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# Early Childhood: Cognitive Development

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## Chapter Preview

In countless everyday instances, as well as in the findings of numerous research studies, young children reveal themselves to be remarkably thoughtful, insightful, and perceptive thinkers whose grasp of the causes of everyday events, memory of the past, and mastery of language is sometimes astonishing. Chapter 9 begins by describing the views of Piaget and Vygotsky on cognitive development at this age. According to Piaget, the young child's thinking is prelogical: Children between the ages of 2 and 6 are unable to perform many logical operations and are limited by irreversible, centered, and static thinking, and they focus on appearance. Lev Vygotsky, a contemporary of Piaget's, saw learning as a social activity. He focused on his concept of the zone of proximal development and the relationship between language and thought.

The chapter next focuses on what young children can do, including their emerging abilities to theorize about the world. This leads to a description of language development during early childhood. Although young children demonstrate rapid improvement in vocabulary and grammar, they have difficulty with comparisons, relationships of time and place, and certain rules of grammar. The section concludes with a discussion of the advantages and disadvantages of bilingualism in young children.

The last section explores types of preschool education, including a description of quality preschool programs and an evaluation of their lifelong impact on children.

## What Have You Learned?

The “What Have You Learned?” questions at the end of the text chapter are reprinted here for your convenience in checking students' understanding of the chapter contents.

1. What are the strengths and weaknesses of preoperational thought?
2. How does children's understanding of categories show the limitations of Piaget's theory?
3. How does the animism of young children differ from the animism of adults?
4. How do the toys given to young children scaffold particular behaviors and values?
5. How does guided participation increase a child's zone of proximal development?
6. Why did Vygotsky think talking to yourself was not a sign of illness but an aid to cognition?
7. Is theory-theory as valid for adults as for children?
8. Why does development of theory of mind make it more difficult to fool a child?
9. What factors spur the development of theory of mind?
10. What is the evidence that early childhood is a sensitive time for learning language?
11. How does fast-mapping aid the language explosion?
12. How does overregularization signify a cognitive advance?

13. What evidence in language learning shows the limitations of logic in early childhood?
14. What are the advantages of teaching a child two languages?
15. How can language loss be avoided?
16. What do most preschools provide for children that most homes do not?
17. In child-centered programs, what do the teachers do?
18. What makes Reggio Emilia different from most other preschool programs?
19. Why are Montessori schools still functioning, 100 years after the first such schools opened?
20. What are the advantages and disadvantages of teacher-directed preschools?
21. What are the goals of Head Start?
22. Why have various evaluations of Head Start reached different conclusions?
23. What are the long-term results of intervention preschools?

## Chapter Guide

- “On Your Own” Activities: Developmental Fact or Myth?; Portfolio Assignment
- Teaching Tips: Grading; Dealing With Common Misconceptions About Child Development
- AV: The Journey Through the Life Span, Program 4: Early Childhood; Transitions Throughout the Life Span, Program 9: Playing and Learning; The Child: Part IV; Preschoolers: Physical and Cognitive Development; The Preschool Parent: Building Confidence and Curiosity
- Classroom Activity: You Want to Watch *Blue’s Clues* Again?

### I. Piaget and Vygotsky

**Instructional Objective:** To help students distinguish the characteristics of preoperational thought, as described by Piaget, and Vygotsky’s ideas about cognitive development during early childhood.

- AV: Cognitive Development; The Growth of Intelligence in the Preschool Years; Preschool Mental Development; How Does the Mind Grow?; Vygotsky’s Developmental Theory: An Introduction
  - Classroom Activities: In Defense of Piaget; Classroom Demonstration of “Preoperational” Thought . . . in Adults!; Scaffolding: History and Metaphors; Overt and Covert Verbal Problem Solving; Private Speech, Emotional Regulation, Early Literacy, and ADHD
  - Observational Activity: Preoperational and Concrete Operational Thinking
  - Critical Thinking Activity: Preoperational Thought in Adulthood
1. Although young children are capable of symbolic thought, they usually cannot perform logical operations; that is, they cannot use ideas and symbols to develop logical principles about their experiences. Hence, Piaget refers to this cognitive period (between 2 and 6 years of age) as one of **preoperational intelligence**.
  2. **Centration** refers to the tendency of young children to focus, or center, their analysis on one aspect of a problem. **Egocentrism** is actually a form of centration in which the child views the world exclusively from his or her own perspective.
  3. Young children’s thought is characterized by their tendency to **focus on appearances** and use **static reasoning**—that is, to understand the world in terms of an either/or framework rather than as a flux of possibilities.
  4. Young children tend to be **irreversible** in their thinking: They fail to apply the logical idea that reversing a process will restore the original conditions from which the process began. Another characteristic of preoperational thought is **animism**, the belief that natural objects and phenomena are alive.
  5. In tests of **conservation**, Piaget believed the problem is that young children center on appearances, look at the static results of the change, and fail to understand the reversibility of the transformation that has occurred. However, researchers now believe that Piaget underestimated conceptual ability during early childhood.
  6. According to Vygotsky, an adult can most effectively guide a child’s cognitive growth by presenting challenges for new learning, offering assistance with difficult tasks, adding crucial information, and encouraging motivation.

7. The intellectual growth of children, who are *apprentices in thinking*, is stimulated and directed by their **guided participation** in social experiences and explorations of their environment.
8. Vygotsky maintained that each developing individual is surrounded by a **zone of proximal development (ZPD)** that represents the range of skills the person can perform with assistance but is not quite able to perform independently.
9. How and when a person masters these skills depend in part on the willingness of tutors to engage in **scaffolding**, or sensitively structuring the child's participation in learning encounters.
10. Vygotsky believed that language advances thinking in two ways: (1) through **private speech**, whereby children internally review what they know and regulate their actions; and (2) through **social mediation**.

## II. Children's Theories

**Instructional Objective:** To help students understand the transformations that children's thinking undergoes.

► Classroom Activity: Theories of Mind Across Cultures

1. **Theory-theory** is the idea that children attempt to construct theories to explain everything they see and hear.
2. As young children develop informal theories that attempt to answer basic questions about mental processes—thoughts, emotions, beliefs, motives, and intentions—they acquire a **theory of mind**. Theory of mind typically appears rather suddenly.
3. Sometime after age 3, young children rather suddenly realize that mental phenomena may not reflect reality and that people can be deliberately deceived or fooled.
4. Theory of mind is strengthened by a combination of factors, including maturation of the brain's prefrontal cortex. Besides brain maturation, these include language ability, having at least one older sibling, and culture.

## III. Language

**Instructional Objective:** To describe language learning during early childhood, and to explain its relationship to cognitive development.

- AV: Child Language: Learning Without Teaching; Out of the Mouths of Babes; Developing Language Skills; Language Development; Life Is But a Dream: Parents Help Language-Delayed Kids; Milestones: Language for the Young Deaf; The Wild Child; Talk to the Animals
- Teaching Tip: Assessing Preoperational and Language Development with Unedited Videotapes
- Classroom Activity: Egocentric Language in Deaf Children
- "On Your Own" Activity: Preschool Literature

1. Two aspects of development that make ages 2 to 6 the prime time for learning language are maturation and myelination in the language areas of the brain, as well as scaffolding and social interaction.
2. As cognitive powers increase, children exhibit an explosion in their vocabulary and grammar. Although early childhood does not appear to be a critical period for language development, it does seem to be a sensitive period for the learning of vocabulary, grammar, and pronunciation.
3. Growth of vocabulary during early childhood proceeds at an amazing pace. Through the process called **fast-mapping**, words are often learned after only one hearing. A closely related process is logical extension, by which children are able to apply newly learned words to other objects in the same category.
4. Although young children can quickly grasp words with objective meaning, they have greater difficulty with words that express comparisons or relationships.
5. **Grammar** includes the structures, techniques, and rules that are used to communicate meaning. By age 3, children understand many aspects of grammar. English-speaking children know word order.

6. Children's understanding of grammar is aided by experience. Genetic factors also affect language use, more so for *expressive* language (talking) than for *receptive* language (hearing).
7. **Overregularization** refers to the young child's tendency to overuse rules of grammar, which is itself a sign of verbal sophistication.
8. Language-minority children, who do not know the nation's dominant language, tend to have lower school achievement, diminished self-esteem, and inadequate employment, as well as other problems.
9. Most developmentalists agree that bilingualism is an asset to children in today's world. Children who are fluent in two languages are referred to as **balanced bilinguals**. Opponents of bilingualism point out that bilingual proficiency usually impedes fluency in one or both languages.
10. Some immigrant parents are saddened when their children make a *language shift* and become more fluent in their new language than that of their home culture. Role reversals occur when the child becomes the interpreter for the parent who does not understand the dominant language.
11. Parents can promote bilingualism by extensively exposing their children to both languages.

#### IV. Early-Childhood Education

**Instructional Objective:** *To enhance students' understanding of preschool education and the heavily debated advantages and disadvantages of this early education.*

- AV: The Preschool Experience: Four Programs; The Impact of Classroom Environment on Child Development; Men in Early Childhood Education; Early Childhood Training Series: Path to Math; Failures Before Kindergarten; Cultural Bias in Education
  - Classroom Activities: The Maria Montessori Story; Preschool Testing; Mandatory Pre-K Education?; Early Education: The Importance of Cognitive Skills; Preschool Teacher Perceptions as Predictors of Future Achievement; Supplemental Preschool Education; Balanced Reading Instruction for ENL First Graders; Preschool and Family Support Differences in France and the United States; *Classroom Debate*: "Resolved: A Quality Preschool Education Provides Children with Academic and IQ Gains Beyond Those of Young Children Who Remain at Home"
  - Internet Activity: Preschool Education Around the World
1. Many *child-centered* programs use an educational model inspired by Piaget that allows children to discover ideas at their own pace. Many programs are also influenced by Vygotsky, who believed that children learn a great deal by playing with their peers under the watchful guidance of adults.
  2. A century ago, Maria Montessori opened the first structured nursery schools for poor children in Rome. Today's **Montessori schools**, like the original schools, still emphasize individual pride and accomplishment, although many of the specifics differ from those that Montessori developed. The early-childhood curriculum called **Reggio Emilia** encourages children to master skills not usually seen in North America until about age 7 or so. Other, more structured (teacher-directed) programs stress readiness (or academics).
  3. An intervention program, Project Head Start was introduced in 1965 to provide low-income or minority children—that is, those at high risk—with some form of preschool education to compensate for their disadvantaged home environment.
  4. The quality and results of Head Start vary, and some of the long-term consequences are unknown, although it does boost abilities and skills at least temporarily. Three more intensive, well-evaluated programs have shown that early education has substantial long-term benefits. Children in these programs scored higher on math and reading achievement tests at age 10 than children from the same backgrounds, schools, and neighborhoods. As adults, they were more likely to attend college and less likely to go to jail.
  5. As noted in Chapter 7, high-quality preschool programs are characterized by safety, adequate space and equipment, a low adult/child ratio, positive social interactions among children and adults, and a trained staff who are likely to stay in the program.