

COGNITIVE PROCESSES & LANGUAGE

Basic Psychology (I BA)

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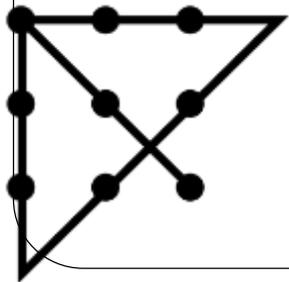
IMPEDIMENTS TO PROBLEM SOLVING

Obstacles to Problem Solving exist at each of the 3 major stages:

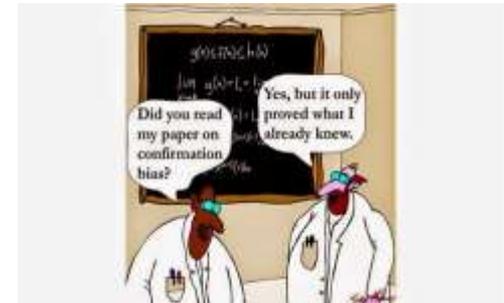
1. FUNCTIONAL FIXEDNESS & MENTAL SET

- Functional fixedness is the tendency to think of an object only in terms of its typical use.
- It is an e.g. of a broader phenomenon known as Mental Set i.e. the tendency for old patterns of problem solving to persist.

For example, paper clips are not just useful for binding paper together. They may also be used to pick locks or even create jewellery.



INACCURATE EVALUATIONS OF SOLUTIONS

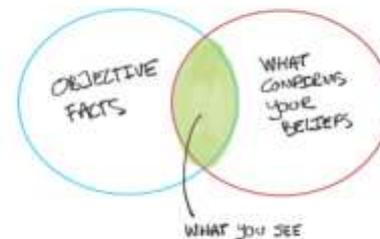


2. CONFIRMATION BIAS

- The tendency to seek out and weigh more heavily information that supports one's initial hypotheses and ignores contradictory information that supports alternative hypotheses or solution.
- For **example**, imagine that a person holds a belief that left-handed people are more creative than right-handed people. Whenever this person encounters a person that is both left-handed and creative, they place greater importance on this "evidence" that supports what they already believe.

Reasons for Confirmation Bias

- Rethinking a problem that appears to be solved already takes extra cognitive effort and we are apt to stick to our first solution.
- We give greater weight to subsequent information that supports our initial position than to information that is not supportive of it.



CREATIVITY & PROBLEM SOLVING



- Creativity is the ability to generate original ideas or solve problems in novel ways.
- Several characteristics associated with Creativity

1. DIVERGENT THINKING

- Ability to generate unusual, yet appropriate responses to problems or questions.

E.g. Giving a child a stack of blocks and asking them to see how many shapes they can create with those blocks.

2. CONVERGENT THINKING

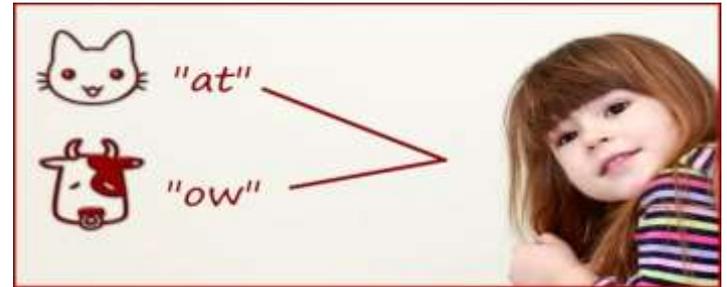
- Responses based on knowledge and logic
- Creativity has underlying cognitive complexity i.e. preference for elaborate, intricate and complex stimuli and thinking patterns.



LANGUAGE & THOUGHT

- Language is communication of information through symbols arranged according to systematic rules.
- Language helps us think and understand the world , an important cognitive ability and is also closely tied to thought.
- Grammar is a set of rules that determine how our thoughts are expressed.
- Grammar deals with 3 components
 1. Phonology
 2. Syntax
 3. Semantics





1. PHONOLOGY

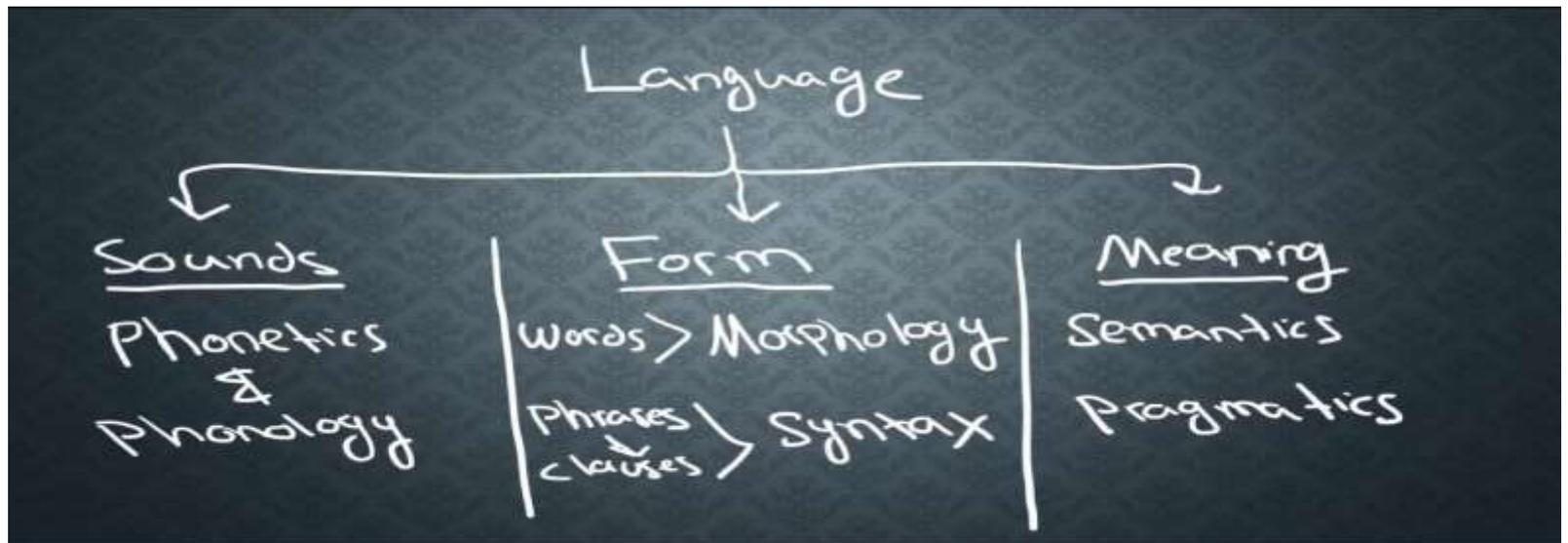
- Study of basic units of sound called phonemes and the way we use these sounds to form words and produce meaning
- E.g. “a” in fat a “a” in fate (2 different phonemes in English)
- 42 basic phonemes in English
- Differences in phonemes is one reason people have difficulty learning other languages

2. SYNTAX

- Set of rules that indicate how words and phrases can be combined to form sentences.
- E.g. “Ravi the kidnapped boy”, “Ravi kidnapped the boy”, “The boy kidnapped Ravi”.

3. SEMANTICS

- Rules governing the meaning of words and sentences.
- Helps us understand nuances and intricacies.
- E.g. “I just drank water” to “I will drink water”.



LANGUAGE DEVELOPMENT

1. **BABBLING**

- Babbling is speech like but meaningless sounds from the age of 3 months to 1 year and they produce sounds from all different languages. Deaf children also babble.
- As they grow up their babbling reflects the sounds of the language that is spoken in their environment.
- Also there is a critical period during which they are sensitive to language cues after which they may find it difficult to learn.



Baby's First Words Are Nouns!



- By the age of 1 year, sounds not in the language of the infant disappears and they produce short words beginning with consonants e.g. “dada”, “mama”.
- Language comprehension precedes language production.
- After 1 year they produce 2 word combinations and the number of word increases.
- By age 2 they have a vocabulary of more than 50 words.
- At 2 years and 6 months they can produce short sentences although they use TELEGRAPHIC SPEECH.

2. TELEGRAPHIC SPEECH

- Sentences in which words that are not critical or important to the message are left out. E.g. “I am drawing a house” to “I drawing a house”.
- By age 3 they are able to make plurals and past tense. E.g. “walked” or “runned”
- By age 5 children’s acquisition of basic rules of language are complete.



LANGUAGE ACQUISITION

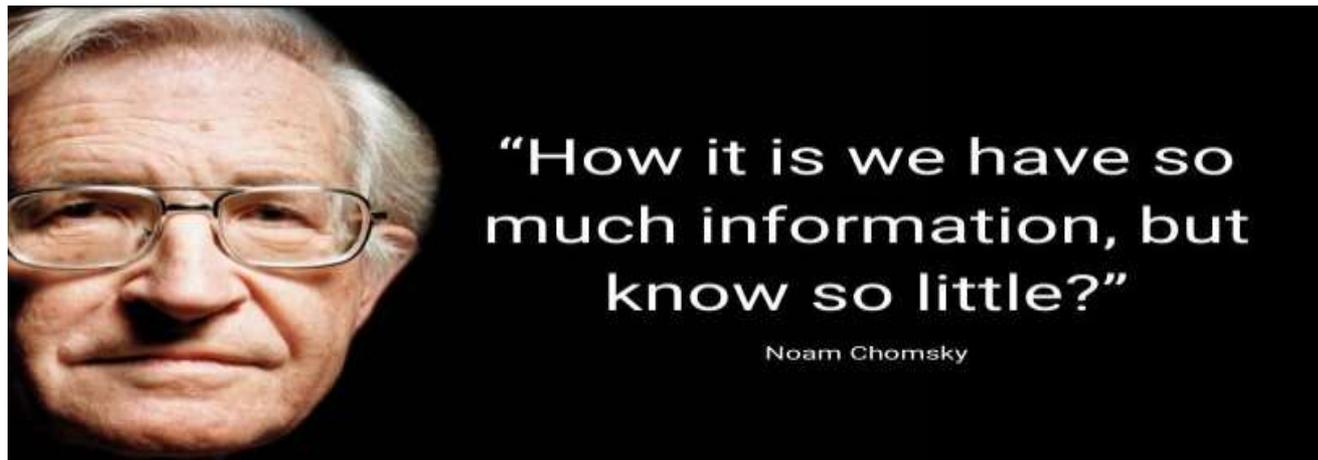
1. LEARNING THEORY APPROACH



- Acquisitions follows principles of reinforcement and conditioning.
- If parents use sophisticated linguistic abilities the child has a greater rate of vocabulary, usage and general intellectual achievement by the time they are 3 years of age.
- Naom Chomsky a linguist argued that humans are born with an innate linguistic capability that emerges as a function of maturation.
- All world languages share a similar underlying structure called “The universal grammar”.
- He also suggested that our brains have a neural system called **Language Acquisition Device** that permits understanding the structure and techniques for learning a given native language.

2. LINGUISTIC RELATIVITY HYPOTHESIS

- The notion that language shapes and in fact determines the way people of a particular culture perceive and understand the world.
- Does language shape and produce thought?



THANK you