

Piaget's Theory of Cognitive Development

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Piaget (1896 – 1980)



- ❖ **Swiss Psychologist, worked for several decades on understanding children's cognitive development.**
- ❖ **Most widely known theory of cognitive development.**
- ❖ **Was intrigued by kids' thoughts & behavior, & worked to understand their cognitive development**

Piaget's Theory



Jean Piaget (1896-1980) was one of the 20th centuries most influential researchers in the area of developmental psychology.

He was a child prodigy who published his first article in a refereed journal at the age of 11.

Piaget believed that what distinguishes human beings from other animals is our ability to do “abstract symbolic reasoning.**”**

Piaget's Theory

Piaget originally trained in the areas of biology and philosophy and considered himself a “**genetic epistimologist.**”


He was mainly interested in the biological influences on “**how we come to know.**”

Piaget's Theory

While working in Binet's test lab in Paris, Piaget became interested in how children think.

He noticed that young children's answers were qualitatively different than older children.

This suggested to him that the younger children were not less knowledgeable but, instead, answered the questions differently than their older peers because they thought differently.



Piaget's Theory

This implies that human development is **qualitative** (changes in kind) rather than **quantitative** (changes in amount).

He along with wife (a former student at Rousseau institute) studied his own three children and developed this theory.

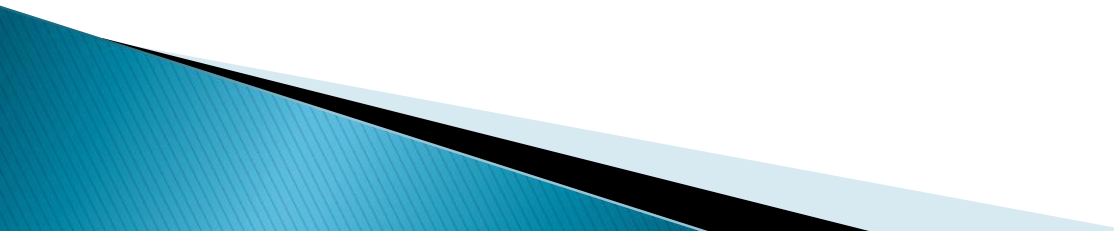
Piaget's Theory

There are two major aspects to his theory:

- **the process of coming to know and**
- **the stages we move through as we gradually acquire this ability.**

Piaget's training as a biologist influenced both aspects of his theory.

SOME KEY CONCEPTS:

- 1. ORGANISATION**
 - 2. SCHEMAS**
 - 3. ADAPTATION**
 - 4. ASSIMILATION**
 - 5. ACCOMMODATION**
 - 6. EQUILIBRATION**
 - 7. DISEQUILIBRATION**
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1. **ORGANIZATION**: is ongoing process of arranging information and experiences into mental system. **Organization involves: The combining, arranging, remembering and rearranging of behaviour and thoughts into coherent system.**
2. **SHEMAS**: are those reflexes and practical instincts that are biologically inherited. This is a general potential to perform a particular class of behaviour such as: sucking, looking , grasping, reaching etc.

Behavior is controlled through mental organizations called **schemas that the individual uses to represent the world and designate action.**

Process of Cognitive Development

Piaget hypothesized that infants are born with schemes operating at birth that he called "reflexes."

In other animals, these reflexes control behavior throughout life.

However, in human beings as the infant uses these reflexes to adapt to the environment, these reflexes are quickly replaced with constructed schemas.

3.ADAPTATION:Adjustment to the situation.

Individual has to adopt to his Env. for survival and proper growth and devt. Adaptation consists of two process such as:

- **assimilation** and
- **accommodation.**

Both of these processes are used throughout life as the person increasingly adapts to the environment in a more complex manner.

Process of Cognitive Development

Assimilation

The process of using or fitting new information into existing schemas.

Ex. When a child is given toy a new toy he respond by putting in his mouth.

Process of Cognitive Development

Assimilation

Example: an infant uses a sucking schema that was developed by sucking on a small bottle when attempting to suck on a larger bottle.

Process of Cognitive Development

Accommodation

The process of changing/altering /modification of existing schemas in response to new situation or information. in order to accept something from the environment.

Process of Cognitive Development

Accomodation

Example: the infant modifies a sucking schema developed by sucking on a pacifier to one that would be successful for sucking on a bottle.

Process of Cognitive Development

This adaptation is driven by a biological drive to obtain balance between schemes and the environment is called **equilibration(Act of balancing).**

We adjust our thinking to fit the new information, instead of adjusting the information to our thinking.

Piaget's Stages of Cognitive Development

- ▶ A child's capacity to understand certain concepts is based on the child's developmental stage

Piaget's Four Stages

- ▶ Believed that all children develop according to four stages based on how they see the world.
 - He thought the age may vary some, but that we all go through the stages in the same order.

1. Sensori-motor (birth -2 years)
2. Preoperational (~2-7)
3. Concrete operational (~7-11)
4. Formal operations (~12-15)

Sensori-motor Stage(0-2 years)

- ▶ Rapid changes are seen throughout period
- ▶ The child will:
 - Explore the world through senses & motor activity
 - Early on, baby can't tell difference between themselves & the environment
 - If they can't see something then it doesn't exist. (What is out of sight is out of mind.)
 - Begin to understand cause & effect.
 - Object performance: Can later follow something with their eyes and realise that things has existence
 - Absent of lanuage

SUB STAGES OF SENSORI-MOTOR STAGE(0-4)

- a. (0-1 month) infant exhibits a limited no. of uncoordinated reflexes such as: sucking, looking.
- b. (0-4 month)motor activities are coordinated into a simple schemes providing a general potential to perform a class of behaviour. Ex. Looking toys
- c. (4-8 month)realize that object exists when out of sight.
- d. (8-12 month)try to recall and location of the objects.
- e. (12-18 month)able to locate the hidden toys.
- f. (18-24 month)child can infer what the moving hands holds.

Preoperational Stage(2–7 years)

- ▶ This period is called the pre–operational period because the operation of logical thinking are not yet fully developed. This is further divided into two stage : (a) pre–conceptual & (b) intuitive
- ▶ (a) pre–conceptual(2–4Yrs): some characteristics are –
 - i. Identify objects by their names and put them into certain classes. Ex. Papa, mom, pappu dog.
 - ii. Use of action symbols to represent objects .
 - iii. Thinking and reasoning is quite illogical; neither inductive nor deductive but rater trans–deductive

iv. Thinking is too imaginative and far away from reality.

v. Ego-centric in nature.

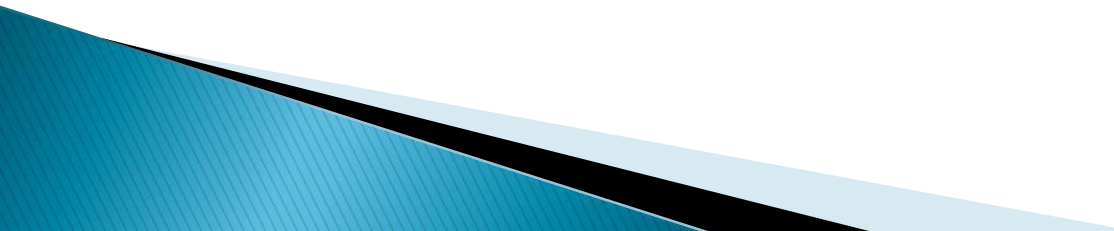
▶ **(b) Intuitive phase (4–7Yrs):**

i. Lack of reversibility. Thinking backward from end to beginning. Ex. the child is unable to realize that his brother has also a brother in him.

ii. Lacks of conservation ability: in terms of quantity and numbers.

Ex. Two glass of water

...more preoperational

- ▶ Conservation of matter – understanding that something doesn't change even though it looks different, shape is not related to quantity
 - ▶ Ex: Are ten coins set in a long line more than ten coins in a pile?
 - ▶ Ex: Is there less water if it is poured into a bigger container?
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Piaget's Pre- Operational Stage

Inability to understand
conservation of matter.



"Cut it up into a LOT of slices. Mom. I'm really hungry!"

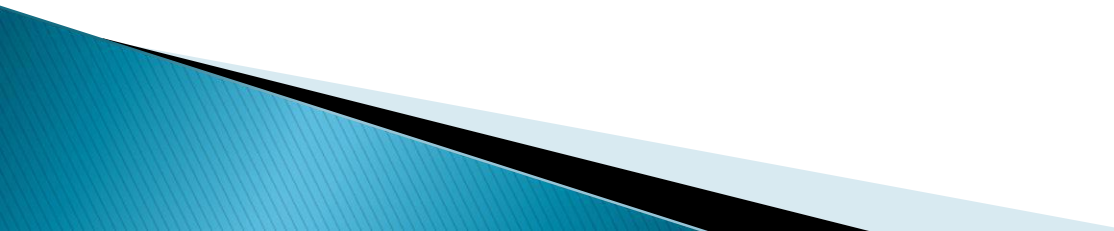
Concrete Operational Stage(7–11)

- This is the period of logical thoughts
- Thinking becomes logical and systematic.
- Devt. Of abilities like reversibility, conservation and identity.
- Seriation/sequential reasoning. Ex. $2 < 4 < 6$
Or $6 > 4 > 2$
- Abstract reasoning ability & ability to generalize from the concrete increases
- Understands conservation of matter

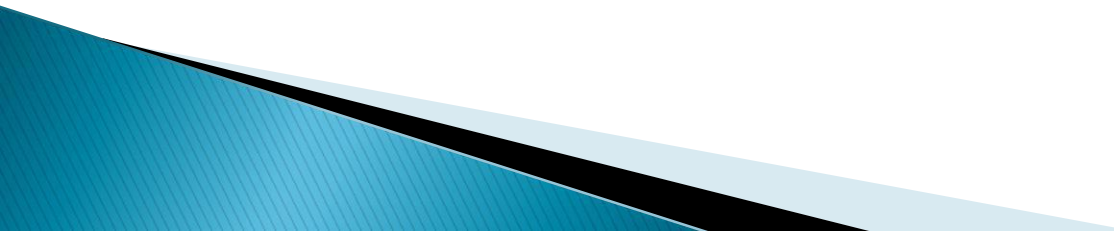
Formal Operations(12-15)

- ❑ intellectual devt. takes a sophisticated shape they deal with abstraction by logical thinking.
- ❑ Be able to think about hypothetical situations and abstract way
- ❑ Form & test hypotheses
- ❑ Organize information
- ❑ Reason scientifically
- ❑ Think in inductive & Deductive way
- ❑ A sense of individuality comes gradually
- ❑ Societal awareness occurs

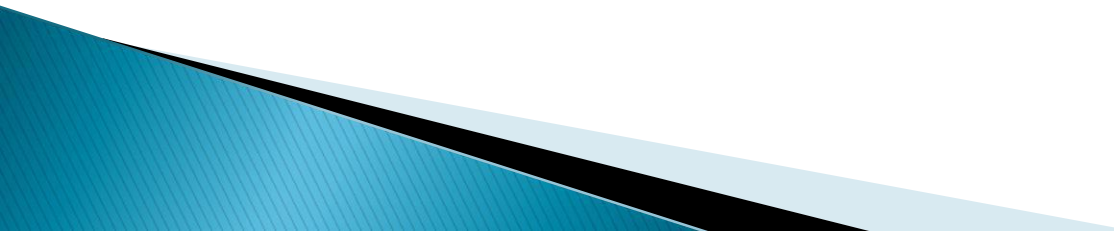
PROBLEMS RELATED TO COGNITIVE DEVT.

- Poor environmental stimulation or situation
 - Poor hereditary env.
 - Lack of proper attention, assimilation on the part of learners
 - Defective teaching learning situation or env.
 - Low level of learners intelligence
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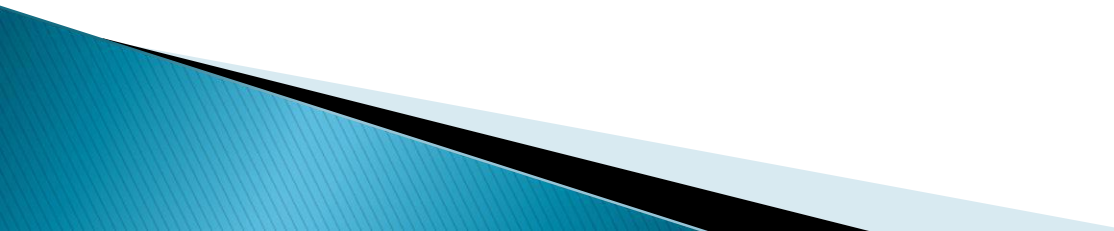
CRITICISM OF Piaget's Developmental theory

- ▶ Development happens from one stage to another through interaction with the environment.
 - ▶ Changes from stage to stage may occur abruptly and kids will differ in how long they are in each stage.
 - ▶ Cognitive development can only happen after genetically controlled biological growth occurs.
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Continue....

- ▶ Piaget did not think it was possible to hurry along or skip stages through education
 - ▶ Regardless, many American schools will try to teach to the stages in an attempt to accelerate development
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Problems with Piaget's Theory

- ▶ Children often grasp ideas earlier than what Piaget found
 - ▶ Cognitive development across domains is inconsistent (e.g. better at reading than math)
 - ▶ Studies have shown that development can to some degree be accelerated
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EDUCATIONAL IMPLICATION OF THE PIAGET COGNITIVE DEVT. THEORY

- ❖ KNOWLEDGE SHOULD NOT BE IMPOSED
 - ❖ INSTRUCTION SHOULD BE GEARED WITH THE LEVEL OF THE CHILD
 - ❖ THE KNOWLEDGE OF COGNITIVE STAGES OF GROWTH OF A CHILD DOES HELP THE TEACHER IN MORE THAN ONE WAY
 - ❖ IT IS DUTY OF THE SCHOOL, TEACHER & PARENTS TO PROVIDE MATERIALS TO CHILDREN TO SHARPEN THEIR INTERESTS AND KNOWLEDGE
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