Chapter 9

Cognitive Development in Early Childhood

WHAT ARE THREE VIEWS OF THE COGNITIVE CHANGES THAT OCCUR IN EARLY CHILDHOOD?

Piaget’s Preoperational Stage (approximately 2 to 7 years of age)—children begin to represent the world with words, images, and drawings, form stable concepts, and begin to reason; at the same time, egocentrism and magical beliefs dominate thinking. According to Piaget, children are not yet capable of operations, which are reversible mental actions; they allow children to do mentally what before they could do only physically.

- Symbolic Function Substage (2 to 4 years of age)—The first substage of preoperational thought; in this stage, the child gains the ability to represent an object mentally that is not present. Drawings are imaginative; thought still flawed, not well organized
- Egocentrism—A feature of preoperational thought in which a child is unable to distinguish between their own perspective and that of others.
- Animism—Another limitation of preoperational thought in which a child has the belief that inanimate objects have lifelike qualities and are capable of action.

Intuitive Thought Substage (4 to 7 years of age)—The second substage of preoperational thought in which children begin to use primitive reasoning and have many questions; Piaget called this substage “intuitive” in that young children seem sure about their knowledge and understanding yet are unaware of how they know what they know.

- Centration—A focusing of attention on one characteristic to the exclusion of all others.
- Conservation—The awareness that altering the appearance of an object or substance does not change its basic properties.

Vygotsky’s Theory of Development—Vygotsky’s approach is a social constructivist approach, which emphasizes the social contexts of learning and the construction of knowledge through social interaction. Children’s cognitive development depends on the tools provided by society and the cultural context in which they live.

- The Zone of Proximal Development (ZPD)—Vygotsky’s term for the range of tasks that are too difficult for the child to master alone but that can be learned with guidance and assistance of adults or more skilled children.
- Scaffolding—Over the course of a teaching session, a more skilled person adjusts the amount of guidance to match the child’s current performance level. When the student is learning a new task, the more-skilled person may use direct instruction. As the student’s competence increases, the person gives less guidance.
- Language and Thought—According to Vygotsky, children use speech not only for social communication, but also to help them solve tasks. The use of language for self-regulation is called private speech. Vygotsky believed that language and thought initially develop independently of each other and then merge. Inner speech is internalized self-talk.
• Teaching Strategies—Vygotsky’s theory has been embraced and successfully applied to education. Here are some ways Vygotsky’s theory can be incorporated in the classrooms:
  • Assess the child’s ZPD
  • Use the child’s ZPD in teaching
  • Use more-skilled peers as teachers
  • Monitor and encourage children’s use of private speech.
  • Place instruction in a meaningful context.
  • Transform the classroom with Vygotskian ideas.

• Evaluating Vygotsky’s Theory—Vygotsky’s view of the importance of sociocultural influences on children’s development fits with the current belief that it is important to evaluate the contextual factors in learning. Some critics say that Vygotsky overemphasized the role of language in thinking and that his emphasis on collaboration and guidance is problematic.

Both theories are constructivist
1. Vygotsky: emphasizes social opportunities for learning that Piaget ignores
2. Piaget: children construct knowledge by transforming, organizing, and reorganizing
3. Vygotsky overemphasized language
4. Both theories: teachers are facilitators

Information Processing—The information-processing approach focuses on limitations and advances in attention, memory, strategies, problem-solving, and metacognition over the course of development.

• Attention—Children’s ability to pay attention improves significantly during the preschool years. **Executive attention** involves action planning, allocating tasks, and dealing with novel or difficult circumstances. **Sustained attention** is focused and extended engagement with an object, task, event, or other aspect of the environment. The preschool child’s control of attention is still deficient in at least two ways:
  o Salient versus relevant dimensions—Preschool children are more likely to pay attention to stimuli that stand out, or are salient, even when those stimuli are not relevant to solving a problem; after the age of 6 or 7, children attend to relevant characteristics more efficiently. Researchers believe this change reflects an increase in cognitive control of attention.
  o Planfulness—Preschool-aged children are more likely to use haphazard strategies in problem-solving than are older children
  o Preschool children’s ability to control and sustain their attention is related to school readiness.

• Memory—The retention of information over time is a central process in cognitive development.
  o Short-term memory—Individuals retain information for up to 30 seconds if there is no rehearsal of information. Research with memory-span tasks suggests that short-term memory increases during early childhood, which may be partially due to learning and using memory strategies such as
rehearsal. Speed and efficiency of processing information also influence short-term memory.

- How accurate are young children’s long-term memories?—Young children can remember a good deal of information, though they are less likely than older children to reject false suggestions about events. Factors that can influence the accuracy of a young child’s memory include age, individual differences in suggestibility, and interviewing techniques.
- Strategies and Problem Solving—Strategies consist of deliberate mental activities to improve the processing of information. For the most part, young children do not use rehearsal and organization to remember, but children as young as 2 can be taught strategies to solve a problem.

The Young Child’s Theory of Mind—Theory of mind refers to awareness of one’s own mental processes and the mental processes of others. Researchers in this area view children as using theories about how the mind works to explain, predict, and understand people’s thoughts, feelings, and utterances.

- From 18 months to 3 years of age, children begin to understand three mental states: perceptions, emotions, and desires.
- 3 to 5 years of age—Children come to understand that people can have false beliefs and that the mind can represent objects and events accurately or inaccurately. Understanding of thinking has some limitations at these ages.
- Beyond age 5—Children see the mind as an active constructor of knowledge or processing center.
- It is only beyond the preschool years—at approximately 5 to 7 years of age—that children have a deepening appreciation of the mind itself rather than just an understanding of mental states. For example, they begin to recognize that people’s behaviors do not necessarily reflect their thoughts and feelings.
- Theory of mind and autism
  - Approximately 2 to 6 of 1,000 children are estimated to have some sort of autism disorder.
  - Researchers have found that autistic children have difficulty in developing a theory of mind, especially in understanding others’ beliefs and emotions; this is sometimes referred to as “mindblindness.”

- Autism
  1. Can be detected before age 3
  2. Linked to genetics, brain abnormalities
  3. Individual differences vary greatly
- Autistic children have
  1. Social interaction, communication problems
  2. Difficulty developing theory of mind

HOW DO YOUNG CHILDREN DEVELOP LANGUAGE?
In early childhood, children’s grasp of the rule systems that govern language increases.

- Understanding Phonology and Morphology—During the preschool years, most children gradually become sensitive to the sounds of spoken words and become increasingly capable of producing all the sounds of their language. By the time
children are 3 years of age, they can produce all the vowel sounds and most of the consonant sounds. As they move beyond two-word utterances, there is clear evidence that children know morphological rules, as in their use or plurals and possessives.

- Changes in Syntax and Semantics—After advancing beyond two-word utterances, the child shows a growing mastery of complex rules for how words should be ordered. Gains in semantics also characterize early childhood; for example, some experts believe that children learn about one new word per hour between 18 months and 6 years of age. By the time they enter first grade, it is estimated that children know about 14,000 words.

- Advances in Pragmatics—As children get older, they become increasingly able to talk about things not present in space or time and develop a sensitivity to the needs of others in conversation. At around 4 to 5 years of age, for example, children learn to change their speech style to suit the situation in accordance with social situations, such as speaking differently to a 2-year-old than to a peer or an adult.

- Young Children’s Literacy—parents and teachers need to provide young children a supportive environment for them to develop literacy skills. Children should be active participants and be immersed in a wide range of interesting listening, talking, writing, and reading experiences.

WHAT ARE SOME IMPORTANT FEATURES OF EARLY CHILDHOOD EDUCATION?

Variations in Early Childhood Education

- The Child-Centered Kindergarten—Nurturing is a key focus in child-centered kindergartens, which emphasize the education of the whole child and concern for physical, cognitive, and social development. Instruction is organized around the child’s needs, interests, and learning styles. Emphasis is on the process of learning, rather than what is learned. A good program will reflect concepts such as: experimenting, exploring, discovering, speaking, and listening.

- The Montessori Approach—Children are given considerable freedom to choose activities and allowed to move from one to the other. A criticized feature of the program is that it discourages verbal interaction between teacher and child and peer interaction.

- Developmentally Appropriate and Inappropriate Education—Educators refer to developmentally appropriate practices as those based on age appropriateness, individual appropriateness, and sociocultural contexts; developmentally inappropriate practices for young children rely on abstract paper-and-pencil activities presented to large groups.

- Educating Young Children Who Are Disadvantaged—Project Head Start is a federal program designed to provide children from low-income families the opportunity to acquire the skills and experiences important for success in school. Head Start programs are not of equal quality, but evaluations support the positive influence of quality early childhood programs on the cognitive and social worlds of disadvantaged young children.
Controversies in Early Childhood Education

- **Curriculum Controversy**—Some experts advocate a child-centered, constructivist approach, while others advocate an academic, instructivist approach. Many experts argue that competent early childhood programs also should focus on cognitive development and socioemotional development, not exclusively on cognitive development.

- **Should There Be Universal Preschool Education**—There are increasing calls for instituting preschool education for all U.S. four-year-olds. Advocates point to research that quality preschools prepare children for school readiness and academic success, while critics argue that gains attributed to preschool education are often overstated. Critics say it is more important to improve preschool education for young children who are disadvantaged than to fund preschool education for all 4-year-old children.

- **Does Preschool Matter?**—According to David Elkind, parents who are exceptionally competent and dedicated and with the time and the energy can provide the basic ingredients of early childhood education in their home, but if they do not, participation in a good early childhood program may make a difference in children’s development.

**School Readiness**—Whether children are ready for school is an issue calling for more scrutiny. The National Association for the Education of Young Children (NAEYC) stresses care in assessing the inequities of early life experiences, recognizing and supporting individual differences, and establishing reasonable and appropriate expectations for children’s capabilities. Craig and Sharon Ramey reviewed scientific research on school readiness and concluded that the following six caregiver activities are necessary in the infant and early childhood years to ensure that children are ready for elementary school.

1. Encourage exploration
2. Mentor in basic skills
3. Celebrate developmental advances
4. Research and extend new skills
5. Protect from inappropriate disapproval, teasing, and punishment
6. Guide and limit behavior

- An increasing number of U.S. parents are delaying the entry of their children into the first grade.
- A related issue involves whether a child who is not doing well in kindergarten should be held back for a second year.