

Early Childhood: Cognitive Development

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 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.

Chapter Guide

I. Piaget and Vygotsky

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**. A major accomplishment of this stage is **symbolic thought**. Piaget believed that between the ages of 2 and 6, it is difficult to think logically.
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. Egocentrism is not equated with selfishness.
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

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. A conservation of number example is when the experimenter lines up pairs of checkers into two identical rows. Then the experimenter elongates one of the rows by spacing the checkers farther apart. The child will make an error and choose the elongated row as having more checkers.
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 wisdom and willingness of tutors to engage in **scaffolding**, or sensitively structuring the child's participation in learning encounters. The particulars of this process vary from culture to culture. The power of this process is illustrated in **overimitation**, which occurs when a child imitates adult actions that are not relevant to something being learned.
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**.
11. (A View From Science) When children are witnesses to a crime, their testimony may be inaccurate if guided participation leads in the wrong direction. The best way to ensure the accuracy of a child's testimony as a witness is to simply ask children to tell what happened, perhaps with their eyes closed to reduce their natural attempt to please.

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.
5. Children with autism are deficient in social understanding, particularly theory of mind.

III. Language Learning

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. Some of the words young children find particularly difficult are *with/whom*, *have been/had been*, *here/there*, and *yesterday/tomorrow*. Research has shown that a crucial factor in a child's learning to read in elementary school is language development. Five interventions that are effective in

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 many other problems.
9. The percentage of bilingual children in the United States continues to decrease. 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

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. Research studies have shown that many of the program's benefits fade by the time children reach first grade. One type of early intervention program that seems to be more effective is bilingual education.
5. 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.
6. Today, many developmentalists advocate early education for every child, at least by age 3. However, only about one-half of 3- and 4-year-olds in the United States currently attend preschool.