


1

Twelfth Edition

Child Development

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2

Language Development Chapter 9 Outline

What is Language?

- Defining Language
- Language's Rule Systems

How Language Develops

- Infancy
- Early Childhood
- Middle and Late Childhood
- Adolescence

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3

Language Development Chapter 9 Outline (continued)

Biological and Environmental Influences

- Biological Influences
- Environmental Influences
- An Interactionist View of Language

Language and Cognition

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Chapter 9 Preview

In this chapter, we will tell the remarkable story of language and how it develops.

The questions we will explore include:

- What is language?
- What is the developmental course of language?
- How are language and cognition linked?
- What does biology contribute to language?
- How does experience influence language?

What is Language? (cont.)

Defining Language

Language

- a form of communication, whether spoken, written, or signed, that is based on a system of symbols
- Language consists of the words used by a community and the rules for varying and combining them.

Infinite Generativity

- ability to produce an endless number of meaningful sentences using a finite set of words and rules

What is Language? (cont.)

Language's Rule Systems

Phonology

- a language's sound system
- provides basis for constructing large and expandable set of words out of 2 or 3 dozen phonemes

Morphology

- units of meaning involved in word formation

Syntax

- ways words are combined to form acceptable phrases and sentences

How Language Develops (cont.)

Infancy (continued)

Recognizing Language Sounds (continued)

- Over about 6 months, infants get even better at perceiving the changes in sounds from their "own" language, the one their parents speak, and they gradually lose the ability to recognize differences that are not important in their own language.
- Infants must fish out individual words from the nonstop stream of sound that makes up ordinary speech (Jusczyk, 2000).

How Language Develops (cont.)

From Universal Linguist to Language-Specific Listener



How Language Develops (cont.)

Infancy (continued)

Babbling and Other Vocalizations

- Long before infants speak recognizable words, they produce a number of vocalizations (Jaswal & Fernald, 2007).
- The functions of these early vocalization are to practice making sounds, to communicate, and to attract attention (Lock, 2004).

How Language Develops (cont.)

Infancy (continued)

Babbling and Other Vocalizations (continued)

- Babies' sounds go through this sequence during the first year:
 - crying
 - cooing
 - babbling
- Gestures
 - Infants start using gestures, such as showing and pointing, at about 8-12 months of age.

How Language Develops (cont.)

Infancy (continued)

Babbling and Other Vocalizations (continued)

- Gestures (continued)
 - Pointing- considered by language experts as important index of social aspects of language
 - follows this developmental sequence:
 - pointing without checking on adult gaze
 - pointing while looking back and forth between an object and the adult
 - Lack of pointing is a significant indicator of problems in the infant's communication system.

How Language Develops (cont.)

Infancy (continued)

Babbling and Other Vocalizations (continued)

- First Words
 - Infants understand words before they can produce or speak them.
 - The infant's first spoken word usually doesn't occur until 10-15 months of age and at an average of about 13 months.
 - The appearance of first words is a continuation of this communication process (Berko Gleason, 2005).

How Language Develops (cont.)

Infancy (continued)

Babbling and Other Vocalizations (continued)

- First Words (continued)
 - A child's first words include those that name important people (*dada*), familiar animals (*kitty*), vehicles (*car*), toys (*ball*), food (*milk*), body parts (*eye*), clothes (*hat*), household items (*clock*), and greeting terms (*bye*).
 - Above were the first words of babies 50 years ago.
 - They are the 1st words of babies today.
 - Children often express various intentions with their single words, so that "cookie" might mean, "That's a cookie" or "I want a cookie."

How Language Develops (cont.)

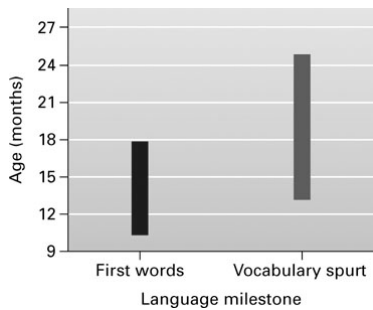
Infancy (continued)

Babbling and Other Vocalizations (continued)

- First Words (continued)
 - Infants understand about 50 words at about 13 months but they can't say this many words until about 18 months (Menyuk, Liebergott, & Schultz, 1995).
 - Infants' *receptive vocabulary* (words the child understands) considerably exceeds *spoken vocabulary* (words the child uses).
 - average 18 month-old can speak about 50 words
 - average 2 year-old can speak about 200 words
 - rapid increase in vocabulary that begins at approximately 18 months is called the *vocabulary spurt* (Bloom, Lifter, & Broughton, 1985).

How Language Develops (cont.)

Variations in Language Milestones



How Language Develops (cont.)

Infancy (continued)

Babbling and Other Vocalizations (continued)

- Two-Word
 - By the time children are 18-24 months of age, they usually utter two-word utterances.
 - To convey meaning with just two words, the child relies heavily on gesture, tone, and context.
 - In every language, a child's first combinations of words have an economical quality; they are *telegraphic*.
 - **Telegraphic speech:** the use of short and precise words without grammatical markers such as articles, auxiliary verbs, and other connectives

How Language Develops (cont.)

Some Language Milestones in Infancy

Typical Age	Language Milestones
Birth	Crying
1 to 2 months	Cooing begins
6 months	Babbling begins
5 months	Comprehension of first word
6 to 12 months	Change from universal linguist to language-specific listener
8 to 12 months	Use gestures, such as showing and pointing Comprehension of words appears
13 months	First word spoken
18 months	Vocabulary spurt starts
18 to 24 months	Uses two-word utterances Rapid expansion of understanding of words

How Language Develops (cont.)

Early Childhood

- Between 2-3 years old, children quickly move into three-, four-, and five-word combinations, and transition from simple sentences/single ideas to complex sentences.
- As children go through their early childhood years, their grasp of the rule systems that govern language increases.

How Language Develops (cont.)

Early Childhood (continued)

Understanding Phonology and Morphology

- During the preschool years, most children gradually become sensitive to the sounds of spoken words (National Research Council, 1999).
- There is clear evidence that as they move beyond two-word utterances, children know morphological rules.
 - Children overgeneralize morphological rules, applying them to words that do not follow the rules.

How Language Develops (cont.)

Stimuli in Berko's Study of Young Children's Understanding of Morphological Rules



How Language Develops (cont.)

Early Childhood (continued)

Changes in Syntax and Semantics

- Preschool children learn and apply rules of syntax (Marchman & Thal, 2005).
- They understand that to ask a question, they need to add a *wh-* word at the beginning of a sentence and invert the auxiliary verb.
- Gains in semantics also characterize early childhood.
- As children move beyond the two-word stage, their knowledge of meanings also rapidly advances.

How Language Develops (cont.)

Early Childhood (continued)

Changes in Syntax and Semantics (continued)

- Between 18 months and 6 years of age, young children learn about one new word every waking hour (Carey, 1978; Gelman & Kalish, 2006)!
- By the time children enter 1st grade, it is estimated they know about 14,000 words (Clark, 1993).
- Children who enter elementary school with a small vocabulary are at risk for developing reading problems (Berko Gleason, 2005; Berninger, 2006).

How Language Develops (cont.)

Early Childhood (continued)

Changes in Syntax and Semantics (continued)

Why can children learn so many new words so quickly?

- One possibility is *fast mapping*, which involves children's ability to make an initial connection between a word and its referent after only limited exposure to the word (Woodward, Markman, & Fitzimmons, 1994).
- Researchers have found that exposure to words on multiple occasions over several days results in more successful word learning than the same number of exposures in a single day (Childers & Tomasello, 2002).
- Children benefit from hearing the words mature speakers use to test and revise their word-referent connections (Gershkoff-Stowe & Hahn, 2007).

How Language Develops (cont.)

Early Childhood (continued)

Advances in Pragmatics

- As children get older, they become increasingly able to talk about things that are not here and not now.
- At about 4 years of age, children develop a remarkable sensitivity to the needs of others in conversation and begin to use the article "the"; by 5 they sometimes use the article "a."
- Around age 4 or 5, they change their speech style to suit the situation.

How Language Develops (cont.)

Middle and Late Childhood

- Children gain new skills as they enter school that make it possible to learn to read and write, or to advance the reading and writing skills they have developed in early childhood.
- These new skills include using language to talk about things that are not physically present, learning what a word is, and learning how to recognize and talk about sounds (Berko Gleason, 2005).
- They have to learn the **alphabetic principle**:
 - letters of the alphabet represent sounds of the language.

How Language Develops (cont.)

Middle and Late Childhood (continued)

Vocabulary , Grammar, and Metalinguistic Awareness

- Changes occur in the way children’s mental vocabulary is organized.
- Categorizing becomes easier as children increase their vocabulary.
- Vocabulary increases from an average of about 14,000 words at 6 years of age to an average of about 40,000 words by 11 years of age.
- Children make similar advances in grammar.

How Language Develops (cont.)

Middle and Late Childhood (continued)

Vocabulary , Grammar, and Metalinguistic awareness

(continued)

- Children’s improvement in logical reasoning and analytical skills helps them understand such constructions as the appropriate use of comparatives (*shorter, deeper*) and subjectives (“If you were president . . .”).
- Advances in vocabulary and grammar during the elementary school years are accompanied by the development of **metalinguistic awareness**:
 - knowledge about language, such as knowing what a preposition is or the ability to discuss the sounds of a language

How Language Develops (cont.)

Middle and Late Childhood (continued)

Reading

- Vocabulary development plays an important role in reading comprehension (Berninger, 2006; Paris & Paris, 2006).
- Children who begin elementary school with a small vocabulary are at risk when it comes to learning to read (Berko Gleason, 2003).

How Language Develops (cont.)

Middle and Late Childhood (continued)

Reading (continued)

- Mayer (2004, 2008) focused on the cognitive processes a child needs to go through in order to read a printed word:
 - *Being aware of sound units in words*
 - consists of recognizing phonemes
 - *Decoding words*
 - converting printed words into sounds
 - *Accessing word meaning*
 - consists of finding mental representation of a word's meaning

How Language Develops (cont.)

A Model of Developmental Stages in Reading

Stage	Age range/Grade level	Description
0	Birth to first grade	Children master several prerequisites for reading. Many learn the left-to-right progression and order of reading, how to identify letters of the alphabet, and how to write their names. Some learn to read words that appear on signs. As a result of TV shows like <i>Sesame Street</i> and attending preschool and kindergarten programs, many young children today develop greater knowledge about reading earlier than in the past.
1	First and second grades	Many children learn to read at this time. In doing so, they acquire the ability to sound out words that fit, translate letters into sounds and blend sounds into words. They also complete their learning of letter names and sounds.
2	Second and third grades	Children become more fluent at retrieving individual words and other reading skills. However, at this stage reading is still not used much for learning. The demands of reading are so taxing for children at this stage that they have few resources left over to process the content.
3	Fourth through eighth grades	In fourth through eighth grade, children become increasingly able to obtain new information from print. In other words, they read to learn. They still have difficulty understanding information presented from multiple perspectives within the same story. When children don't learn to read, a downward spiral unfolds that leads to serious difficulties in many academic subjects.
4	High school	Many students become fully competent readers. They develop the ability to understand material told from many perspectives. This allows them to engage in sometimes more sophisticated discussions of literature, history, economics, and politics.

How Language Develops (cont.)

Middle and Late Childhood (continued)

Reading (continued)

- Education and language experts continue to debate how children should be taught to read.
- Debate focuses on the phonics approach versus the whole-language approach (Reutzel & Cooter, 2008).

How Language Develops (cont.)

Middle and Late Childhood (continued)

Reading (continued)

The Phonics Approach

- emphasizes that reading instruction should focus on phonics and basic rules for translating written symbols into sounds
- Early reading instruction should involve simplified materials.

The Whole-language Approach

- stresses that reading instruction should parallel children's natural language learning
- Reading materials should be whole and meaningful.

How Language Develops (cont.)

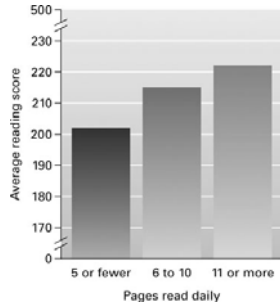
Middle and Late Childhood (continued)

Reading (continued)

- Children can benefit from both approaches, but direct instruction in phonics needs to be emphasized especially in kindergarten and 1st grade (Mayer, 2008; Mraz, Padak, & Rasinski, 2008).
- Reading, like other important skills, takes time and effort (Pressley & others, 2007a).

How Language Develops (cont.)

The Relation of Reading Achievement to Number of Pages Read Daily



How Language Develops (cont.)

Middle and Late Childhood (continued)

Writing

- Children's writing emerges out of their early scribbles, which appear at around 2-3 years of age.
- Most 4 year-olds can print their first name.
- Most 5 year-olds can reproduce letters and copy several short words.
- Becoming a good writer takes many years and much practice (Jalongo, 2007).

How Language Develops (cont.)

Middle and Late Childhood (continued)

Writing (continued)

- A recent meta-analysis (use of statistical techniques to combine the results of studies) revealed that the following interventions were the most effective in improving 4th through 12th grade students' writing quality:
 - 1) strategy instruction
 - 2) summarization
 - 3) peer assistance
 - 4) setting goals (Graham & Perin, 2007).

How Language Develops (cont.)

Middle and Late Childhood (continued)

Bilingualism and Second Language Learning

- Learning a second language is more readily accomplished by children than adolescents or adults.
- Researchers have found that early exposure to a second language is optimal and ensures the least amount of damage to the home language and to the new language (Lessow-Hurley, 2005; Petitto, Kovelman, & Harasymowycz, 2003).
- Some aspects of children's ability to learn a second language are transferred more easily to the second language than others.

How Language Develops (cont.)

Middle and Late Childhood (continued)

Bilingualism and Second Language Learning

(continued)

- Students in the United States are far behind their counterparts in many developed countries in learning a second language.
- U.S. students may be missing more than the chance to acquire a skill by not learning to speak a second language.

How Language Develops (cont.)

Middle and Late Childhood (continued)

Bilingualism and Second Language Learning (continued)

- Bilingualism
 - The ability to speak two languages has a positive effect on children's cognitive development (Gibbons & Ng, 2004).
 - Children who are fluent in two languages perform better than their single-language counterparts on tests of control of attention, concept formation, analytical reasoning, cognitive flexibility, and cognitive complexity (Bialystok, 2001).

How Language Develops (cont.)

Middle and Late Childhood (continued)

Bilingualism and Second Language Learning (continued)

- Bilingualism (continued)
 - In the United States, many immigrant children go from being monolingual in their home language to bilingual in that language and in English, only to end up monolingual speakers of English.
 - This is called *subtractive bilingualism* and it can have negative effects on children, who often become ashamed of their home language.

How Language Develops (cont.)

Middle and Late Childhood (continued)

Bilingualism and Second Language Learning (continued)

Diversity in Children’s Development

- Bilingualism (continued)
 - What is the best way to teach children whose primary language is not English?
 - for the last two decades, the preferred strategy has been *bilingual education*, which teaches academic subjects to immigrant children in their native language while slowly teaching English (Diaz-Rico & Weed, 2006; Ovando, Combs, & Collier, 2006)

How Language Develops (cont.)

Middle and Late Childhood (continued)

Bilingualism and Second Language Learning (continued)

Diversity in Children’s Development

- Bilingualism (continued)
 - Advocates of bilingual education programs argue that if children who do not know English are taught only in English, they will fall behind in academic subjects.
 - Critics of bilingual programs argue that too often it is thought that immigrant children need only one year of bilingual education.

How Language Develops (cont.)

Middle and Late Childhood (continued)

Bilingualism and Second Language Learning (continued)

Diversity in Children's Development

- Bilingualism (continued)
 - Critics who oppose bilingual education argue that as a result of these programs, the children of immigrants are not learning English, which puts them at a permanent disadvantage in U.S. society.
 - Some experts have concluded that the quality of instruction is more important in determining outcomes than the language in which it is delivered (Lesaux & Siegel, 2003).

How Language Develops (cont.)

Middle and Late Childhood (continued)

Bilingualism and Second Language Learning (continued)

Diversity in Children's Development

- Bilingualism (continued)
 - Research supports bilingual education in that:
 - Children have difficulty learning a subject when it is taught in a language they do not understand.
 - When both languages are integrated in the classroom, children learn the second language more readily and participate more actively (Gonzales, Yawkey, & Minaya-Rowe, 2006; Hakuta, 2005).

How Language Develops (cont.)

Adolescence

- Language development during adolescence includes increased sophistication in the use of words.
- Adolescents also develop more subtle abilities with words.
- Development of abstract thinking goes along with analyzing the function a word plays in a sentence.
 - **Metaphor:** implied comparison between unlike things
 - **Satire:** the use of irony, derision, or wit to expose folly or wickedness

How Language Develops (cont.)

Adolescence (continued)

- Adolescents are better than children at:
 - organizing ideas
 - distinguishing between general and specific points
 - stringing together sentences that makes sense
 - organizing their writing
- Young adolescents often speak a *dialect* of their own with their peers (a variety of language distinguished by its vocabulary, grammar, or pronunciation).

Biological and Environmental Influences

Biological Influences

- Some language scholars view similarities in how children acquire language all over the world as strong evidence that language has a biological basis.

Evolution and the Brain's Role in Language

- The nervous system and vocal apparatus of humanity's predecessors changed over hundreds of thousands or millions of years (Fisher & Marcus, 2006).
 - With advances in the nervous system and vocal structures, *Homo sapiens* went beyond the grunting and shrieking of other animals to develop speech.

Biological and Environmental Influences (cont.)

Evolution and the Brain's Role in Language (continued)

- Many experts believe that humans acquired language about 100,000 years ago.
- Language gave humans an enormous edge over other animals and increased the chances of human survival (Lachlan & Feldman, 2003; Pinker, 1994).
- There is evidence that particular regions of the brain are predisposed to be used for language (Imada & others, 2006).

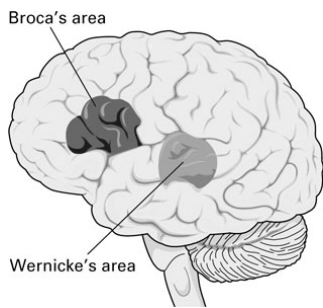
Biological and Environmental Influences (cont.)

Evolution and the Brain's Role in Language (continued)

- Two regions involved in language were first discovered in studies of brain-damaged individuals:
 - **Broca's area**
 - an area in the left frontal lobe of the brain involved in speech production and grammatical processing
 - **Wernicke's area:**
 - a region of the brain's left hemisphere involved in language comprehension

Biological and Environmental Influences (cont.)

Broca's Area and Wernicke's Area



Biological and Environmental Influences (cont.)

Evolution and the Brain's Role in Language (continued)

- Damage to either of these areas produces types of **aphasia**:
 - a loss or impairment of language processing
 - Individuals with damage to Broca's area have difficulty producing words correctly.
 - Individuals with damage to Wernicke's area have poor comprehension and often produce fluent but incomprehensible speech.

Biological and Environmental Influences (cont.)

Chomsky's Language Acquisition Device (LAD)

- Linguist Noam Chomsky (1957) proposed that humans are biologically prewired to learn language at a certain time and in a certain way.
- Chomsky said that children are born into the world with a **language acquisition device (LAD)**:
 - a biological endowment that enables the child to detect certain features and rules of language, including phonology, syntax, and semantics
- LAD is a theoretical construct, not a physical part of the brain.

Biological and Environmental Influences (cont.)

Environmental Influences

- Behaviorists opposed Chomsky's hypothesis and argued that language represents nothing more than chains of responses acquired through reinforcement (Skinner, 1957).
- According to behaviorists, language is a complex learned skill, much like playing the piano or dancing.

Biological and Environmental Influences (cont.)

Environmental Influences (continued)

The behavioral view of language learning has several problems:

- It does not explain how people create novel sentences — sentences that people have never heard or spoken before.
- Children learn the syntax of their native language even if they are not reinforced for doing so.

The behavioral view is no longer considered a viable explanation of how children acquire language.

- Many language experts argue that a child's experiences, the particular language to be learned, and the context in which learning takes place can strongly influence language acquisition (Snow & Yang, 2006; Tomasello, 2006).

Biological and Environmental Influences (cont.)

Environmental Influences (continued)

– **child-directed speech:**

- language spoken in a higher pitch than normal with simple words and sentences (Zangl & Mills, 2007)
- Adults often use strategies other than child-directed speech to enhance the child's acquisition of language, including recasting, expanding, and *labeling*.

Biological and Environmental Influences (cont.)

Environmental Influences (continued)

Recasting

- rephrasing something the child has said, perhaps turning it into a question or restating the child's immature utterance in the form of a fully grammatical sentence

Expanding

- restating, in a linguistically sophisticated form, what a child has said

Labeling

- identifying the names of objects
- The encouragement of language development, not drill and practice, is the key.
- Language development is not a simple matter of imitation and reinforcement.

Biological and Environmental Influences (cont.)

Caring for Children

How Parents Can Facilitate Infants' & Toddlers' Language Development

- **Infants**
 - Be an active conversational partner.
 - Talk as if the infant understands what you are saying.
 - Use a language style with which you feel comfortable.

Biological and Environmental Influences (cont.)

Caring for Children (continued)

How Parents Can Facilitate Infants' & Toddlers' Language Development

- Toddlers
 - Continue to be an active conversational partner.
 - Remember to listen.
 - Use a language style with which you are comfortable, but consider ways of expanding your child's language abilities and horizons.
 - Adjust to your child's idiosyncrasies instead of working against them.
 - Avoid sexual stereotypes.
 - Resist making normative comparisons.

Biological and Environmental Influences (cont.)

An Interactionist View of Language

- emphasizes that both biology and experience contribute to language development (Tomasello, 2006).
- Jerome Bruner (1983, 1996) proposed that the sociocultural context is extremely important in understanding children's language development.
- Bruner stresses the role of parents and teachers in constructing a language acquisition support system (LASS).
- Most language acquisition researchers believe that children from a wide variety of cultural contexts acquire their native language without explicit teaching.

Language and Cognition

Williams Syndrome

- genetic birth disorder that includes:
 - unique combination of expressive verbal skills and competent interpersonal skills
 - extremely low IQ
 - limited spatial and motor control

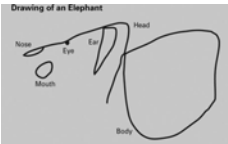
This raises 2 basic issues concerning the connection between language and cognition:

- Is cognition necessary for language?
- Is language necessary for (or important to) cognition?

- Thought can influence language, and language can influence thought, but rather than being part of a single automated cognitive system, each evolves as a separate, modular, biologically prepared component of the mind.

Language and Cognition (cont.)

Disparity in the Verbal and Motor Skills of an Individual with Williams Syndrome



Verbal Description of an Elephant

And what an elephant is, it is one of the animals. And what the elephant does, it lives in the jungle. It can also live in the zoo. And what it has, it has long gray ears, fan ears, ears that can blow in the wind. It has a long trunk that can pick up grass, or pick up hay. . . . If they're in a bad mood it can be terrible. . . . If the elephant gets mad it could stomp; it could charge. Sometimes elephants can charge. They have big long tusks. They can damage a car. . . . It could be dangerous. When they're in a pinch, when they're in a bad mood it can be terrible. You don't want an elephant as a pet. You want a cat or a dog or a bird. . . .

E-LEARNING TOOLS

To help you master the material in this chapter, visit the Online Learning Center for Child Development, twelfth edition at:

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