

# How Does Our Thinking Change With Age?

Chapter 6:  
Cognitive Developmental Approaches



---

---

---

---

---

---

---

---

Get out some paper...class survey!  
What would you do?

If you were given a third eye to put anywhere on your body where would you put the extra eye and why?



---

---

---

---

---

---

---

---

It was once accepted that because babies cannot speak, then they must not think.

Jean Piaget examined the development of thought in children.



---

---

---

---

---

---

---

---

## How does thought develop?

- Piaget's theory focuses on \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- Piaget believed that children play an active role in their cognitive development.

---

---

---

---

---

---

---

---

## Piaget's Three Basic Assumptions

1. Children's constructive processes are generating hypotheses, performing experiments, and drawing conclusions  
- \_\_\_\_\_
2. Children learn many important lessons on their own, \_\_\_\_\_  
\_\_\_\_\_
3. Children are intrinsically motivated to learn and do not \_\_\_\_\_

---

---

---

---

---

---

---

---

## Piagetian Approach

- Piaget proposed a "stage approach" to development and he claimed that all children pass through a series of \_\_\_\_\_  
\_\_\_\_\_
- Sensorimotor (birth to 2 years)
- Preoperational (2 to 7 years)
- Concrete operational (7 to 12 years)
- Formal operational (12 years and beyond)

---

---

---

---

---

---

---

---

Piaget believed that infants spend a LOT of time trying to make sense of the world.

- A \_\_\_\_\_, a way of organizing and categorizing thoughts and experiences.
  - Schemas allow children to make \_\_\_\_\_
- Can be developed or modified through Assimilation or accomodation.

---

---

---

---

---


---

---

---

■ Assimilation incorporates \_\_\_\_\_

■ Example:



---

---

---

---

---

---

---

---

Wait...I changed my mind!

- Accommodation occurs when a child's theories are \_\_\_\_\_
- Example- The baby with a theory of dogs is surprised the first time she sees a cat- it resembles a dog, but meows instead of barks and rubs up against her rather than licking
- The baby must \_\_\_\_\_

---

---

---

---

---

---

---

---

### Why is this process important?

■ As adaptation continues, the child organizes his/her schemata into more \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

---

---

---

---

---

---

---

---

■ Assimilation and accommodation are usually in balance (equilibrium), but periodically the balance is upset which results in \_\_\_\_\_  
  
- Children restore equilibrium by replacing obsolete theories with \_\_\_\_\_

---

---

---

---

---

---

---

---

### Piaget's Stages of Cognitive Development (Part I)

**SENSORIMOTOR STAGE**

(Age 0-2)  
The child begins to interact with the environment.



---

---

---

---

---

---

---

---

Sensorimotor thinking involves adapting to the environment, understanding objects, and becoming able to use symbols.

This form of thought begins with the infant experiencing the world through their \_\_\_\_\_

---

---

---

---

---

---

---

---

### Simple Reflexes

■ During the first month of life, the various reflexes that determine the infant's interactions with the world are at the center of its cognitive life

- \_\_\_\_\_  
\_\_\_\_\_

■ Infants begin to modify their reflexes to make them more adaptive \_\_\_\_\_

- Example - thumb sucking

---

---

---

---

---

---

---

---

### Sensorimotor Period

On your own...  
Review the 6 substages of the Sensorimotor period.

---

---

---

---

---

---

---

---

## Sensorimotor Period

	Substages	Age Range	Focus
1	Simple Reflexes	Birth to 1 month	Exercising reflexes
2	First habits and Primary circular reactions	1 to 4 months	Learning to adapt
3	Secondary circular reactions	4 to 8 months	Making interesting events
4	Coordination of Secondary Reactions	8 to 12 months	Using means to achieve ends
5	Tertiary Circular Reactions, Novelty, and Curiosity	12 to 18 months	Experimenting
6	Internalization of Schemes	18 months to 2 years	Beginnings of Symbolic thought

---

---

---

---

---

---

---

---

### Primary circular reactions

For example, an infant might combine grasping an object with sucking on it, or staring at something with touch




---

---

---

---

---

---

---

---

### Secondary circular reactions

Infants begin to interact with

---

---

---

For example, realizing that a rattle makes noise-they shake their arms and laugh whenever someone puts a rattle in their hand




---

---

---

---

---

---

---

---

Coordination of Secondary Reactions



A baby who enjoys baths may crawl into the bath tub with a bar of soap and remove all her clothes to communicate to Mom that she wants a bath.

---

---

---

---

---

---

---

---

Major Advancement

■ Object Permanence

- \_\_\_\_\_
- Third substage: Infants will look for something they've dropped but if they cannot see it, they act as if it no longer exists
  - Out of sight - out of mind
- Sixth substage: \_\_\_\_\_

---

---

---

---

---

---

---

---

Assess the infant's object permanence

- Five month-old Jack is playing with your car keys, but now you want to leave. You distract the infant and take your keys.
  - How does the infant react?
  - What does this suggest?



---

---

---

---

---

---

---

---

The infant responds by doing NOTHING. The infant will not even look for the keys. He will act as though the keys do not even exist anymore- because he DOES NOT have object permanence

---

---

---

---

---

---

---

---

Click on the picture to watch a video on object permanence



---

---

---

---

---

---

---

---

Piaget's Stages of Cognitive Development (Part II)

**PREOPERATIONAL STAGE**

(Age 2-6 or 7)  
The child begins to represent the world symbolically.



---

---

---

---

---

---

---

---



### Preoperational Period (2-7years)

- The period in which children become able to

---

---

- Limitations of the Preoperational Period:

- Egocentrism
- Animism
- Centration
- Lack of conservation

---

---

---

---

---

---

---

---

Infants develop the ability to use symbols and engage in pretend play



---

---

---

---

---

---

---

---

### Me, Me, Me....

- A key element in the preoperational stage is egocentrism, which is the inability to perceive a

- Children in this stage, cannot put themselves in another person's position

- Over the course of the preoperational period, egocentric speech becomes less common.

---

---

---

---

---

---

---

---

## Example of Egocentrism

- Three-year-old Jamila loves talking to Grandma Powell on the telephone. When Grandma Powell asks a question, Jamila often replies by nodding her head. Jamila's dad has explained that Grandma Powell can't see her nodding, that she needs to say "yes" or "no." But, no luck. Jamila invariably returns to head-nodding.




---

---

---

---

---

---

---

---

## Cognitive Advances

- Use of symbols
  - Children do not need to be in sensorimotor contact with an object, person, or event in order to think about it
  - \_\_\_\_\_
- Understanding of identities
  - Children are aware that superficial alterations do not change the nature of things
- Understanding of cause and effect
  - Children realize that events have causes

---

---

---

---

---

---

---

---

## Cognitive Advances Continued...

- Ability to classify
  - \_\_\_\_\_
- Understanding of number
  - Children can count and deal with quantities
- Empathy
  - Children become more able to \_\_\_\_\_

---

---

---

---

---

---

---

---

## Limitations according to Piaget

- Theory of mind
  - Children become more aware of mental activity and the functioning of the mind
- Irreversibility
  - Children fail to understand that some operations or actions

---

---

---

---

---

---

---

---

## Limitations according to Piaget

- \_\_\_\_\_
  - Children fail to understand that some operations or actions can be reversed, restoring the original situation
- Centration
  - Preoperational children have the tendency to narrowly focus on a single, \_\_\_\_\_
- For example, a three-year old may choose a nickel over the dime \_\_\_\_\_

---

---

---

---

---

---

---

---

## Concrete Operational Stage

- A milestone of this stage is understanding Conservation
- This ability allows children to recognize that objects can be transformed visually or \_\_\_\_\_



---

---

---

---






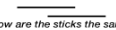


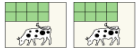
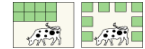
---

---

---

---

## Conservation Tasks

Type of Conservation	Starting Configuration	Transformation	Final Configuration
Liquid quantity	 Is there the same amount of water in each glass?	Pour water from one glass into a shorter, wider glass.	 Now is there the same amount of water in each glass, or does one have more?
Number	 Are there the same number of pennies in each row?	Stretch out the top row of pennies, push together the bottom row.	 Now are there the same number of pennies in each row, or does one row have more?
Length	 Are these sticks the same length?	Move one stick to the left and the other to the right.	 Now are the sticks the same length, or is one longer?
Mass	 Does each ball have the same amount of clay?	Roll one ball so that it looks like a sausage.	 Now does each piece have the same amount of clay, or does one have more?
Area	 Does each cow have the same amount of grass to eat?	Spread out the squares in one field.	 Now does each cow have the same amount to eat, or does one cow

---

---

---

---

---

---

---

---

---

---

---

---

## Appearance as Reality

### ■ Preoperational \_\_\_\_\_

Preschool children believe an object's appearance tells what the object is really like.

- They think if people look happy, they are really happy.

---

---

---

---

---

---

---

---

---

---

---

---

At the latter end of the stage, \_\_\_\_\_ begin \_\_\_\_\_ s. This is a change from a self-oriented view to recognizing the view of others.




---

---

---

---

---

---

---

---

---

---

---

---

### Test Your Knowledge

- A child in this stage saw a classmate crying and someone asked, "why is Marcus crying?" What is the child displaying?
- The child responds by saying, "I don't know...I'm OK."
- With the same scenario, a child responds, "Marcus is sad"

---

---

---

---

---

---

---

---

### Piaget's Stages of Cognitive Development (Part III)

#### CONCRETE OPERATIONAL STAGE

(Age 7-11 or 12)  
The child learns rules such as conservation.




---

---

---

---

---

---

---

---

### Concrete Operational Period

- The period in which children become able to reason logically about concrete objects and events.  
\_\_\_\_\_
- Children first use \_\_\_\_\_  
\_\_\_\_\_
- Addition, subtraction, multiplication, and division are familiar arithmetic operations that concrete operational children use

---

---

---

---

---

---

---

---

## Classifying Objects, Ideas and People

- Children can also classify or divide things into different sets or subsets and consider their interrelationships.
- \_\_\_\_\_ is the process of organizing things into groups according to some property they have in common
  - Children that can categorize can analyze problems, derive correct solutions and ask follow-up questions
- \_\_\_\_\_
  - Example: size, shape, volume

---

---

---

---

---

---

---

---

## Reversibility

- The concrete operational child can operate an action, and then go back to the original condition.
  - $3 + 2 = 5$  and  $5 - 2 = 3$
- Reciprocity is another logical principle in which \_\_\_\_\_
  - $4 \times 6$  is the same as  $2 \times 12$
- This is relevant to the development of mathematical processes

---

---

---

---

---

---

---

---

## Reasoning

- Inductive Reasoning
  - Type of logical reasoning that moves from particular observations about members of a class to a general \_\_\_\_\_
- Deductive Reasoning
  - Type of logical reasoning that moves from a \_\_\_\_\_ about a particular member or members of the class

---

---

---

---

---

---

---

---

## Test Your Knowledge...

Inductive or Deductive Reasoning?

- My dog barks. Jason's dog barks. Carla's dog barks. Therefore, all dogs bark.
- All dogs bark. Brutus is a dog. Therefore, Brutus barks.

---

---

---

---

---

---

---

### Piaget's Stages of Cognitive Development (Part IV)

#### FORMAL OPERATIONAL STAGE

(Age 12-adulthood)  
The adolescent can transcend concrete situations and think about the future.



---

---

---

---

---

---

---

### Formal Operational Stage 12+

- In this stage, the individual can think hypothetically, consider future possibilities, and use deductive logic

---

---

---

---

---

---

---

---

---

---

---

### Do adolescents think like adults yet?

- Teenagers have more skillful selective attention, expanded memory, and ability to understand and \_\_\_\_\_
- The development of *hypothetical thought* emerges during this period.
  - This type of thought involves reasoning about imagined possibilities. \_\_\_\_\_

---

---

---

---

---

---

---

---

### More complex reasoning

- During adolescence, teens are more able to think hypothetically, which allows for *Hypothetical-deductive reasoning*.
- \_\_\_\_\_
- In other words, from specific proven laws or rules we can deduce certain truths. This is often displayed in principles of science and math.




---

---

---

---

---

---

---

---

### What does your thinking say about you?

- Concrete Operational Child (9-year-old)
  - All of these children placed their third eye on the forehead between their two natural eyes
- Formal Operational Child (12-year-old)
  - These children gave a wide variety of answers with imaginative rationales
  - Some answered palm of the hand or inside the mouth and explained why.




---

---

---

---

---

---

---

---



The return of egocentrism!

- Most teens who reach formal operational thought are worried about how others see them, they are constantly consumed with conflicting feelings.
- Analyzing private thoughts and feelings reflect the enhanced capacity for \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

---

---

---

---

---

---

---

---

Adolescents don't think quite the same as children or adults...their thinking is distorted due to their egocentrism!



---

---

---

---

---

---

---

---

Everyone is always watching me!

- The teenager's false belief that others are intensely interested in their appearance and behavior is called the \_\_\_\_\_  
\_\_\_\_\_
- A logical lapse that occurs from the influence of egocentrism
- \_\_\_\_\_  
\_\_\_\_\_

---

---

---

---

---

---

---

---

### The Imaginary Audience

- This is one explanation for teen's obsession with their hair, clothing, and everything else for that matter before going out in public.
- Teens often accuse parents of spying on them and monitoring their every move.

---

---

---

---

---

---

---

This also explains their need to fit in with their peer group.



"Would you jump off a bridge if everyone did?"

---

---

---

---

---

---

---

### The Personal Fable

- Another false belief that teens exhibit is the personal fable, which is the belief that he or  

---

---
- Teens believe that they are so special and unique that no one can understand them.
- "Bad things happen to others...not us!"

---

---

---

---

---

---

---

### Think and review on your own...

Is there a fifth stage of cognitive development?

Analyze the Post-Formal Operational Stage of cognitive development



---

---

---

---

---

---

---

### Four Weaknesses of Piaget's Approach

1. The stage model depicts children's thinking as being more consistent than it is
2. Infants and young children are more cognitively competent than Piaget recognized
3. Piaget's approach underestimates the contribution of the social world to cognitive development
4. Piaget's approach is vague about the cognitive processes that give rise to children's thinking and about the mechanisms that produce cognitive growth

---

---

---

---

---

---

---

### What's Next?

The Sociocultural Perspective:  
Vygotsky's Theory

---

---

---

---

---

---

---