

A Topical Approach to Life-Span Development 6e

Chapter Six: Cognitive Developmental Approaches

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Piaget's Theory of Cognitive Development

- Processes of development
 - Schemes
 - Actions or mental representations that organize knowledge
 - Schemas can take the form of images, models, actions, and/or concepts.
 - Behavioral (physical activities) in infancy
 - Mental (cognitive activities) in childhood

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- Nine-year-old AJ enjoys participating in organized sports. He is developing an idea of belonging to a team. AJ's concept of being a team member is an example of a(n):
 - a. abstract model symbol.
 - b. accommodation.
 - c. scheme.
 - d. assimilation.

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Piaget's Theory of Cognitive Development

- Processes of development
 - Concepts for constructing knowledge
 - Piaget identified how children develop and use them
 - Schemes/schemas
 - Assimilation and accommodation
 - Organization
 - Equilibrium and disequilibrium
 - Equilibration



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Jean Piaget and Cognitive Development: Schemas

This child has formed a schema called "COW" which he uses to think about animals of a certain shape and size.



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Assimilation and Accommodation

How can this girl use her "dog" schema when encountering a cat?



- She can **assimilate** the experience into her schema by referring to the cat as a "dog"
- or
- she can **accommodate** her animal schema by separating the cat, and even different types of dogs, into separate schemas.

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Piaget's Theory of Cognitive Development

- Processes of development
 - **Assimilation**
 - Incorporate new information or experience into existing knowledge schemes
 - **Accommodation**
 - Adjust existing schemes to take in new information and experiences

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- Example, newborns reflexively suck everything that touches their lips and the characteristics of each new item are learned (i.e. texture, taste, etc.) through _____; however, if the infant sucks on something unpleasant (i.e., tastes bad, is sharp, etc.,) she quickly learns a new schema -- that certain things should not be sucked – through _____.

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Devin plays in the sand for the first time. Instead of digging in it, he tries to scoop and throw it, just like he plays with water in his bathtub. This is an example of:

- a. cognition.
- b. assimilation.
- c. organization.
- d. accommodation.

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Eventually children learn not to put everything in their mouths. This is an example of:

- a. assimilation.
- b. disequilibrium.
- c. accommodation.
- d. scaffolding.

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Piaget's Theory of Cognitive Development

- Processes of development
 - **Organization**
 - Grouping isolated behaviors/items into a higher-order cognitive system (categories)
 - Undergoes continual refinement

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- Matthew has scattered ideas about how to compete in different sports. He is slowly constructing a concept of playing on a team. According to Piaget, Matthew is:
 - calibrating.
 - assimilating.
 - accommodating.
 - organizing.

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Piaget's Theory of Cognitive Development

- **Equilibration and stages of development**
 - **Disequilibrium:** Cognitive conflict, motivation for change
 - **Equilibrium:** Resolve conflict through assimilation and accommodation, to reach a new balance of thought
 - **Equilibration**
 - A mechanism that helps children understand the world by resolving cognitive conflict or disequilibrium.
 - Explanation of cognitive shift (qualitative) from one stage of thought to next

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Piaget's Theory of Cognitive Development

- **Theory**
 - Piaget believed that children pass through four stages of thought
 - Motivation is internal search for equilibrium (biological pressures to adapt to the environment)
 - Four stages of development...progressively advanced and qualitatively different

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Piaget's Theory of Cognitive Development

Stage	Age	Development
Sensorimotor	0-2 yrs	Organize and coordinate sensations with actions object permanence
Preoperational	2-7 yrs	Symbolic thinking reflective of use of words and images
Concrete operational	7-11 yrs	Logical reasoning about concrete events; concepts of conservation, classification, serial ordering
Formal operational	11-15 yrs	Abstract thinking, logical, hypothetical reasoning, idealistic

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Piaget's Theory of Cognitive Development

- **Sensorimotor stage**
 - Age: Birth to 2 years
 - Infants construct understanding of world by coordinating sensory experiences with motor actions



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Piaget's Theory of Cognitive Development

- **Sensorimotor stage**
 - **Object permanence (6-8 months)**
 - Understanding that objects still exist when not seen, heard, or touched
 - One of infant's most important accomplishments



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Piaget's Theory of Cognitive Development

- **Preoperational stage**
 - Second stage; ages 2-7 years
 - Children begin to represent the world with words, images, and drawings
 - Not ready to perform **operations**
 - Internalized actions that allow children to do mentally what they only did physically before (e.g. mentally adding or subtracting numbers)

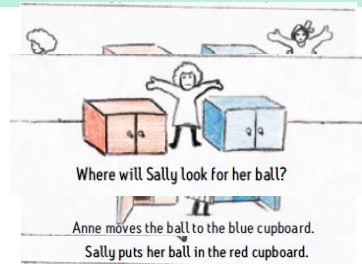
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Piaget's Theory of Cognitive Development

- Preoperational stage
 - Two substages
 - **Symbolic function** (ages 2-4)
 - Gains ability to mentally represent an object that is not present
 - Two limitations
 - » Animism: Lifelike qualities given to inanimate objects (Teddy is cold; trees are crying...)
 - » Egocentrism: Inability to distinguish own view from another's view

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Egocentrism:



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Egocentrism: "I am the World."



Piaget's Theory of Cognitive Development

- Preoperational stage
 - Two substages
 - **Intuitive thought** (ages 4-7)
 - Use of primitive reasoning, seeks answers to all sorts of questions
 - Why? questions exhaust adults

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Piaget's Theory of Cognitive Development

- Preoperational stage
 - **Conservation**: object or substance amount stays same regardless of changing appearance; lacking in preoperational stage

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Examples of Operations that Preoperational Children Cannot Do... Yet







Conservation refers to the ability to understand that a quantity is **conserved** (does not change) even when it is arranged in a different shape.



Which row has more mice?



Figure 6.8 - Some Dimensions of Conservation: Number, Matter, and Length

Type of Conservation	Initial Presentation	Manipulation	Preoperational Child's Answer
Number	 Two identical rows of objects are shown to the child, who agrees they have the same number.	 One row is lengthened and the child is asked whether one row now has more objects.	Yes, the longer row.
Matter	 Two identical balls of clay are shown to the child. The child agrees that they are equal.	 The experimenter changes the shape of one of the balls and asks the child whether they still contain equal amounts of clay.	No, the longer one has more.
Length	 Two sticks are aligned in front of the child. The child agrees that they are the same length.	 The experimenter moves one stick to the right, then asks the child if they are equal in length.	No, the one on the top is longer.

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Piaget's Theory of Cognitive Development

- Preoperational stage
 - **Centration:** focusing attention on one characteristic to exclusion of all others
 - Evidenced in lack of conservation

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Piaget's Theory of Cognitive Development

- Concrete operational stage
 - Ages: 7-11 years
 - Children can perform concrete operations
 - Logical reasoning replaces intuitive reasoning if applied to specific, concrete examples
 - Consider several characteristics of object at once rather than to focus on a single property of an object.
 - Height or width
 - Both

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Piaget's Theory of Cognitive Development

- Concrete operational stage
 - Concrete operations: child understands one person can be father, brother, and grandson
 - **Seriation:** Involves the ability to order stimuli along a quantitative dimension (e.g. length)
 - **Transitivity:** Relationships between objects — if (a) equals (b) and (b) equals (c), then (a) equals (c)

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Piaget's Theory of Cognitive Development

- Formal operational stage
 - Ages: 11-15 years
 - Moves beyond concrete operations; thinks in more abstract and logical ways
 - Abstract, Idealistic, and Logical Thinking
 - **Hypothetical-deductive reasoning**
 - Cognitive ability to develop hypotheses, and systematically find best way to solve problem

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Piaget's Theory of Cognitive Development

- Formal operational stage
 - Adolescent Egocentrism (p.195)
 - **Imaginary audience**
 - Belief that others are as interested in them as they are
 - Involves attention-getting behavior motivated by desire to be noticed, visible, and "on stage"
 - **Personal fable** — adolescent's sense of uniqueness and invincibility

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Applying and Evaluating Piaget's Theory

- Piaget's contributions
 - Vision of children as active, constructive thinkers
 - Criticisms of theory
 - Some estimates of children's competence is inaccurate
 - Development not uniformly stage-like
 - Effects of training underestimated
 - Culture and education influence development
- http://youtu.be/5ZndF_NruR4

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Vygotsky's Theory of Cognitive Development

- Children actively construct their knowledge and understanding
 - Learn through social interactions
 - Society provides tools for learning
 - Language very important in this process
- <http://youtu.be/OBX2ynEqLL4>



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Vygotsky's Theory of Cognitive Development

- **Zone of Proximal Development (ZPD)**
 - Range of tasks too difficult for child to master alone; can be mastered with guidance and assistance from more-skilled person
- **Scaffolding**
 - Changing level of support over course of a teaching session to fit child's current performance level; dialogue is important tool

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Vygotsky's Theory of Cognitive Development

- Language and thought
 - Child uses language to plan, guide, and monitor behavior
 - Language and thought initially develop independently, then merge
 - Private speech: Language of self-regulation
 - Self talk (3 to 7 years of age)
 - Inner speech: Child's thoughts

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Vygotsky's Theory of Cognitive Development

- Teaching strategies
 - Effectively assess child's ZPD
 - Use child's ZPD in teaching
 - Use more-skilled peers as teachers
 - Monitor and encourage private speech
 - Place instruction in meaningful context
 - Transform classroom with Vygotskian ideas

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Vygotsky's Theory of Cognitive Development

- Tools of the Mind
 - Emphasizes self-regulation by child
 - Give special attention to at-risk children
 - Poverty
 - Difficult conditions (e.g. homeless, drugs)
 - Dramatic play has central role in classroom
 - Child writings are important

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Vygotsky's Theory of Cognitive Development

- Evaluating Vygotsky's theory
 - Social constructionist approach
 - Importance of skills valued by specific culture
 - Knowledge constructed through social interactions
 - Criticisms:
 - Overemphasize role of language
 - Facilitators may be too helpful, overcontrolling

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	Vygotsky	Piaget
Constructivism		
Sociocultural Context		
Stages		
Key Processes		
Role of Language		
View on Education		
Teaching Implications		

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Cognitive Changes in Adulthood

- Piaget's view
 - Thinking qualitatively in formal operations same as adolescents
 - Research shows:
 - Many don't reach highest level of formal operational thinking until adulthood
 - Many adults don't use formal operational thinking

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Cognitive Changes in Adulthood

- Realistic and pragmatic thinking
 - Young adults' thinking changes from adolescence
 - **Realistic:** Idealism decreases in face of real world constraints
 - **Pragmatic:** (Schaie, 1977) Switch from acquiring knowledge to applying it

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Cognitive Changes in Adulthood

- Reflective and relativistic thinking
 - Move away from absolutist thinking of adolescence
 - Reflective thinking: indicates change to adulthood
 - Increasing complexity of cultures in world
 - Indicates changing nature of knowledge
 - Adulthood – "worldview" is subjective
 - Greatest influence on thinking — education

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Cognitive Changes in Adulthood

- Is there a fifth, postformal stage?
 - Postformal thought is
 - Reflective, relativistic, and contextual
 - Provisional
 - Realistic
 - Open to emotions and subjective
 - More research needed
 - Another possible stage may be wisdom

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