering depends on restoring the appropriate context, in terms of the cues*

present at the time of learning. Information may be **available** (it is stored in LTM), but not **accessible**, given the cues used to search for the information (i.e., it is not retrievable). Since LTM appears to be largely permanent, most forgetting should be due to problems of accessibility rather than availability. The concept of **context-dependent forgetting** suggests that generally we fail to remember because the cues we use to aid retrieval are inappropriate.

4. How are algorithms and heuristics used in problem solving? Give an example of each.

An **algorithm** is a procedure which always enables one to solve a particular type of problem. An example is that of systematic search, which involves identifying all possible solution options, and then systematically testing them in sequence.

Heuristics are guidelines to solving a problem, and do not guarantee finding a correct solution. Examples include working backwards, creating subgoals, and using metaphors and analogies.