Cognitive theorical models

Rebeca Cerezo

Department of Psychology- University of Oviedo

Cognitive Model assumptions

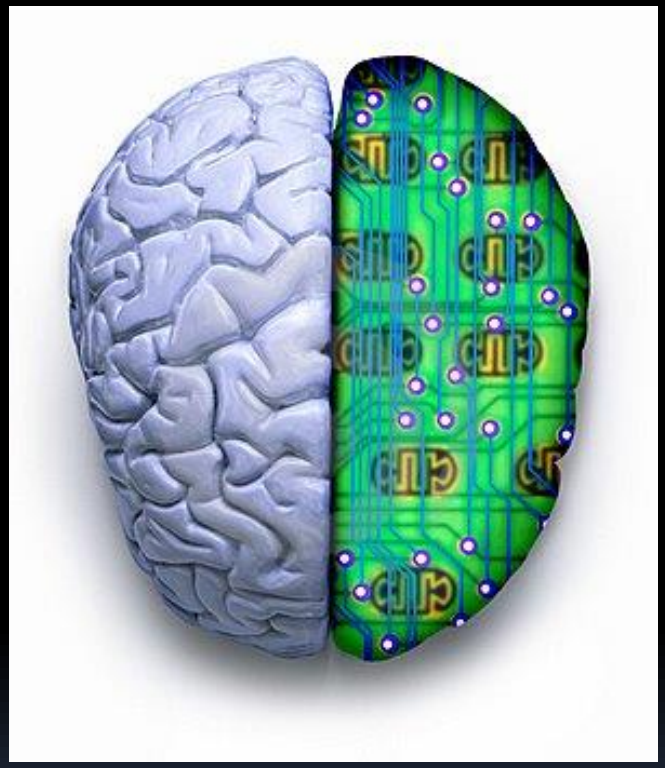
- Mental processes exist, are subject to laws and can be studied scientifically.
- Thinking would be information processing
- Human is information processor:

selection $\rightarrow$ process $\rightarrow$ product

Model assumptions

- Cognitive theories holds that mental phenomena can be interpreted as a set of computational processes

- The new metaphor for cognitive psychologists is the computer



"… the easiest model of thinking about thinking …" (Gardner, 1985)

Cognitive Model

focus

In the process Between stimulus-answer

Goes to

Information Processing Theory

Uses

Computer metaphor

procesos implicados

Memory

Atenttion

Perception

Types

-Sensorial Memory
-Short term Memory
-Long term Memory

Functions

Codification and maintance

Recovery

http://www.youtube.com/watch?v=g13ktyk95e8
http://www.youtube.com/watch?v=8VOG8z2yeCo

The perception

- Cognitive process of extracting information that facilitates the adaptive capacity of human beings to the environment.
- Through this process, the subject:
  - Detect
  - Discriminate
  - Recognize
  - Identify

…multiple stimulous received so acquires knowledge

The attention

- Mental process of selective orientation to specific stimulus.
- Concentration of cognitive activity in a stimulus or activity and simultaneous inhibition to other stimulus or simultaneous activities.

  - **Voluntary**: the subject voluntarily determined stimuli in fixing his intention.

  - Involuntary : stimulus attracts the attention of the subject by their characteristics, without being subject has been proposed to attended.

Determinants of attention

- **Intensidad absoluta y relativa**: strong stimuli more easily fix attention Ex. bright light, bright colors, etc. Perceptual SALIENCIA: attribute value to the context
- **Originality:** a new stimulus between existing ones is critical to fix attention. Ex. New student or modify the qualities of the existing.
- **Movement:** attention is more easily drawn when stimulus is moved in space.
- **Motivational value for subject:** place in the scale of individual needs determines attention.

The Memory- Structura Model of memory

"recall process applied to the learning content which remain maintened for use at a later stage"

Sensorial information store

- Store input information
- Unlimited capacity
- You lose and fades quickly
- Function: receive and process the information to make way for the short term memory
  - Iconic Memory
  - Echoic Memory

STM – Short Term Memory or Working Memory

- What do we know?
- Do it has high or low maintain capacity?

STM – Short term memory or working memory

- Decipher, decode data
- Transfer the information to LTM
- It has little capacity
- Its duration is short
- Uses the procedure of repetition and organization
- Techniques that improve the performance: mnemonic, underline etc.,.

http://www.youtube.com/watch?v=PHXgLHymhCI&feature=related

LTM - Long term memory

- What do we know?
- Do it has high or low maintain capacity?

LTM - Long term memory

- Processes and stores the information in a way ± permanent
- Unlimited capacity *(knowledge does not take place!)*
- It is ACTIVE: modifies, qualifies, build and create new data from existing.
- LTM uses strategies of **development, inference and previous information** relationship with existing

Memory Determinates

Time invested in learning: direct proportion between time invested in learning and memory retention

Type of material used: the more significant the material, better is learned and retained.

Accompained Memories with iconic information

Coding way: it retains and remember better the material is coded according to their MEANING than depending on their CHARACTERISTICS.

Amount of material: increasing the length of the task, the difficulty of learning increases disproportionately. Ex: 1 t – 1:00h; 2t - 2:30hs, 3t- 5:00hs.

Inside Long term memory

Procedural memory (implicit): skills that are not represented as explicit information.

Patterns of action that are activated automatically to the demands of a task. Ex. writing, calculate mentally, summarize information, etc.

Declarative memory (explicit):

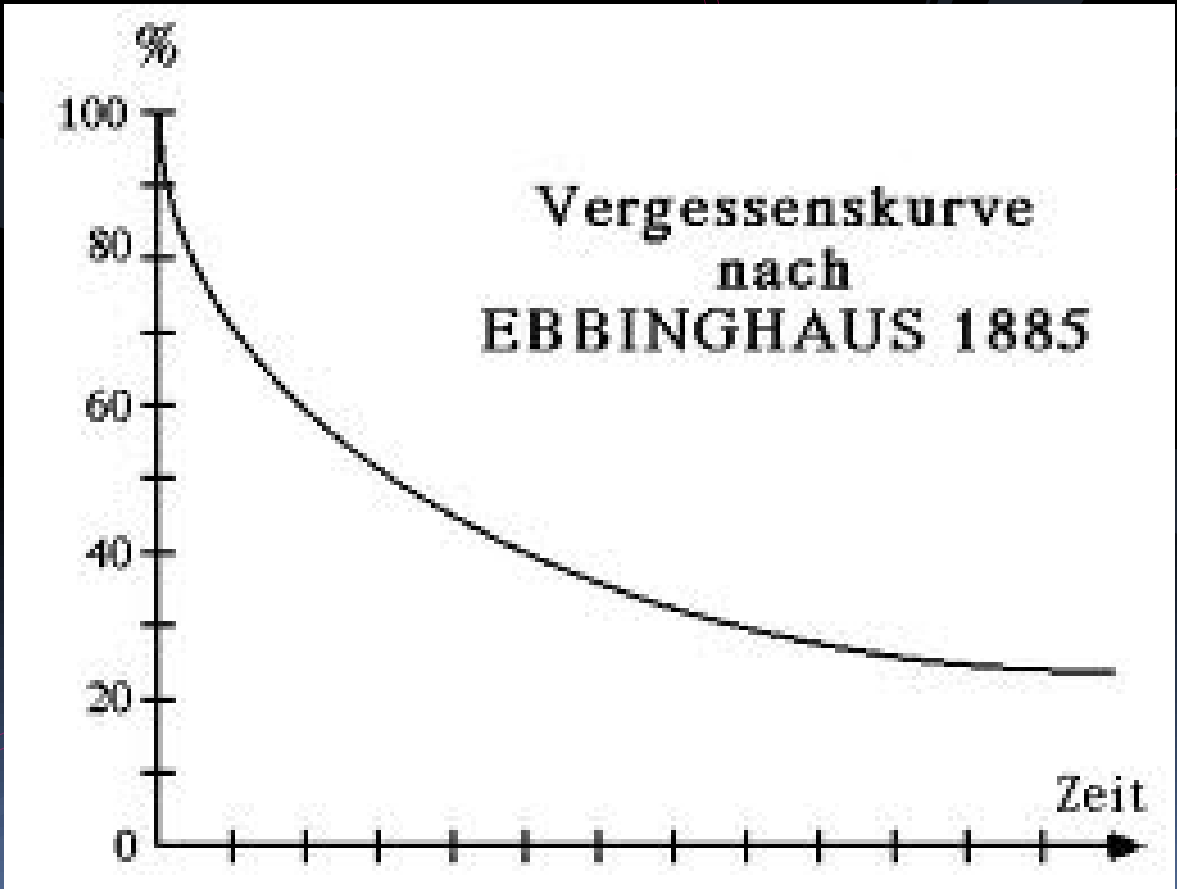
Semantic memory: collects information from objective and universal. Universal truths (truths independent of personal experience of the individual), scientific facts, etc. *Ej. the boiling point of water are 100º, objetive is the opposite of subjective, etc.*

Episodic memory: records events related to our daily life experiences. Ex. Last fall you made cheesecake and It burned because of the call from your brother

3 examples of each one

Forgetting curve of Ebbinghaus

Retentive material loss due to the passage of time and the INTENSITY OF THE MEMORY in a few days or weeks except REVIEW, DEVELOPMENT AND SPACED REPETITION - teacher's role



LTM - Long term memory

- ***<u>Organization of the material in memory</u>: LTM organizes our knowledge so that recovery thereof enables easy and quick.***
- Facilitate material organized properly!!!
- *Recovery or reminder:*
  - *It shows the limitations of the LTM*
  - *"We know much more than we can remember"*
  - *No matter how much like the quality. Ej. Studied the day before exam*