## How Does our thinking change with age?

Chapter 4- Cognitive Development

## CLASS OBJECTIVES

- When you we begin to think?
- Piaget- 4 stages of Cognitive Development

## How does thought develop?

- Piaget's theory focuses on *how* people think rather than *what they think*.
- Piaget believed that children play an active role in their cognitive development.
  - Piaget's theories emphasized biology, which allow them to be applied to any culture

## How do we make sense of the world?

- *A schema* is a mental structure, a way of organizing and categorizing thoughts and experiences.
- Schemas allow children to make comparable generalizations.

## Schema

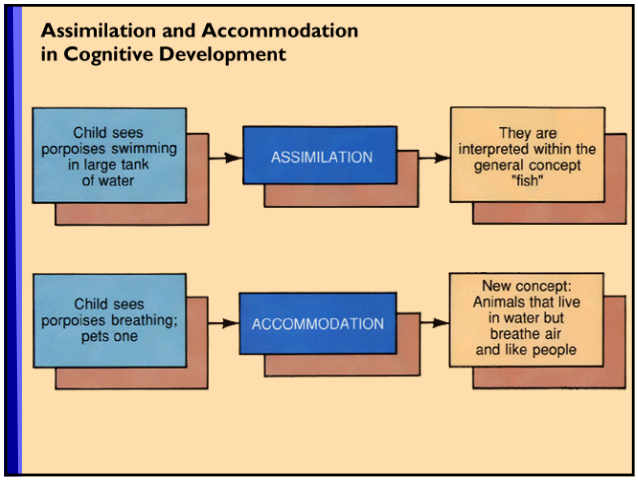
- Children develop and modify *schema* by two processes:
  - Assimilation
  - Accommodation

- *Assimilation* incorporates new ideas and experiences into existing mental structures.
- Example: a baby who is familiar with grasping will soon discover that the grasping works for toys as well as blocks, balls, and other small objects.



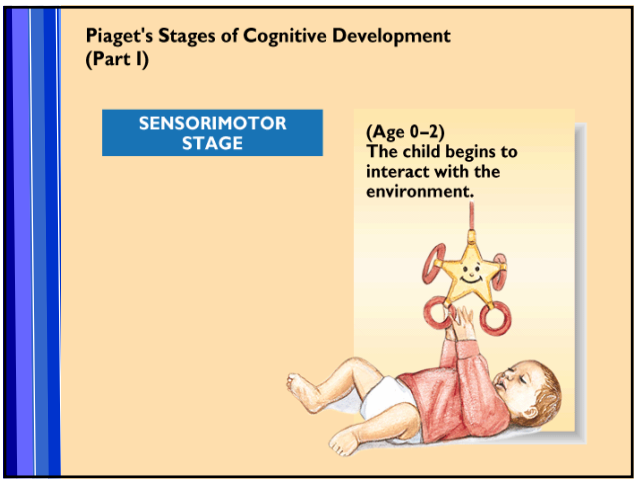
## Wait…I changed my mind!

- *Accommodation* occurs when previously developed schemas are modified to adapt them to new experiences
- Example- John has a dog…the schemata for dog is an animal with four legs and a tail. John is bitten by a neighbor's dog-
- How could his schema change to accommodate this new info?



## Four Stages of Cognitive Development

- Sensorimotor (Birth - 2 years)
- Preoperational (2 - 7 years)
- Concrete operational (7 -12 years)
- Formal operational (12 +)




## Sensorimotor Stage (birth-2yrs)

- Infants begin to interact with the world through their reflexes during this stage.
  - They will learn to coordinate them and make purposeful actions.
- Piaget believed that the foundation for all cognitive development is established during this period

## Why is peek-a-boo fun for babies?

- *Object permanence* is the realization that objects continue to exist even when they are out of sight, around 9 months.
- Research that has shown this capability in some 4-month-olds—a younger age than Piaget believed possible (Hespos & Baillargeon, 2001).

- For this 5-month-old, "out of sight" is literally out of mind.
- The infant looks at the toy monkey (top), but when his view of the monkey is blocked (bottom), he does not search for it.

**Piaget's Stages of Cognitive Development (Part II)**

**PREOPERATIONAL STAGE**

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

## The Preoperational Stage

- The preoperational stage lasts from about age 2 to age 6 or 7
- In this stage, children represent reality through *symbolic thought.*
- Children continue to think about specifics rather than abstracts, and cannot easily deal with thoughts that are not visually represented.

## What games did you play at this age?

- Children play with objects in new ways and try to represent reality through symbolic thought, by playing "pretend"

## Me, Me, Me….

- A key element in the preoperational stage is *egocentrism-*
  - The inability to perceive a situation except in relation to the self.
- Children in this stage:
  - Cannot see your point of view
  - Are not able to understand that the world does not exist to meet their needs.

## Is this self-centered?

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

## Does this ever change?

- Yes…at the end of the stage, *Decentration* begins.
  - Which is a change from a self-oriented view to recognizing the view of others.

## Did you get it?

- 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." Egocentrism
- With the same scenario, a child responds, "Marcus is sad" Decentration

**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 Stage (7-11yrs)

- In this stage, children become able to reason logically about concrete objects and events.
- The *concrete operational* child understands rules and the reasons for them and high-order symbolic systems
- What subjects do we learn in elementary school that are different than preschool?

## Making sense of abstract things

- A milestone of this stage is understanding *Conservation*
- *Conservation* is recognizing that objects can be transformed visually or physically, yet still be the same in number, weight, substance, or volume

| 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 have more?* |

**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, adolescents can consider future possibilities and use *deductive logic*
- Adolescents become able to think about abstractions and hypothetical situations
  - They understand that reality is not the only possibility
  - Capable of *deductive reasoning*

## What would *you* do?

- Suppose that you were given a third eye and that you could choose to place this eye anywhere on your body. Where would you put the extra eye and why would you put it there?

## 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.

## Next Class

- What is Attachment and how does it affect us?