

UNIT 7B: COGNITION

THINKING

OBJECTIVE 1: Define *cognition*.

1. Cognition, or THINKING, can be defined as THE MENTAL ACTIVITY ASSOCIATED WITH PROCESSING, KNOWING, REMEMBERING AND COMMUNICATING.
2. Scientists who study these mental activities are called COGNITIVE PSYCHOLOGISTS.

OBJECTIVE 2: Describe the roles of categories, hierarchies, definitions, and prototypes in concept formation.

3. People tend to organize specific items into mental groupings called CONCEPTS, and many such groupings often are further organized into HIERARCHIES.
4. Concepts are typically formed through the development of a best example, or PROTOTYPE, of a category. People more easily detect MALE (male/female) prejudice against FEMALE (males/females) than vice versa.

OBJECTIVE 3: Compare algorithms and heuristics as problem-solving strategies, and explain how insight differs from both of them.

5. Humans are especially capable of using their reasoning powers for coping with new situations, and thus for PROBLEM SOLVING.
6. Finding a problem's solution by trying each possibility is called TRIAL AND ERROR.
7. Logical, methodical, step-by-step procedures for solving problems are called ALGORITHMS.
8. Simple thinking strategies that provide us with problem-solving shortcuts are referred to as HEURISTICS.
9. When you suddenly realize a problem's solution, INSIGHT has occurred. Research studies show that at such moments the brain displays a burst of activity in the RIGHT TEMPORAL LOBE.

OBJECTIVE 4: Contrast confirmation bias and fixation, and explain how they can interfere with effective problem solving.

10. The tendency of people to look for information that verifies their preconceptions is called the CONFIRMATION BIAS.
11. It is human nature to seek evidence that VERIFIES our ideas more eagerly than to seek evidence that might REFUTE them.

12. Not being able to take a new perspective when attempting to solve a problem is referred to as FIXATION. One example of this obstacle to problem solving is the tendency to repeat solutions that have worked previously; this phenomenon is known as the development of a MENTAL SET.
13. When a person is unable to envision using an object in an atypical way, FUNCTIONAL FIXEDNESS is operating.

OBJECTIVE 5: Contrast the representativeness and availability heuristics, and explain how they can cause us to underestimate or ignore important information.

14. People judge how well something matches a particular prototype; this is the REPRESENTATIVE HEURISTIC.
15. When we judge the likelihood of something occurring in terms of how readily it comes to mind, we are using the AVAILABILITY HEURISTIC.

Explain how these two heuristics may lead us to make judgmental errors.

USING THESE HEURISTICS OFTEN PREVENTS US FROM PROCESSING OTHER RELEVANT INFORMATION; BECAUSE WE OVERLOOK THIS INFORMATION, WE MAKE JUDGMENTAL ERRORS.

16. (Thinking Critically) Many people fear FLYING more than DRIVING, and TERRORISM more than ACCIDENTS, despite the fact that these fears are not supported by death and injury statistics. This type of faulty thinking occurs because we fear
 - a. WHAT OUR ANCESTRAL HISTORY HAS PREPARED US TO FEAR
 - b. WHAT WE CANNOT CONTROL
 - c. WHAT IS IMMEDIATE
 - d. WHAT IS MOST READILY AVAILABLE IN MEMORY

OBJECTIVE 6: Describe the drawbacks and advantages of overconfidence in decision making.

17. The tendency of people to overestimate the accuracy of their knowledge results in OVERCONFIDENCE.
18. Overconfidence has ADAPTIVE value because self-confident people tend to live MORE (more/less) happily and find it EASIER (easier/harder) to make tough decisions.

19. When research participants are given feedback on the accuracy of their judgments, such feedback generally DOES (does/does not) help them become more realistic about how much they know.

OBJECTIVE 7: Describe how others can use framing to elicit from us the answers they want.

20. The way an issue is posed is called FRAMING. This effect influences economic and business decisions, suggesting that our judgments MAY NOT (may/may not) always be well reasoned.

OBJECTIVE 8: Explain how our preexisting beliefs can distort our logic.

21. The tendency for our beliefs to distort logical reasoning is called BELIEF BASIS.
22. This phenomenon makes it EASIER (easier/more difficult) for us to see the illogic of conclusions that run counter to our beliefs.

OBJECTIVE 9: Describe the remedy for the belief perseverance phenomenon.

23. Research has shown that once we form a belief or a concept, it may take more convincing evidence for us to change the concept than it did to create it; this is because of BELIEF PRESERVERANCE.
24. A cure for this is to CONSIDER THE OPPOSITE.

OBJECTIVE 10: Describe the smart thinker's reaction to using intuition to solve problems.

25. Generally speaking, our cognition is EFFECTIVE and EFFICIENT.
26. Intuitive reactions allow us to react QUICKLY, and in ways that are usually ADAPTIVE.
27. Smart thinkers check their intuitions against available EVIDENCE.

LANGUAGE

OBJECTIVE 11: Describe the basic structural units of a language.

1. The basic sound units of language are its PHONEMES. English has approximately 40 of these units. The basic units of sign language are defined by HAND SHAPES and MOVEMENTS.
2. Phenemes are grouped into units of meaning called MORPHEMES.
3. The system of rules that enables us to use our language to speak to and understand others is called GRAMMAR.

4. The system by which meaning is derived from morphemes, words, and sentences is the SEMANTICS of a language.
5. The system of rules we use to combine words into grammatically sensible sentences is called SYNTAX.

OBJECTIVE 12: Trace the course of language acquisition from the babbling stage through the two-word stage.

6. By 4 months of age, babies can read lips and discriminate speech sounds. This marks the beginning of their RECEPTIVE LANGUAGE, their ability to comprehend speech. This ability begins to mature before their PRODUCTIVE LANGUAGE, or ability to produce words.
7. The first stage of language development, in which children spontaneously utter different sounds, is the BABBLING stage. This stage typically begins at about 4 months of age. The sounds children make during this stage DO NOT (do/do not) include only the phonemes of the language that they hear.
8. Deaf infants DO (do/do not) babble. Many natural babbling sounds are CONSONANT - VOWEL pairs formed by BUNCHING THE TONGUE IN FRONT OF THE MOUTH.
9. By about 10 months of age, infant babbling begins to resemble the household language. At about the same time, the ability to perceive phoneme differences is LOST (lost/acquired).
10. During the second stage, called the ONE - WORD stage, children convey complete thoughts using single words. This stage begins at about 1 year(s) of age.
11. During the TWO - WORD stage children speak in sentences containing mostly nouns and verbs. This type of speech is called TELEGRAPHIC speech.
12. After this stage, children quickly began to utter longer phrases that DO (do/do not) follow the rules of syntax.

OBJECTIVE 13: Discuss Skinner's and Chomsky's contributions to the nature-nurture debate over how children acquire language, and explain how statistical learning and critical periods are important concepts in children's language learning.

13. Skinner believed that language development follows the general principles of learning, including ASSOCIATION, IMITATION, and REINFORCEMENT. When there is minimal reinforcement for speaking, as is the case for hearing children whose parents are DEAF, the learning of spoken language proceeds MORE SLOWLY (more slowly/at a normal pace).
14. Other theorists believe that humans are biologically predisposed to learn language. One such theorist is CHOMSKY, who believes that we are all born with a LANGUAGE ACQUISITION DEVICE in which GRAMMAR switches are thrown as children experience their language. This theorist contends that all human languages have the same grammatical building blocks, which suggests that there is a UNIVERSAL GRAMMAR.
15. Specific phonemes, morphemes, words, and sentences make up what Chomsky calls the SURFACE STRUCTURE of a language. The underlying meaning of these components of a language make up its DEEP STRUCTURE. Thus, using multiple levels of understanding language development, GENES design the mechanisms and EXPERIENCE modifies the brain.

Give several examples of linguistic behavior in children that support the argument that humans are biologically predisposed to acquire language.

THE RATE AT WHICH CHILDREN ACQUIRE VOCABULARY AND GRAMMAR IS TOO RAPID TO BE EXPLAINED SOLELY BY LEARNING. CHILDREN CREATE SENTENCES THAT THEY HAVE NEVER HEARD AND, THEREFORE, COULD NOT BE IMITATING. CHILDREN LEARN GRAMMATICAL RULES IN A PREDICATBLE ORDER. CHILDREN'S LINGUISTIC ERRORS ARE OFTEN LOGICAL OVEREXTENSIONS OF GRAMMATICAL RULES.

16. Research by Jenny Saffran has demonstrated that even before 1 year(s) of age, infants are able to discern WORD BREAKS by analyzing which syllables most often go together.
17. Research studies of infants' knack for soaking up language suggest that babies come with a built-in readiness to learn GRAMMATICAL RULES.
18. This ability for STATISTICAL ANALYSIS is not lifelong. Childhood seems to represent a CRITICAL PERIOD for mastering certain aspects of language. Those who learn a second

language as adults usually speak it with the ACCENT of their first language. Moreover, they typically show POORER (poorer/better) mastery of the GRAMMAR of the second language.

19. The window for learning language gradually begins to close after age 7. When a young brain doesn't learn any language, its language-learning capacity NEVER (never/may still) fully develops.
20. Considering the two theories together, we can say that although we are born with a readiness to learn language, EXPERIENCE is also important, as shown in linguistically stunted children who have been isolated from language during the CRITICAL PERIOD for its acquisition.

THINKING AND LANGUAGE

OBJECTIVE 14: Summarize Whorf's linguistic determinism hypothesis, and comment on its standing in contemporary psychology.

1. According to the LINGUISTIC DETERMINISM hypothesis, language shapes our thinking. The linguist who proposed this hypothesis is WHORF.
2. Many people who are bilingual report feeling a different sense of SELF, depending on which language they are using. There are an estimated 6000 languages in the world today.
3. In several studies, researchers have found that using the pronoun "he" (instead of "he or she") DOES (does/does not) influence people's thoughts concerning gender.
4. Bilingual children, who learn to inhibit one language while using their own language, are better able to inhibit their ATTENTION to irrelevant information. This has been called the BILINGUAL ADVANTAGE.
5. One study of Canadian children found that English-speaking children who were IMMERSED in French had higher APTITUDE scores and math scores than control children.

OBJECTIVE 15: Discuss the value of thinking in images.

6. It appears that thinking CAN (can/cannot) occur without the use of language. Athletes often supplement physical with MENTAL practice.
7. In one study of psychology students preparing for a midterm exam, the greatest benefits were achieved by those who visualized themselves STUDYING EFFECTIVELY (receiving a high grade/studying effectively).

Summarize the probable relationship between thinking and language.

THE RELATIONSHIP IS PROBABLY A TWO-WAY ONE: THE LINGUISTIC DETERMINISM HYPOTHESIS SUGGESTS THAT

LANGUAGE HELPS SHAPE THOUGHT; THAT WORDS COME INTO LANGUAGE TO EXPRESS NEW IDEAS INDICATES THAT THOUGHT ALSO SHAPES LANGUAGE.