

# Life-Span Development Thirteenth Edition

## Chapter 7: Physical and Cognitive Development In Early Childhood

### Physical Changes

- Body Growth and Change
  - Height and Weight:
    - Average growth is 2.5 inches and 5 to 7 pounds per year during early childhood
  - Growth patterns vary individually
  - Two most important contributors to height differences: ethnic origin and nutrition

### Physical Changes

- Body Growth and Change
  - The Brain
    - Brain growth slows during early childhood
      - Brain reaches 95% of adult volume by 6 years
  - Changes in child's brain structure
    - Increased myelination
  - Rapid, distinct spurts of growth especially in the frontal lobes

### Physical Changes

- Motor Development
  - Gross motor skills:
    - Simple movements at age 3
    - More adventurous at age 4
    - Hair-raising risks at age 5
  - Fine motor skills:
    - Still clumsy at 3 years
    - Improved fine motor coordination at 4 years
    - Body coordination by 5 years

## Physical Changes

- Sleep
  - Should sleep 11-13 hours each night without interruption
  - Can experience narcolepsy, insomnia, and nightmares

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## Physical Changes

- Nutrition and Exercise
  - Overweight Young Children
    - Serious health problems in early childhood
  - Strongly influenced by caregivers' behavior
  - 11% of 2-19 year-olds are obese, 10% overweight, and 38% at risk of being overweight
  - U.S. has second highest rate of childhood obesity
  - Exercise should be a daily occurrence

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## Physical Changes

- Nutrition and Exercise
  - Malnutrition in Young Children from Low-Income Families
    - 11 million preschool children are experiencing malnutrition
    - Biggest problem is iron deficiency anemia

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## Physical Changes

- Illness and Death
  - The United States
    - Leading causes of death in U.S. children are:
      - Motor vehicle accidents
      - Cancer
      - Cardiovascular disease
  - Exposure to parental smoking is another major danger to children
  - Lead poisoning
  - Inadequate medical care

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## Physical Changes

Illness and Death

Cause	Percentage
Fractures	0.8%
Lower Respiratory Diseases	1.7%
Septicemia (meningitis in the blood)	2.4%
Influenza and pneumonia	2.1%
Cardiovascular Diseases	4.7%
Cancer	8.4%
Motor Vehicle Accidents	13.1%

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## Physical Changes

- Illness and Death
  - State of Illness and Health of the World's Children
    - Mortality rate of children under 5 is the result of a wide range of factors
    - Devastating effects of health occur in countries with high poverty rates
    - Dramatic increase in deaths due to HIV/AIDS, especially in poor countries

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## Cognitive Changes

- Piaget's Preoperational Stage
  - Ages 2 to 7 years
  - Children represent the world with words, images, and drawings
  - Children form stable concepts and begin to reason
  - Cognitions are dominated by egocentrism and magical beliefs

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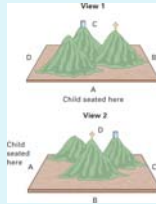
## Cognitive Changes

- Piaget's Preoperational Stage
  - The Symbolic Function Substage
    - Child gains the ability to mentally represent an object that is not present
    - Egocentrism: cannot distinguish one's own perspective from someone else's
    - Animism: the belief that inanimate objects have lifelike qualities and are capable of action

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## Cognitive Changes

Piaget's Preoperational Stage



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## Cognitive Changes

- Piaget's Preoperational Stage

- The Intuitive Thought Substage
  - 4 to 7 years of age
  - Children use primitive reasoning and want to know the answers to questions
  - Have difficulty understanding events that cannot be seen and negotiating traffic
  - Children are unaware of how they know what they know

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## Cognitive Changes

- Piaget's Preoperational Stage

- Centration and the Limits of Preoperational Thought
  - Centration: centering attention on one characteristic to the exclusion of all others
  - Conservation: altering a substance's appearance does not change its basic properties

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## Cognitive Changes

Type of conservation	Number	Matter	Length
Initial presentation	<p>Two identical rows of objects shown to child</p>	<p>Two identical balls of clay shown to child</p>	<p>Two sticks are aligned in front of child</p>
Manipulation	<p>One row is spaced</p>	<p>Experimenter changes shape of one ball</p>	<p>Experimenter moves one stick to right</p>
Preoperational child's answer to "Are they still the same?"	"No, the longer row has more"	"No, the longer one has more"	"No, the one on top is longer"

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## Cognitive Changes

- Vygotsky's Theory:
  - Children think and understand primarily through social interaction
  - Zone of proximal development (ZPD): range of tasks that are too difficult for the child alone but that can be learned with guidance
  - Scaffolding: changing the level of support during a teaching session

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## Cognitive Changes

- Vygotsky's Theory
  - Language and Thought
    - Private speech: use of language for self-regulation
    - Children use speech to communicate socially and to help them solve tasks
    - Inner speech becomes their thoughts
    - More private speech = more social competence



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## Cognitive Changes

- Vygotsky's Theory
  - Teaching Strategies:
    - Vygotsky's theory can be applied to education
      - Assess child's ZPD
      - Use the child's ZPD in teaching
      - Use more-skilled peers as tutors
      - Place instruction in a meaningful context
      - Transform the classroom with Vygotskian ideas

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## Cognitive Changes

	 <p><b>Vygotsky</b></p>	 <p><b>Piaget</b></p>
<b>Sociocultural Context</b>	Strong emphasis	Little emphasis
<b>Constructivism</b>	Social constructivist	Cognitive constructivist
<b>Stages</b>	No general stages of development proposed	Strong emphasis on stages (sensorimotor, preoperational, concrete operational, and formal operational)
<b>Key Processes</b>	Zone of proximal development, language, dialogue, tools of the culture	Schema, assimilation, accommodation, operations, conservation, classification
<b>Role of Language</b>	A major role; language plays a powerful role in shaping thought	Language has a minimal role; cognition primarily directs language
<b>View on Education</b>	Education plays a central role, helping children learn the tools of the culture	Education merely refines the child's cognitive skills that have already emerged
<b>Teaching Implications</b>	Teacher is a facilitator and guide, not a director; establish many opportunities for children to learn with the teacher and more-skilled peers	Also views teacher as a facilitator and guide, not a director; provide support for children to explore their world and discover knowledge

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## Cognitive Changes

- Information Processing
  - Attention – the focusing of mental resources on select information
    - Executive vs. Sustained Attention
  - Deficiencies in attention
    - Salient versus relevant dimensions: paying attention to stimuli that stand out
  - Planfulness: young children use haphazard comparison strategies

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## The Planfulness of Attention



In three pairs of houses, all windows were identical.

In three pairs of houses, the windows were different.

By filming the reflection in children's eyes, one could determine what they looked at, how long they looked, and the sequence of their eye movements. Children under 6 were different from older children in this study.

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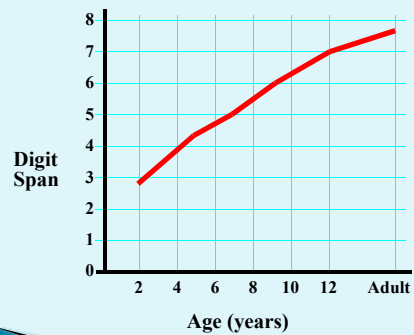
## Cognitive Changes

- Information Processing
  - Memory – retention of information over time
    - Short-term: individuals can retain information up to 30 seconds with no rehearsal
    - Speed and efficiency of memory processes improve with age and experience

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## Developmental Changes in Memory Span



In one study, memory span increased from 3 digits at age 2, to 5 digits at age 7, to 7 digits at age 12.

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## Cognitive Changes

- Information Processing
  - How Accurate Are Young Children’s Long-Term Memories?
    - There are age differences in children’s susceptibility to suggestion
    - There are individual differences in susceptibility
    - Interviewing techniques can produce substantial distortions in children’s reports about highly salient events

## Cognitive Changes

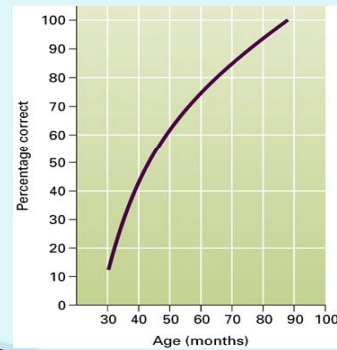
- Information Processing
  - Strategies and Problem Solving
    - Strategies – deliberate mental activities to improve the processing of information
    - Early childhood transforms the toddler into a child capable of flexible, goal-directed problem solving

## Cognitive Changes

- Information Processing
  - The Child’s Theory of Mind: awareness of one’s own mental process and the mental processes of others
    - Age 18 months–3 years: children begin to understand three mental states — perceptions, desires, and emotions
    - Age 3 to 5 years: children understand *false beliefs*
    - Age 5 to 9 years: appreciation of the mind
    - Age 7+ years: understand the beliefs and thoughts of others

## Cognitive Changes

False-Belief Performance



## Language Development

- Understanding Phonology and Morphology
  - During preschool years, children:
    - Become sensitive to the sounds of spoken words
    - Produce all the sounds of their language
    - Demonstrate a knowledge of morphology rules; use plurals, possessives, prepositions, articles, and verb forms
    - Learn and apply syntax rules

## Language Development

- Understanding Phonology and Morphology
  - Changes in Syntax and Semantics
    - Learn how words should be ordered and expand their vocabulary
  - Advances in Pragmatics
    - Adapt their speech in different settings
  - Young Children's Literacy
    - Parents and teachers must develop a positive orientation toward reading and writing

## Early Childhood Education

- Variations in Early Childhood Education:
  - Child-centered kindergarten: emphasizes the education of the whole child and concern for his or her physical, cognitive, and socioemotional development
  - Montessori approach: teacher is a facilitator; child is given freedom and spontaneity

## Early Childhood Education

- Variations in Early Childhood Education:
  - Developmentally appropriate and inappropriate education
  - Developmentally Appropriate Practice (DAP) – emphasizes the importance of creating settings that encourage children to be active learners and reflect children's interests and capabilities



## Early Childhood Education

	Developmentally Appropriate	Developmentally Inappropriate
<b>Teaching to enhance development and learning</b>	Teachers plan and prepare a learning environment that fosters children's initiative, active exploration of material, and sustained engagement with other children, adults, and activities.	The environment is disorderly with little structure.
	In selecting materials, teachers consider children's developmental levels and cultural backgrounds.	The organization of the environment limits children's interaction with other children.
	Teachers maintain a safe, healthy environment and carefully supervise children.	Teachers don't adequately monitor children. Learning materials are mainly drill and practice, workbook-type activities rather than interesting and engaging activities.
	Teachers give children opportunities to plan and select many of their program activities from a variety of learning areas and projects.	The program provides few or no opportunities for children to make choices. Children spend too much time sitting and being quiet. Children do a lot of paper-and-pencil seatwork.
	Teachers encourage children's language and communication skills.	Teachers don't provide adequate time for children to develop concepts and skills.
	Teaching strategies involve observing and interacting with children to determine what each child is capable of doing.	Too many activities are uninteresting and unchallenging, or so difficult, that they diminish children's intrinsic motivation to learn.
Teachers support children's play and child-chosen activities. They also provide many opportunities for children to plan, think about, reflect on, and discuss their own experiences.	Teachers spend too much time providing negative feedback and punishment.	

## Early Childhood Education

- Education for Young Children Who Are Disadvantaged
  - **Project Head Start:**
    - Federally funded, created in 1965
    - Provides low-income children the opportunity to acquire skills and experience
  - **Controversies in Early Childhood Education:**
    - What should the curriculum be?
    - Should preschool education be universal in the United States?