



Jean Piaget's Cognitive Theory

Mr. M. Asim

Jean Piaget's Cognitive Theory

Piaget (1896-1980), a Swiss philosopher and natural scientist:

- It is also known as a Developmental Stage theory
- His theory about the nature and Development of human intelligence.
- It deals with nature of knowledge and how humans come gradually to acquire, construct and deal it.
 - Children construct an understanding of the world around them, and then experience discrepancies between what already know and what they discover in their environment



Jean Piaget's Cognitive

t h e o r y

- Piaget believed that:
 - Children actively construct their understanding of the world by developing schemas.
 - **Schemas** are concepts that are used to help us organize and interpret information. Basically it is a cognitive framework or concept that helps organize and interpret information.
 - » Infants organize knowledge using **behavioral schemes** (physical activities such as sucking, looking, grasping). Older children use **mental schemes** that involve cognitive activities, such as classifying objects by size, color, or shape.



Jean Piaget's Cognitive

t h e o r y

- Children also adjust their schemes through *assimilation* and *accommodation*.
 - **Assimilation** incorporates new information into existing knowledge.
 - Ex. Jared has developed a scheme for girls—all girls have long hair. Michael, Jared's older sister's boyfriend, has long hair...??? Jared must now accommodate by adjusting his existing scheme.
 - **Accommodation** adjusts existing knowledge to fit new information.
 - Ex. Sabrina is introduced to a pencil, which at first to her looks a lot like a straw. After realizing that she cannot drink out of her pencil, she adjusts her thinking and learns how to use it for writing.

Jean Piaget's Cognitive

t h e o r y

- Piaget further believed that cognitive development occurs in four age-related stages (1954), and each stage consists of a *qualitatively* different way of understanding the world.
- The four stages include:
 1. *sensorimotor*
 2. *preoperational*
 3. *concrete operational,*
 4. *formal operational.*



Overview of Piaget's Four Stages of Cognitive Development

<p>Birth to 2 years of age</p>	<p>Sensorimotor Stage: The infant constructs an understanding of the world by coordinating sensory experiences with physical actions: progressing from reflexive, instinctual action at birth to the beginning of symbolic thought toward end of the stage.</p>
<p>2 to 7 years of age</p>	<p>Preoperational Stage: The child begins to represent the world with words and images. These words and images reflect increased symbolic thinking and go beyond the connection of sensory information and physical action.</p>
<p>7 to 11 years of age</p>	<p>Concrete Operational Stage: The child can now reason logically about concrete events and classify objects into different sets.</p>
<p>11–15 years of age through adulthood</p>	<p>Formal Operational Stage The adolescent reasons in more abstract idealistic and logical ways.</p>

Sensorimotor Stage (Birth to 2 years of age)

The **Sensorimotor Stage** is the first of the four stages in cognitive development, in this stage:

- The infant constructs knowledge and understanding of the world by coordinating sensory experiences (such as vision and hearing) with physical actions with objects (such as grasping and sucking)
- Infants gain knowledge of the world from these physical actions they perform within it.
- They progressing from reflexive, instinctual action at birth to the beginning of symbolic thought toward end of the stage.

Sensorimotor Stage

- In this Stage, the development of object permanence is one of the most important accomplishments.
 - Object permanence is a child understands that objects continue to exist even though they cannot be seen or heard. (Example of Peek-a-boo poem)
- Piaget divided the sensory motor stage into six sub-stages.
 - i. Simple Reflexes (Birth-6 weeks)
 - ii. First habits and primary circular reactions phase (6 weeks-4 months)
 - iii. Secondary circular reactions phase (4-8 months)
 - iv. Coordination of secondary circular reactions stages (8-12 months)
 - v. Tertiary circular reactions, novelty, and curiosity (12-24 months)
 - vi. Internalization of Schemes (18-24 months)

Sensory Motor Stages

Simple Reflexes :

Birth-6 weeks

“Coordination of sensation and action through reflexive behaviors”. Three primary reflexes are described by piaget: sucking of object in the mouth, following moving or interesting objects with the eyes, and closing of the hand when an object makes contact with the palm.

First habits and primary circular reactions phase:

6-4 months

“Coordination of sensation and two types of schemes: habits (reflex) and primary circular reactions (reproduction of an event or action that initially occurred by chance).

Secondary circular reactions phase :

4-8 months

Development of habits. “Infants become more object oriented and repeat actions that bring interesting or pleasurable results”. A child may suck his or her thumb by accident and then later intentionally repeat the action. These actions are repeated because the infant finds them pleasurable

Sensory Motor Stages

Coordination of secondary circular reactions stages:

8-12 months

“Coordination of vision and touch- hand-eye coordination: child will begin combine their learned abilities and reflexes to achieve goal. For example, they might crawl to pick up a toy across the room or push aside toys blocking the specific one they want.

Tertiary circular reactions, novelty, and curiosity :

12-18 months

“Infants become excited (curious & interested) by the many properties of objects. They experiment with new behavior. Children begin a period of trial and error experimentation during this stage. A child may try out different sounds or actions as a way of getting attention from a caregiver.

Internalization of Schemes :

18-24 months

Children develop the ability to use symbols and form mental representations. During this time, children star to move towards understanding the world through mental operations rather than actions. This marks the passage into the preoperational stage.

By the end of sensory motor period, the child sees object as both separate from the self and permanent

Preoperational Stage(2 to 7 years of age)

Piaget's second stage, the **Preoperational Stage**. According to Piaget, this stage occurs from the age of 2 to 7 years.

- Children also begin to use language in the preoperational stage, but they cannot understand adult logic or mentally manipulate information. The term **Operational** *refers to logical manipulation of information*, so children at this stage are considered *pre-operational*. Children's logic is based on their own personal knowledge of the world so far, rather than on conventional knowledge.

Preoperational Stage

In the preoperational stage, *children use symbols to represent words, images, and ideas*, which is why children in this stage engage in pretend play.

- A child's arms might become airplane wings as she zooms around the room, or a child with a stick might become a brave knight with a sword.



Pretend Play: Pretending is a favorite activity at this time. A toy has qualities beyond the way it was designed to function and can now be used to stand for a character or object unlike anything originally intended. For example, a child is able to use an object to represent something else, such as pretending a broom is a horse.

Role-playing also becomes important—children often play the roles of "mommy," "daddy," "doctor," and many other characters.

Preoperational Stage

Egocentrism: Egocentrism in early childhood *refers to the tendency of young children not to be able to take the perspective of others, and instead the child thinks that everyone sees, thinks, and feels just as they do.* An egocentric child is not able to infer the perspective of other people and instead attributes his own perspective to situations.

- For example, ten year-old Keiko's birthday is coming up, so her mom takes 3 year-old Kenny to the toy store to choose a present for his sister. He selects an Iron Man action figure for her, thinking that if he likes the toy, his sister will too.

Piaget's classic experiment on egocentrism involved showing children a three dimensional model of a mountain and asking them to describe what a doll that is looking at the mountain from a different angle might see (see Figure). Children tend to choose a picture that represents their own, rather than the doll's view. By age 7 children are less self-centered.

- However, even younger children when speaking to others tend to use different sentence structures and vocabulary when addressing a younger child or an older adult. This indicates some awareness of the views of others.



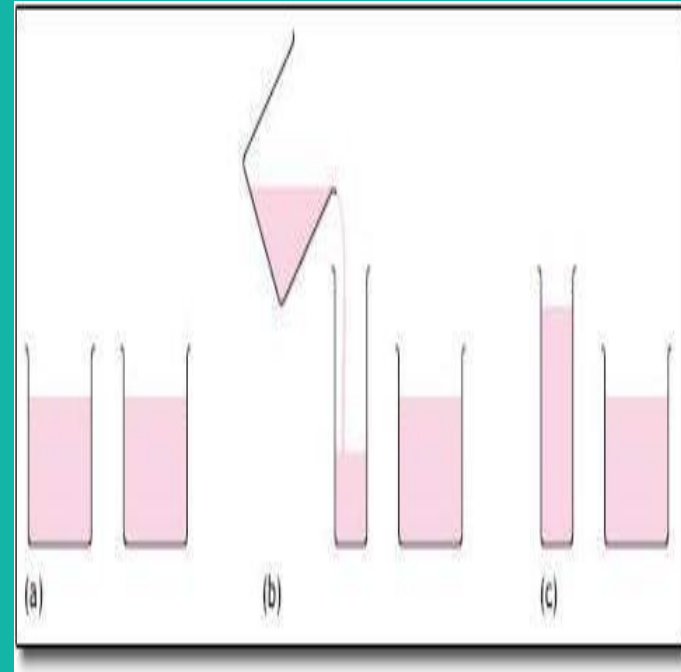
Preoperational Stage

Conservation refers to the ability to recognize that moving or rearranging matter does not change the quantity.

- Let's look at Ali and Sara, Dad gave a slice of pizza to 10-year-old Sara and another slice to 3-year-old Ali. Ali's pizza slice was cut into five pieces, so Ali told his sister that he got more pizza than she did. Ali did not understand that cutting the pizza into smaller pieces did not increase the overall amount.
 - This was because Ali exhibited **Centration**, or *focused on only one characteristic of an object to the exclusion of others*. Ali focused on the five pieces of pizza to his sister's one piece even though the total amount was the same.
 - Sara was able to consider several characteristics of an object than just one. Because children have not developed this understanding of conservation, they cannot perform mental operations.

The classic Piagetian experiment associated with conservation involves liquid. As seen in Figure, the child is shown two glasses (as shown in a) which are filled to the same level and asked if they have the same amount. Usually the child agrees they have the same amount.

The experimenter then pours the liquid in one glass to a taller and thinner glass (as shown in b). The child is again asked if the two glasses have the same amount of liquid. The preoperational child will typically say the taller glass now has more liquid because it is taller (as shown in c). The child has centred on the height of the glass and fails to conserve.



Pre-operational stages is split into two sub stages

2 to 4 years

The **Symbolic Function Substage** occurs between 2 and 4 years of age and *is characterized by the child being able to mentally represent an object that is not present and a dependence on perception in problem solving.*

Children are able to understand, represent, remember and picture object in their mind without having the object in front of them,

4 to 7 years

The **Intuitive Thought Sub stage**, lasting from 4 to 7 years, *is marked by greater dependence on intuitive thinking rather than just perception* (Thomas, 1979). When children tend to propose the questions of “why?” and “How come?” This stage is when children want the knowledge of knowing everything.

At this stage, children ask many questions as they attempt to understand the world around them using immature reasoning. Let's examine some of Piaget's assertions about children's cognitive abilities at this age.