COGNITION

Cognition

A general term including all mental processes by which people become aware of and understand the world.

Cognition literally means “knowing”

If we want to know what makes people think then we need to understand the internal processes of their mind

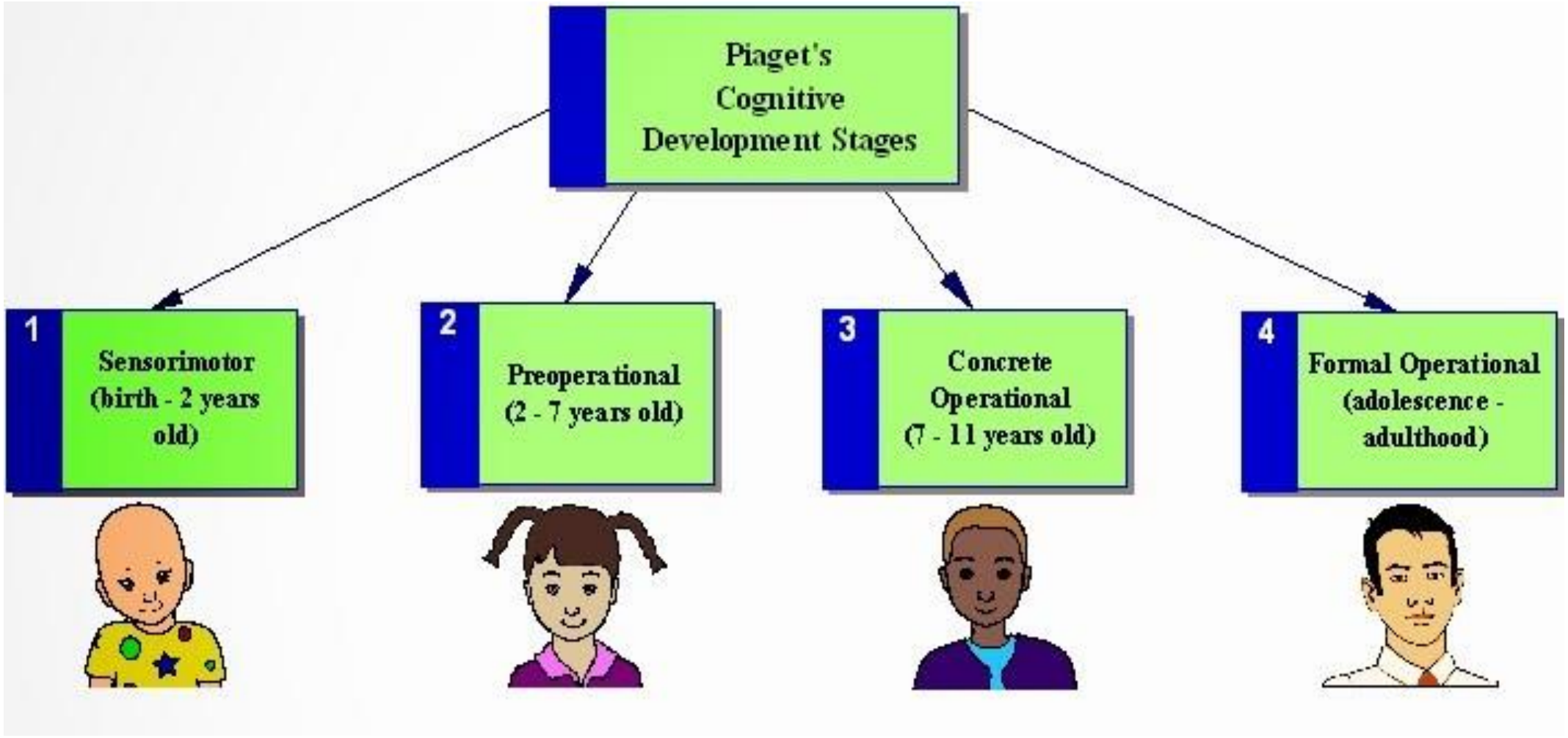
Reductionist approach: Behaviour, no matter how complex can be reduced to simple cognitive processes, like memory or perception.

Behaviourist Model (only study observable / external behaviour)

Cognitive Model (can scientifically study internal behavior)

- Cognition Involves Reducing Sensory Information
  - Bottom Up vs. Top Down Approach
- Cognition Involves Elaborating Information
- Cognition Involves Storing and Recovering Information
- Cognition Involves Using Information
- COGNITIVE ABILITIES ARE NOT FIXED — WE CAN IMPROVE THEM VIA LIFESTYLE AND TARGETED PRACTICE

Piaget's Stages of Cognitive Development



Piaget's Theory

Stage	Age Range	Description
Sensorimotor	0-2 years	Coordination of senses with motor response, sensory curiosity about the world. Language used for demands and cataloguing. Object permanence developed
Preoperational	2-7 years	Symbolic thinking, use of proper syntax and grammar to express full concepts. Imagination and intuition are strong, but complex abstract thought still difficult. Conservation developed.
Concrete Operational	7-11 years	Concepts attached to concrete situations. Time, space, and quantity are understood and can be applied, but not as independent concepts
Formal Operations	11+	Theoretical, hypothetical, and counterfactual thinking. Abstract logic and reasoning. Strategy and planning become possible. Concepts learned in one context can be applied to another.

Knowing the Knowledge: Schema

- Humans are active and motivated learners.
- Through their action, they construct schemas.
  - Concepts or mental frameworks that people use to organize and interpret information
  - A person's "picture of the world"

Assimilation

- Interpreting a new experience within the context of one's existing schemas
  - When a learner encounters a new idea, and must "fit" that idea into what they already know.
  - Think of this as filling existing containers.
- The new experience is similar to other previous experiences

Accommodation

- Accommodation of knowledge is more substantial, requiring the learner to reshape those containers.
- Interpreting a new experience by adapting or changing one's existing schemas

- The new experience is so novel the person's schemata must be changed to accommodate it

Assimilation/Accommodation

Two-year-old Jocelyn has learned the schema for "dog" from her picture books.

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Jocelyn sees a cat and calls it a "dog." She is trying to assimilate this new animal into an existing schema. Her mother tells her, "No, it's a cat."

Assimilation/Accommodation

As children <u>assimilate</u> new information and experiences, they eventually change their way of thinking to <u>accommodate</u> new knowledge

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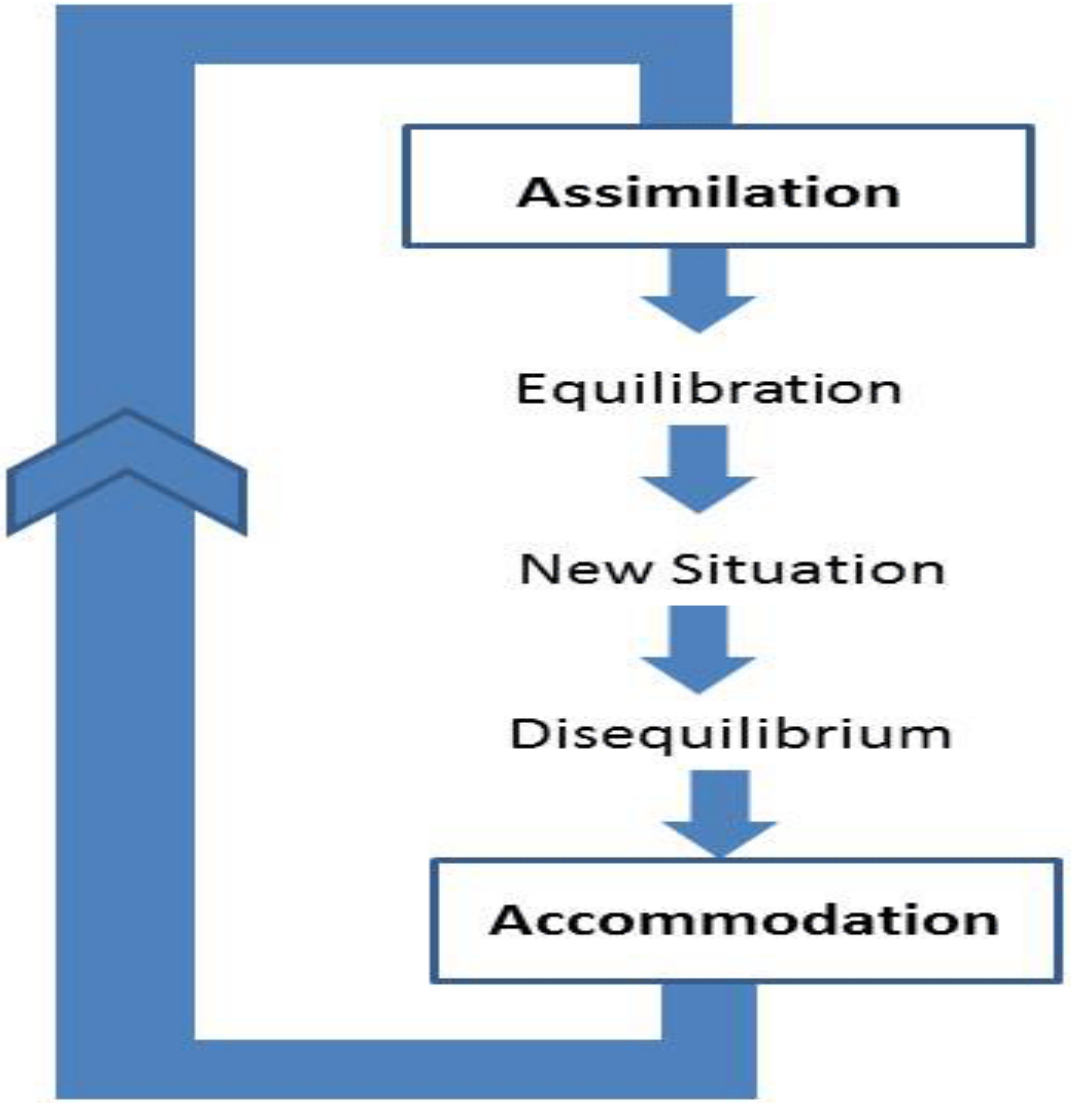
Jocelyn accomodates her schema for 4-legged animals and continues to modify that schema to include different kinds of dogs and cats in the neighborhood.

Knowing the Knowledge: Schema



Some facts about cognition:

- Cognitive skills are different from academic skills
- Cognitive skills are the mental capabilities or underlying skills you need to process and learn information, to think, remember, read, understand and solve problems.
- Cognitive skills develop and change over time.
- We are born with certain cognitive capabilities - we may be better at some skills than others, but we can improve the weaker skills.

- Cognitive skills can be measured.
- Cognitive skills can be strengthened and improved.
- When cognitive skills are strong, learning becomes easier and vice versa

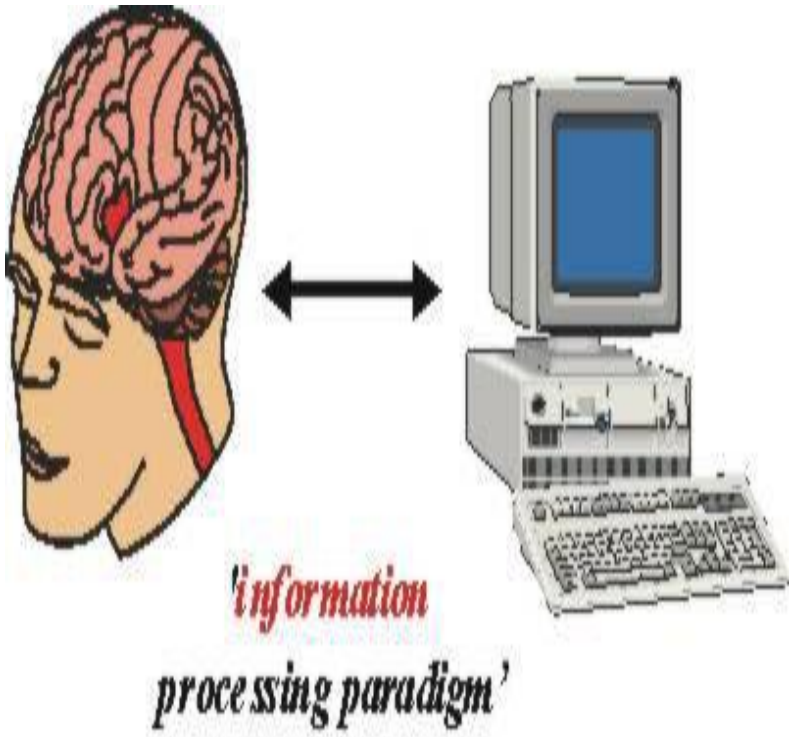
Activity

Describe the process of assimilation and accommodation with example/s?

Computer Analogy

- The use of the computer as a tool for thinking how the human mind handles information is known as the computer analogy

- Essentially, a computer codes (i.e. changes) information, stores information, uses information, and produces an output (retrieves info)



Information Processing Approach

Assumptions:

- Information made available from the environment is processed by a series of processing systems (e.g. attention, perception, short-term memory);
- These processing systems transform, or alter the information in systematic ways;
- Information processing in humans resembles that in computers.

“EVERY MAN” is in certain respects:

a. like all other men,

b. like some other men,

c. like no other man.

Henry A. Murray and Clyde Kluckhohn, Personality in Nature, Society, and Culture (1953)