Chapter 8: Cognitive Development in Early Childhood

- Thinking in early childhood is a mixture of impressive accomplishments and surprising shortcomings
    - Children learn thousands of words during this period, an average of 10 new words per day
- Piaget's Theory: The Preoperational Period
    - Piaget identified the second stage of cognitive development as the preoperational period (ages 2-7)
        - Period during which children acquire a mental storehouse of images and symbols, especially spoken and written words
    - Preoperational thinking is organized differently than cognition in earlier and later stages
        - More than a quantitative change
        - Also a qualitative change
    - Accomplishments of the Preoperational Period
        - Children are able to re-present previous experiences to themselves mentally
        - Symbolic representations may take the form of internalized activities, images, or words
        - Language is one of the clearest examples
            - Children's vocabularies expand dramatically, as does their ability to combine words into original sentences
        - Make-believe play is another example
            - Pretend play: make-believe play in which common objects are often used to symbolize other objects
        - Piaget believed deferred imitation – reproducing a series of actions that the child has seen at a previous time – is a sign that the child is moving from action to symbols
        - Out of sight is not out of mind
    - Gaps in Preoperational Thinking
        - Language and pretend play indicate that a preoperational child is a symbolic thinker, but s/he cannot, according to Piaget, reason logically
        - Thinking does not yet include logical operations
            - Reversibility: requires an understanding that relations can be returned to their original state by reversing operations, if nothing has been added or taken away
            - Classification: ability to divide or sort objects into different sets and subsets, and to consider their interrelationships
        - Conservation: the understanding that characteristics of objects do not change despite changes in the form or appearance when nothing is added or taken away
            - Appearance trumps logic in early childhood; one dimensional thinking
            - Preoperational child is pre-logical
        - Egocentrism: a child's inability to see other people's viewpoints
        - Animism: the belief that inanimate objects are alive and have thoughts, feelings, and motives like humans
    - Can Parents and Teachers Accelerate Logical Thinking in Preschoolers?

        - Piaget believed that the development of logical thinking is a natural outgrowth of everyday opportunities to observe and manipulate objects and materials
            - Stressed the importance of independent discoveries
        - Interactions with other children promote cognitive development
- Beyond Piaget
    - Contemporary Challenges to Piaget's Theory
        - Stages of development are not as clear cut as Piaget believed
        - Cognitive development better described as a series of overlapping waves than as discrete and distinctly different periods
        - Young children understand more than Piaget credited them for
        - Preschoolers aren't as consistently deceived by appearances as Piaget suggested
    - Theory of Mind
        - The ability to attribute mental state – beliefs, desires, knowledge – to oneself and others and to understand that others have beliefs, desires, and intentions that are different from one's own
        - Young children aren't always egocentric, like when talking to babies
        - Three year olds can distinguish between real and pretend events
        - 4 years is considered a watershed in the development on theory of mind
            - False belief task- MnMs in a crayon box
        - What cases children to begin developing a theory of mind?
            - Cognitive and language abilities
            - Experiences with adults and other children
        - Judy Dunn proposed that interactions between siblings may be a particularly fertile ground for the development of social understanding and the theory of mind
    - Symbol-Referent Relations
        - Symbol: any entity that stands for something other than itself, according to Judy DeLoache
        - Object similarity test with Terry in model room/observation room
- Vygotsky's Sociocultural Theory
    - Vygotsky saw the child as embedded in a social context and focused on what s/he could do with the assistance of adults/older, more skilled children
    - Cognitive development as the result of collaboration in a particular Sociocultural setting
        - Continuous, not distinct stages
    - Zone of Proximal Development
        - ZPD: the gap between what a child can do alone and what a child can do with assistance
            - Skills, ideas, and understandings that are just beyond a child's reach
        - Scaffolding: providing learning opportunities, materials, hints, and clues when a child has difficulty with a task
        - Vygotsky saw pretend play as another ZPD
    - Guided Participation
        - The guided ways children learn their society's values and practices through participation in family and community activities
        - Ex- when adults laugh, praise, or place shame on a child's activity
        - Emulating adults is one way children actively seek knowledge and skills
    - Language and Thought

        - Piaget believed that the development of thought preceded language; we think before we communicate
        - Vygotsky argued that thought and language develop together
            - The child's first attempts to speak are efforts to maintain social contact
        - Social speech is important at this stage
        - Inner speech: self-directed talk that has become internalized; facilitates problem solving
            - Children talk aloud to themselves beginning around age 3 or 4 in an effort to organize their thoughts
- Information Processing in Early Childhood
    - Deals with basic questions about how people acquire, encode, store, and use information
    - Analogy: brain is similar to a computer
        - Brains acquire and select information, store and retrieve information, and use information to cope with the present situation or plan for the future
    - Being able to focus selectively on specific information and then being able to store and retrieve that information are essential to all types of learning
    - Attention
        - The process of focusing on particular information while ignoring other information
        - Classic measure of attention is the CPT
            - Continuous Performance Task: a laboratory task designed to assess attentiveness and impulsivity by pushing a button when a specific object appears on the computer screen
            - Attention is measured by how many times the child correctly pushes the button
            - Impulsivity is measured by how often the child incorrectly pushes the button
        - Attention increases and impulsivity decreases throughout childhood
        - Improvements in attention are linked to the maturation of the prefrontal cortex and basal ganglia
    - Memory
        - Sensory memory: a subconscious process of picking up sensory information – sights, sounds, smells, touch – from the environment
        - Working memory: conscious, short-term representations of what a person is actively thinking about at a given time; short-term memory
            - Lasts a few minutes at most
        - Digit span task: a research task in which people are asked to repeat in order a series of rapidly presented items
        - Prefrontal cortex and corpus callosum, which provide the hardware for short term memory, develop during early childhood and provide the capacity that supports an expanded working memory
        - Long term memory: the collection of information that is mentally encoded and stored; believed to have potentially unlimited capacity and no time limits
            - Access may take the form of recall or recognition
            - Genetic memory: script or general outline of how familiar activities occur based on experience