


**THINK** IN THE NAME OF GOD  
*Piaget's Theory of Cognitive Development*

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**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.

Describe intellectual development according to Piaget:  
including a discussion of both the process and the stages of development.  
Note behavioral characteristics of each stage, describing how assimilation and accommodation are exemplified for each stage of development.

**Piaget's Theory**

Piaget originally trained in the areas of biology and philosophy and considered himself a "genetic epistemologist."

He was mainly interested in the biological influences on "how we come to know."

**Piaget's Theory of Cognitive Development**

Describe specific actions that teachers can take to incorporate Piaget's theory into the classroom.

**Piaget's Theory**

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

### Piaget's Theory

Piaget's views are often compared with those of Lev Vygotsky (1896-1934), who looked more to social interaction as the primary source of cognition and behavior.

This is somewhat similar to the distinctions made between Freud and Erikson in terms of the development of personality.

### 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.

### 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.

### Process of Cognitive Development

As a biologist, Piaget was interested in how an organism adapts to its environment (Piaget described this ability as intelligence.)

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

### Piaget's Theory

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

### Process of Cognitive Development

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

**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 schemes.

**Process of Cognitive Development**

The process of changing cognitive structures in order to accept something from the environment.

**Accommodation**

**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**

Piaget described two processes used by the individual in its attempt to adapt:

- **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**

As **schemes** become increasingly more complex (i.e., responsible for more complex behaviors) they are termed **structures.**

As one's **structures** become more complex, they are organized in a **hierarchical manner** (i.e., from general to specific).

**Process of Cognitive Development**



The process of using or transforming the environment so that it can be placed in preexisting cognitive structures.

**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.

**METHODOLOGY**

- **CLINICAL**
  - Interviews
  - Interaction with the child
- **BEHAVIORAL OBSERVATIONS**
  - Watched kids in their natural environment.
  - Put down what represented his idea, he was biased.

**STAGES OF DEVELOPMENT**

- **Piaget's theory identifies four developmental stages and the processes by which children progress through them.**
- **The four stages are:**
  1. Sensorimotor Stage (birth to 24 months)
  2. Preoperational Stage (2-7 years old)
  3. Concrete Operational Stage (7-11 years old)
  4. Formal Operational Stage (11-15 years old)


**6 STAGES CONTINUED**

**5. Tertiary Circular Reaction (12-18 months)**

- Active potential
- Explore object's potential

**6. Invention of New Means through Mental Combinations (18-24 months)**

- Child moves from overt to covert thoughts
- The child can use mental representation instead of physical objects.



**SENSORIMOTOR STAGE**

- In this period, intelligence is demonstrated through motor activity without the use of symbols.
- Knowledge of the world is limited (but developing) because it is based on physical interactions and experiences.
- Some symbolic abilities are developed at the end of this stage.

**PREOPERATIONAL STAGE (2-7 YEARS OLD)**

- In this period, intelligence is demonstrated through the use of symbols.
- Language use matures.
- Memory and imagination are developed.
- **Thinking is done in a non-logically nonreversible manner**
- Ego centric thinking predominates

**6 STAGES OF SENSORIMOTOR STAGE**

<p><b>1. Modification of reflexes (0-1months)</b></p> <ul style="list-style-type: none"> <li>➢ Strengthens and differentiates reflexes</li> </ul> <p><b>2. Primary Circular Reaction (1-4 months)</b></p> <ul style="list-style-type: none"> <li>➢ Circular pattern of having a stimulus and responding</li> <li>➢ Focus is on own body</li> </ul>	<p><b>3. Secondary Circular Reaction (4-8 months)</b></p> <ul style="list-style-type: none"> <li>➢ Focus is on the outside world</li> </ul> <p><b>4. Coordination of Secondary Schema (8-12 months)</b></p> <ul style="list-style-type: none"> <li>➢ Goal oriented behavior</li> <li>➢ Apply ability to other things</li> </ul>
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**PRE-OPERATIONAL STAGE CONTINUED**

<p>○ <b>Semiotic Function</b></p> <ul style="list-style-type: none"> <li>• Language develops</li> <li>• Uses symbols to represent ideas</li> <li>• Verbal and written language develops</li> </ul> <p>○ <b>Egocentrism</b></p> <ul style="list-style-type: none"> <li>• It is all about them</li> <li>• They can not differentiate between themselves and the world</li> </ul>	<p>○ <b>Rigidity of Thought</b></p> <ul style="list-style-type: none"> <li>• Centration: focus on one aspect of an object</li> </ul> <p>○ <b>Semi-logical Reasoning</b></p> <ul style="list-style-type: none"> <li>• They get the general idea</li> </ul> <p>○ Limited social cognition</p>
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**CONCRETE OPERATIONAL STAGE (7-11 YEARS)**

- o Operation: internalized action part of organized structure.
- o Mentally carried out actions
- o Intelligence is demonstrated through logical and systematic manipulation of symbols related to concrete objects.
- o Egocentric thought diminishes.
- o Operational thinking develops.



**FORMAL OPERATIONS CONTINUED**

- o Children formulate hypothesis by taking concrete operations and generate hypothesis about logical relations
- o Pendulum Swing
  - The process is more important than the solution (Piaget, 1952; Brainerd, 1978).



**CONCRETE OPERATIONAL STAGE CONT'D**

- o Piaget's Water Conservation Task
- o Consist of two beakers of different sizes, one with water
- o Demonstrates the following:
  - Reversibility-pour water in beaker of different size and realize that it is still the same amount.
  - Compensation- even though one beaker is taller than the other, water is higher because the glass is thinner
  - Addition and subtraction
  - Starts out with liquid, then mass, then space



**HOW PIAGET'S THEORY IMPACTS LEARNING**

- o Curriculum: Educators must plan a developmentally appropriate curriculum that enhances their student's logical and conceptual growth.
- o Instruction: Teachers must emphasize the critical role that experiences, or interactions with the surrounding environment play in student learning (Bybee & Sund, 1982).



**FORMAL OPERATIONAL STAGE (11-15 YEARS OLD)**

- o Intelligence is demonstrated through the logical use of symbols related to abstract concepts.
- o There could be a return to egocentric thought early in the period.
- o Many people do not think formally during adulthood.
- o Many people do not make it to this stage.



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- o Piaget, J. (1952). Autobiography. In E. Boring (ed) history of psychology in autobiography (4). Worcester, MA: Clark University Press.



