

GENERAL PSYCHOLOGY CHAPTER 7: LANGUAGE & THOUGHT

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Language

- language: system for communicating with others using signals that convey meaning and are combined according to rules of grammar
 - phoneme: smallest unit of sound (42 in English language)
 - morpheme: smallest meaningful unit of language; words
 - phonological rules: how phonemes can be combined to produce speech sounds; how we create language (combining phonemes to create morphemes in order to get a message across)
 - grammar: specify how the units of language combined to produced meaningful messages
 - syntactical rules: indicate how words can be combined to form phrases and sentences
- language development
 - at birth- contrasting sounds in human language
 - 4-6 months- babble speech sounds (cooing, learning phonemes)
 - 6 months- distinguish those sounds in language being spoken around them
 - language milestones:
 - fast mapping: children can map a word onto an underlying concept after only a single exposure
 - over extension: use the name for one common thing for things similar to it (dogs are animals, animals are dogs)
 - under extension: understands one form, but not the other (my dog is a dog, but his dog is maybe a dog?)
 - telegraphic speech: speech that is devoid of function morphemes and consist mostly of content words (two word sentences)
 - over generalization: misuse of grammatical run to an “exception to the rule” (ex. mouses to mice)
- theories of language development
 - behaviorist explanations
 - children learn language through the principles of operant conditioning; reinforcement, shaping, and extinction
 - limits to behaviorist theory of language:
 - parents don't spend much time teaching grammar
 - children generate more grammatical sentences than they hear
 - errors children make do not duplicate what they hear
 - nativist theory
 - language development is best explained as an innate biological capacity
 - Noam Chomsky
 - language acquisition device (LAD): prewiring/nurture explanation to language
 - genetic dysphasia: disorder characterized by inability to learn the grammatical structure of language despite having normal intelligence (grounds for proof for nativist theory)
 - wug test: designed to test whether children can utilize rules for forming plurals and past tense in unknown words
 - explains why deaf babies can babble language sounds

- criticized for explaining why, not how
 - interactionist theory
 - social interactions play a crucial role in the language development
 - supporting evidence:
 - parents tailor verbal interactions with children in ways that simplify language acquisition
 - Senghas, Kita, & Oxyurek (2004)- Nicaragua; children NOT taught sign language often develop their own hand signals and form of communication
- neurological specialization
 - two language centers in the brain:
 - Broca's area: located in the left *frontal* cortex involved in language production
 - Wernicke's area: left *temporal* cortex involved in language comprehension
 - aphasia: difficulty in producing or comprehending language
 - Broca's aphasia: can understand/comprehend language, but cannot produce it; in the frontal lobe
 - Wernicke's aphasia: can produce grammatical speech, but it tends to be meaningless; they have difficulty comprehending the language that they hear (writing and reading are significantly impaired), in the temporal lobe
- language in other animals
 - chimp research is both consistent and inconsistent with the biological approach to language acquisition
 - chimpanzee and human brains are organized similarly
 - lateralization brain function
 - multiple studies done:
 - Gardener & Gardener (1969)- Washoe, chimpanzee
 - taught to make a large number of sign language
 - would create simple, meaningful sentences
 - Savage-Rumbaugh (1986)- Kanzi, bonobo chimp
 - keyboard to learn words of objects using a keyboard
 - Pepperberg (1993)- Alex, Africa gray parrot
 - many words in English, able to identify objects
 - Herman & Uyeyama (1999)- Phoenix, dolphin
 - limitations to animals learning language
 - size of vocabulary
 - type of words learned (concrete words, but not conceptual)
 - complexity of grammar
 - use of generative communication (can only use the words they were taught/could not self-learn other words)

Concepts and Categories

- language shapes thoughts
- concept: mental representation (fundamental to our ability to think)
- category-specific deficit: inability to recognize objects that belong to a particular category
 - anomia: deficit for specific objects (ex. fruit, tools, etc.)
- concept formation: how people organize and classify events
 - categories
 - superordinate category: highest, most general level (used most often for thinking about the world- "fruit")

- basic level category: level that we use every day (instead of just “fruit”, “oranges”), first level that children learn while learning
- subordinate category: more specific from basic (certain type of orange)
- concepts
 - formal concepts: rules for identifying concepts
 - natural concepts: concepts we develop/put into a category that do not conform to formal (almost creating one’s own category)

Theories of Concepts and Categories

- family resemblance theory: features that appear in common with the other members, but may not be possessed by every member
- prototype theory: category members that have more things in common with other characters are “most typical”
- exemplar theory: comparing new instance with stored memories for other instances of the category (comparing what is in our memory to a new member of the category)

Problem Solving/Decision Making

- concept formation is basis for knowing how to solve problems
- types of problem solving/decision making methods
 - algorithms: well defined sequence of procedures or rules that guarantee a solution to the problem (ex. algebraic formula); always leads to the correct answer if followed correctly
 - heuristics: fast and efficient strategy that helps reach a decision, but does not guarantee a solution to the problem, flexible guidelines for solving problems, mental shortcuts
 - means-end analysis: process of searching for steps to reduce differences between current situation and desired goal
 1. analyze goal state
 2. analyze current state
 3. list differences between current state and goal state
 4. reduce differences by
 - a. direct means
 - b. develop a subgoal
 - c. find similar problem with known solution (analogical problem solving)
 - analogical problem solving: problem solving by finding similar problem with known solution and applying that solution to the current problem
 - ex. fortress
 - goal state: conquered fortress
 - current state: occupied fortress and fragile surrounding bridges
 - differences: occupying enemy
 - reduce differences (solution): divide forces into smaller units and send them in all surrounding bridges to converge on the fortress
 - ex. tumor
 - goal state: no tumor and undamaged tissue
 - current state: tumor and fragile tissue
 - differences: the tumor
 - reduce differences (solution): converge on tissues with rays to get rid of tumor and not damage tissue

Creativity and Insight