Language

6

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Learning Objectives

By the end of this chapter, you will be able to:

- Describe the biological, environmental, and interactionist perspectives as they pertain to language development.
- Understand and explain the development of language during infancy through toddlerhood, including pre-linguistic speech, gestures, and first words.
- Identify the milestones associated with language development during early childhood, including some of the advances and limitations of this period.
- Recognize the advances in language development seen during middle childhood, including key milestones associated with vocabulary, pragmatics, reading, and writing.

Introduction

Genetics and the environment work together and independently to shape an individual at each stage of life. This chapter will examine language development from the biological theoretical perspective, the environmental theoretical perspective, and the interactionist theoretical perspective. In addition, we will explore language development during infancy, early childhood, and middle childhood. Throughout the chapter, we will describe the processes that are involved in language development, which progresses from pre-linguistic speech to first words to full conversations to the ability to read and write fluently.

6.1 Theories of Language Development

For countless generations, children have learned the native language spoken by their primary caregivers. Acquisition of language is often situated in the nature versus nurture debate, with the interactionist perspective representing the continuum between the two opposing views. In this section, we will explore the biological theoretical perspective, the environmental theoretical perspective, and the interactionist theoretical perspective with regard to language development.

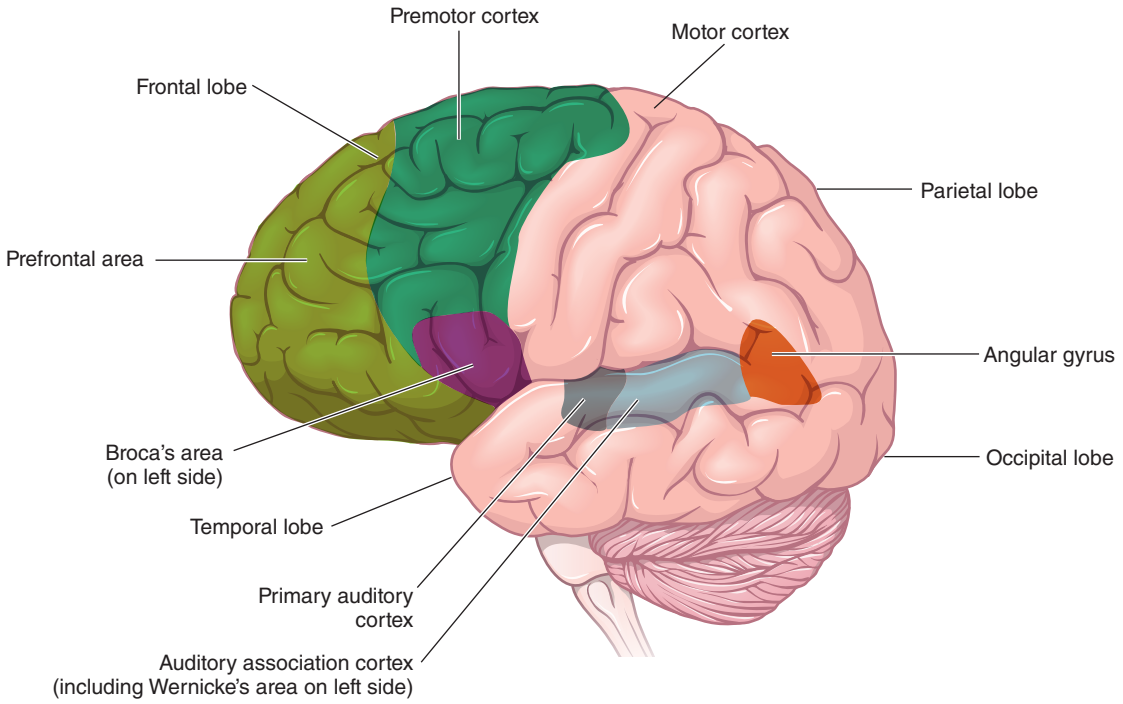
The Biological Theoretical Perspective

The biological perspective is rooted in the premise that children from all across the world acquire language in extraordinarily similar ways. This appears to be true regardless of which of the thousands of different languages that are spoken worldwide a child is learning. Because of these similarities in language acquisition, language researchers believe that there must be biological processes at work. In fact, language researchers point to the brain and argue that Broca's area and Wernicke's area (see Figure 6.1) are specifically predisposed for language usage (Friederici, Mueller, & Oberecker, 2011).

As you may recall from Chapter 4, the brain is separated into lobes. Broca's area of the brain is located in the frontal lobe in the left hemisphere. This part of the brain is associated with the muscles of the tongue, throat, and other areas of the face, which control our ability to produce words when we speak. Thus, it is associated with speech production. Additionally, Wernicke's area is also located in the left hemisphere, but in the temporal lobe. Wernicke's area is associated with language comprehension. Individuals with damage to either area display specific types of aphasia. **Aphasia** is defined as a loss or impairment with regard to language processing. Individuals with damage to Broca's area typically have Broca's aphasia, which is characterized by a difficulty producing words. Individuals with damage to Wernicke's area typically have Wernicke's aphasia, which is characterized by poor language comprehension; although they do not have difficulty producing words, they do have an inability to produce comprehensible speech that uses the proper words.

Figure 6.1: The language centers of the brain

Broca's area of the brain is located in the frontal lobe in the left hemisphere and is vital for language development.



Language researchers who believe that biological processes and innate mechanisms direct language development are often called **nativists**. The nativist approach to language development was originally proposed by Noam Chomsky, who has been called the "father of modern linguistics." Chomsky (1968, 1978, 1991, 1999, 2005) argued that individuals are all born with an innate ability to use language and that the language often emerges automatically over the course of the lifespan.

Chomsky attributed the innate tendency to acquire human language to the existence of the **language acquisition device** (1988, 1990). As a theoretical construct, support for Chomsky's language acquisition device is buoyed by the universality of human language abilities, the regularity of the early production of sounds, and the fundamental sequence of language development that is seen among children regardless of the language that is spoken (Pinker, 2007). In fact, Chomsky argued that all of the world's languages share a similar, underlying structure. He labeled this underlying structure **universal grammar** and said that it can be found in every child's ability to follow simple rules of language, such as asking questions and forming plurals. He further maintained that even though each language was unique in vocabulary and specific rules (something he called **surface structure**), all languages shared an underlying set of rules that governed our ability to transform our ideas into words (something he called **deep structure**). In his studies of multiple languages, Chomsky believed that children were prewired to listen to language in such a way as to foster their abilities to understand the rules that govern our language. In addition, he believed that children are attuned to language on account of the innate human need to converse with others.

Although supporters of Chomsky's language acquisition device argue that the universal milestones of language acquisition that span various languages and cultures supports the theoretical construct, it does not account for language acquisition in its entirety. Other language researchers point to the role of the environment in terms of fostering our ability to transform thoughts into words. In the next section, we will explore the environmental theoretical perspective on language acquisition.

The Environmental Theoretical Perspective

As you may recall from Chapter 1, Skinner (1957) detailed the process of learning as a function of reinforcement and conditioning, and early behaviorists argued that language acquisition follows the same principles outlined by these fundamental concepts. For example, when Molly, a 5-month-old infant utters the sound "da-da," her father might instantly pick her up, hug her, and shower her with kisses. Subsequently, Molly may utter the phrase "da-da" more and more in an effort to be rewarded with the outpouring of affection. As a consequence, Molly builds her language skills piece by piece through conditioning and reinforcement. For Skinner, an infant's acquisition of language is nothing more than the reinforcement of learned behavior. Slowly, but steadily, Molly may move closer to the word "daddy" as her father requires that Molly's utterance of "da-da" gets closer and closer to the word "daddy" before he reinforces her through affection. This process is called **shaping** and is defined as the tendency to require additional refinement in behavior (or in this case, speech) before reinforcement is provided.

There are several problems that arise from the behaviorist approach to language acquisition. For example, the behaviorist approach does not account for "new" and grammatically correct sentences spoken by children—sentences that children utter that they have never heard before. A behaviorist would argue that the child must hear it in order to reproduce it. In addition, children appear to learn the structure or syntax of language even if they are not reinforced for doing so (Brown, 1973). For example, Brown discovered that many parents did not offer reinforcement or reward their children for sentences that were grammatically correct and, ultimately, those children did learn the rules for grammar and appropriate sentence structure anyway.

Alexander Shalamov/iStock/Thinkstock

Hugs and affection can often shape language development.

Some language researchers maintain that language is learned in a social environment. After all, children are inundated with language from a very early age (Kuhl, 2011) and when they are not, the neural connections that represent the associations between language and emotion are often not developed (Berko Gleason, 2009; Berko Gleason & Ratner,

2009). In fact, supportive and actively involved parents, caregivers, and teachers are primary sources of influence with regard to language development and acquisition (Ariza & Lapp, 2011; Jalongo, 2011).Teachers, caregivers, and parents often specifically engage in various strategies to assist with children's language acquisition. Four of these strategies are called recasting, expanding, labeling, and infant-directed speech (also called IDS or "motherese").

Recasting is defined as the deliberate rephrasing of an utterance or phrase into either a question or a grammatically correct sentence. Recasting has been shown to be an effective method for improving grammatically correct language development in children (Hassink & Leonard, 2010). For example, Molly, a 3-year-old, may say, "Finny was walking," and her father may ask, "Where was Finny walking?" By recasting the sentence, Molly is engaged in the conversation and, consequently, her language must be used and further developed and refined in an effort to elaborate on the initial sentence.

Expanding is defined as the purposeful restatement of a simple phrase into a linguistically sophisticated and grammatically correct form. Expanding has also been associated with improved language development (Ingersoll, 2011). For example, Molly may say "Finny eat," and her father may reply, "Yes, Finny is eating his breakfast."

Labeling involves the intentional naming of objects; it has been called "the original word game" (Brown, 1968) and has been shown to have positive implications for language development (Low & Simpson, 2012). For example, much of a child's vocabulary is based upon the naming of objects. In fact, many adults naturally point to various objects, people, or places, and ask, "What's that?" By doing so, children learn the names of things and steadily build their vocabulary.

Infant-directed speech (IDS or "motherese") occurs when a caregiver speaks in a higher pitch than normal, using simple words and sentences (Clark, 2009). More specifically, the characteristics of IDS include "a higher pitched voice, greater pitch variations, slower rate of speech, shorter, simpler sentences, simple and concrete words, clearer articulation, repetitive speech, and exaggerated facial expression" (Kargar, 2012, p. 870). Although it has been called *motherese*, the reality is that mothers, fathers, grandparents, siblings, and various other caregivers use this type of language when speaking with infants (Broesch & Bryant, 2013). In addition, IDS is used in a variety of languages and cultures (Lee & Davis, 2010) and has been associated with early language acquisition (Saint-Georges et al., 2013).

The Interactionist Theoretical Perspective

The interactionist theoretical perspective maintains that neither the biological nor the environmental theoretical perspective can account for language acquisition in its entirety, and argues that the acquisition of language requires both biological processes *and* experience (Ambridge & Lieven, 2011; MacWhinney, 2010). After all, if biological processes were all that were needed to learn language, everyone with the correct brain areas other apparatuses vital to speech production would learn how to speak—even individuals reared in isolation—but this is not always the case (see "Web Field Trip: Language Acquisition: 'Feral Children'"). Language researchers argue that it is a combination of both and point to the variations in language acquisition across individuals and cultures in support of this contention.

Web Field Trip: Language Acquisition: "Feral Children"

The cases of Victor of Aveyron and Genie Wiley, both of whom lived in nearly complete isolation until their early teen years, offer a fascinating glimpse into language acquisition and the various ways biology, the environment, and the interaction between the two shape language acquisition.

Victor of Aveyron:

http://surviving-history.blogspot.com/2012/01/wild-child-remarkable-case-of-victor-of.html

Genie Wiley:

https://www.youtube.com/watch?v=JOVY-52YmjE

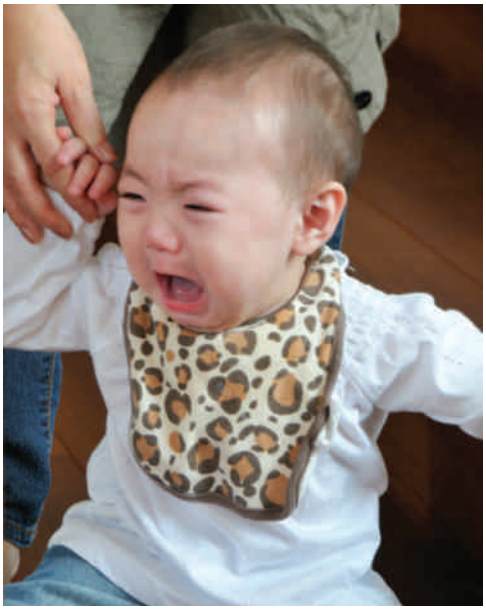
Given what you have learned about the biological, environmental, and interactionist theoretical perspectives, how would you explain Victor in terms of language acquisition? Be sure to support your explanation using empirical sources. In addition, what comparisons and differences can you perceive between Victor and Genie? What academic research supports your assertions?

6.2 Infants

Now that we have explored some of the theories behind how we learn language, we can examine how language develops throughout the first few years of life. We all know that when infants are born they do not use language, but that does not mean that they are not communicating with us. In this next section, we will explore pre-linguistic development and the role that gestures play while infants are still non-verbal. We will then look at what those first words and sentences look like.

Pre-Linguistic Development

Long before infants say their first word, they can make fine distinctions among the sounds of language (Sachs, 2009). In Patricia Kuhl's (2011) experiment, phonemes (the basic units of language) from various world languages are piped through a speaker for an infant to hear. A box with a bear in it is placed where the infant can see it. A string of identical syllables is played and then the syllables are changed (from *babababa* to *lalalala*). If the infant turns her head when the syllables change, the box lights up and the bear begins to dance around, rewarding the infant for noticing the change. This research has showed that from birth to about 6 months of age, infants have the ability to recognize when sounds change (most of the time) regardless of the language that the syllables are coming from. Kuhl (2011) calls these children "citizens of the world." However, over the next 6 months infants get even better at recognizing the changes in sounds from the language that they hear



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The first type of pre-linguistic development is crying.

spoken at home, and they gradually lose the ability to recognize phonemic differences that are not a part of their own language.

Children develop language according to an invariant sequence of steps or stages. Infants begin with what we call pre-linguistic vocalizations, which are a form of communication. These vocalizations do not represent an object or an action; they are merely forms that an infant uses to communicate to those around them. The first type of pre-linguistic development is crying. While this may not seem like communication, ask any parent, teacher, or other caregiver how their infants communicate and you will hear a resounding answer of "crying." For new infants, only a few weeks old, crying is the only way that they can communicate their needs. To an untrained ear, all cries may sound alike, but if you ask someone who has spent a lot of time around one infant, that caregiver would tell you that there are different types of cry, each indicating whether the infant is hungry, tired, or experiencing other discomfort. Table 6.1 provides a summary of these stages.

Table 6.1: Milestones in language development during infancy

Approximate age	Vocalization and language
Birth	• Cries
12 weeks	• Smiles when talked to and nodded at • Engages in squealing and gurgling noises • Sustains cooing for 15–20 seconds
16 weeks	• Responds to human sounds more definitely • Turns head and searches for speaker • Laughs occasionally
20 weeks	• Cooing becomes interspersed with consonant-like sounds • Vocalizations differ from the sounds of mature language
6 months	• Cooing changes to a single syllable babbling • Neither vowel or consonants have fixed pattern or recurrence • Common utterances sound somewhat like *ma*, *mu*, *da*, or *di*
8 months	• Continuous repetition enters into babbling • Patterns of intonation become distinct • Utterances can signal emphasis and emotion
10 months	• Vocalizations mixed with sound play, such as gurgling, bubble blowing • Makes effort to imitate sounds made by older people with mixed success
12 months	• Identical sound sequence replicated more often • Words (such as *mama* or *dada*) emerge • Many words and requests are understood (for example, "Point to your eyes")
18 months	• Repertoire of 3–50 words • Explosive vocabulary growth • Babbling consist of several syllables with intricate intonation • Little effort to communicate information • Little joining of words into spontaneous two-word utterances • Understands nearly everything spoken
24 months	• Vocabulary of more than 50 words, naming everything in the environment • Spontaneous creation of two-word sentences • Clear effort to communicate

Source: Adapted from Lenneberg, E.H. (1967)
NOTE: All ages are an approximation. Slower development does not necessarily indicate language delays.

During the second month of life, infants will begin cooing. Cooing is different from crying. These gurgling sounds, which typically emanate from the back of the throat, may resemble extended "oohs" and "ahs." Cooing appears to link to feeling of pleasure and positive excitement and is not done when an infant is hungry, tired, or in distress.

While it is true that crying and cooing are innate, research has shown us that these things can be modified by experience (Majorano, Vihman, & DePaolis, 2013). When mothers respond positively to cooing by talking to their infant, smiling at their infant, or imitating their infant, the infant will increase the amount of cooing. Early parent-infant "conversations" in which the parent coos and then waits for the infant to coo in response may foster an infant's awareness of "taking turns" as a way of verbally relating to others (Majorano, Vihman, & DePaolis, 2013).

By the time an infant reaches 8 months old, the amount of cooing decreases substantially. However, somewhere between 6 months and 9 months infants begin to babble. **Babbling** is the first vocalizing that sounds like human speech. In babbling, infants frequently combine consonants and vowels, such as *ba*, *ga*, and sometimes, if parents are lucky, *mama* or *dada* (McCardle, Colombo, & Freund, 2009). At first, these *mama* and *dada* sounds are purely accidental, despite the families' joy of hearing them.

In verbal interactions between infants and adults, the adult will frequently repeat the syllable of the sounds that the infant is saying. For example, if Tina, who is 9 months old, is saying *ba*, her mother is more likely to repeat that back to her, saying *bababa* instead of just saying the one syllable. Infants who hear this redundancy of syllables are more likely to discriminate these sounds from others and are further encouraged to imitate or repeat after their parents or caregivers (Elkind, 2007).

After infants have been babbling for several months, parents often conclude that their children are having conversations with themselves. At 10–12 months of age, infants tend to repeat syllables, showing what linguists refer to as echolalia. **Echolalia** is defined as the automatic repetition of sounds of words. It is very common for parents or caregivers to overhear an infant going on and on, repeating consonant-vowel combinations such as *ah-bah-bah-bah-bah*, and then pausing and switching to another combination such as *da-la-la-la-la*. Towards the end of the first year, infants are also using patterns of rising and falling intonation that resemble the pattern of adult speech. **Intonation** is the use of pitches of varying levels to help communicate meaning. It may actually sound like an infant is trying to speak caretakers' native language.

Gestures

Before a baby can even say a first word, they point (Liszkowski, Carpenter, Striano, & Tomasello, 2006). For instance, at 11 months old, Susan points to her bear to show her mother that she wants to hold it. The next day, she points to their family dog, Rover, who is running around the kitchen. Her mother looks at her and says, "Oh, are you trying to tell me to look at how silly Rover is being?" Months later, she is sitting in her highchair when her sister drops her fork on the floor. Susan points to the fork on the floor, alerting her sister to where it has fallen. Pointing is one of the first ways that we see infants communicate with the people around them.

There are several other types of gestures that we see infants engage in. The first is conventional social gesture. Children who are waving hello or good-bye, or who are blowing kisses,

are using gestures that everyone knows. As children get a bit older, usually around 13 months, they are able to use more elaborate gestures and move on to representational gestures. For example, Kaitlynn is with her mother at a neighbor's house. During the visit, Kaitlynn looks up at her mother and puts her arms in the air. Kaitlynn's mother knows that when Kaitlynn puts her arms up like that, she would like to be picked up. Symbolic gestures are those that we use to symbolize something. For example, when Todd knows something is hot, he starts to blow on it. For him, blowing air through his mouth symbolizes that something is hot. Both children who are deaf and who have hearing use such gestures in the same way (Goldin-Meadow, 1997).

Learning gestures can help babies to learn how to talk. In fact, early gestures are a good predictor of later vocabulary size (Goldin-Meadow, 2007). Once infants can produce about 25 words, they drop back with their use of gestures and just begin saying the words.

Web Field Trip: Similarities of Gestures of Apes and Children

How similar are human infants' gestures to those of other species? This article examines the development of gestures across species:

http://newsroom.ucla.edu/portal/ucla/how-similar-are-the-gestures-of-246499.aspx

What is your reaction to the findings presented in the article? Would you have thought that an infant and an ape would be using the same type of gestures to communicate? Why or why not? Does the theory presented in the article support the conclusions? Why or why not? Make sure your answer is supported by at least one scholarly article. Google Scholar is a good place to begin your search for articles on this topic.

First Words

Before we can jump into first words, we first have to look at vocabulary development. Vocabulary development refers to the process of a child learning the meanings of words. Children have two different types of vocabulary: expressive and receptive. Expressive vocabulary is the number of words that someone uses in the production of language. In other words, these are the words that we hear a person speak or say. Receptive vocabulary, on the other hand, is the number of words that someone understands. In general, infants understand many more words than they know how to say. Infants have the ability to listen to what the adults around them are saying and understand what the adult is asking or telling them. In fact, in one study, 12-month-olds could speak on average 13 words but knew or understood around 84 words (Tamis-LeMonda, Crostafaro, Rodriguez, & Bornstien, 2006).

Parents wait excitedly to hear their child's first word; it really is such a milestone for each baby! A child's first word is typically spoken between the ages of 11 and 13 months of age, but within the range of 8 to 18 months is considered normal (Klee & Stokes, 2011). First words tend to be brief and consist of one or two syllables. Each syllable is likely to consist of a consonant followed by a vowel. It is important to know that an infant's spoken vocabulary is very slow at first, and it may take some children 3–4 months after they say their first word to be able to speak 10–30 words.

Infants' first sentences are usually two-word utterances; however, they convey a complete thought or idea and therefore can be thought of as a sentence. Roger Brown (1973) called these brief expressions that have the same meaning as a sentence **telegraphic speech**. For example, Debbie, who is just 12 months old, is eating dinner with her family. During the meal, she picks up her milk and says to her dad, "more milk." Her dad smiles and says, "Oh, it looks like Debbie wants more milk with her dinner."

By the time an infant is around 18 months of age, she may be saying up to 50 words. Most of these words are ones that are heard on a daily basis such as *no*, *mamma*, *milk*, *hi*, and *eat*. However, they are also saying words such as *all-gone* or *bye-bye*. While these words are not found in the dictionary, they do function as part of the child's vocabulary. More than half of a child's expressive language at this age is made of general nominals and specific nominals (Nelson, 1973). General nominals are similar to nouns in that they include the names of classes of objects, such as *ball* or *car*; animals, such as *dog* or *cat*; and people, such as *boy* or *girl*. They also include personal and relative pronouns, such as *she* or *that*. Specific nominals are proper nouns, such as *Daddy* or *Sparky*.

At around 18–22 months of age, there is a rapid burst of vocabulary (Tamis-LeMonda et al., 2006). Vocabulary can increase from 50 words to over 300 words in only few months. This vocabulary spurt can also be called a *naming explosion* because almost 75% of the new words are nouns. This momentum of learning new words continues into preschool, where children are typically adding about nine new words per day to their vocabulary (Hoff, 2006).

You may have noticed, if you have ever spoken with a young child, that they try to talk about more objects than they have words for. To compensate for this issue, young children will "stretch" the meaning of one word to refer to things and actions for which they do not know the words (Mayor & Plunkett, 2010). This process is called **overextension**. For example, Ralph, who is 2½ years old, spends a weekend with his grandpa, who has come to visit and fix a few things around Ralph's house. Ralph's grandpa wears work boots, overalls, and a baseball hat, and Ralph spends most of weekend following his grandfather around, trying to help him. The following week, the doorbell rings at Ralph's house, his mom lets in a man wearing work clothes, and she shows him to the bathroom. When the man starts to fix a leak in the pipes, Ralph asks his mom if he can help "grandpa" with the pipes. Ralph has overextended the meaning of grandpa to anyone who is fixing things in their house.

Eve Clark (1975) studied infant language development and found that overextensions are generally based on perceived similarities in function and form between the original object or action and the new one. She used as an example the word *moon*, which one child originally used to talk about the moon and then overextended to designate all round objects, including the letter *o* and cookies and cakes. Overextensions gradually pull back to their proper reference as the child's vocabulary and ability to classify objects develop (Mayor & Plunkett, 2010).

Another common issue with young children's language is **underextension**—applying a word too narrowly. For example, Joy, who is 16 months old, uses the word *bear* to refer only to the stuffed bear that she sleeps with every night. When she sees pictures of bears in a book and her parents tell her, "Look at the bear, Joy," she says, "That not a bear." Then she picks up her bear and says, "This a bear."

Through many processes, a newborn who is only able to cry grows into a 3-year-old who is able to speak in complete sentences. However, even at age 3, children have not yet mastered language. In the next section, we will examine what happens to language development during the preschool years.

6.3 Early Childhood

A child's language really explodes during early childhood or the preschool years. By the time a child is 4 years old, he may be asking adults and other children questions, taking turns talking, and engaging in lengthy conversations (Hoover, Sterling, & Storkel, 2011).

Vocabulary

The development of a child's vocabulary progresses incredibly quickly. Remember, preschoolers on average are learning about nine new words a day (Tamis-LeMonda et al., 2006). Think about how difficult that is when so many words they hear have many different meanings. Take, for example, the word *wrap*. Depending on the context of the sentence, we could be talking about the action of wrapping a gift. In another context, we could be talking about a wrap that goes around the shoulders to keep someone warm; others may use the word *wrap* to refer to food served in a rolled tortilla. Furthermore, the homophone *rap* could be referring to a type of music or to the action of tapping quickly on a surface. Does a child consider all of these different possibilities before determining what *wrap* actually means?

Learning a new word does not occur gradually, but instead is learned through a concept called **fast mapping**. Fast mapping is defined as the process through which the child quickly attaches a new word to its appropriate concept (Waxman & Lidz, 2006).

Preschoolers also encounter problems with the **whole-object assumption**. This is when they assume that words refer to whole objects and not to their component parts or their characteristics, such as size, color, or texture. For example, Sarah, who is 4, assumes that the word *doggy* refers to the dog rather than to its tail, its color, or the fact that it barks. Children also often assume that objects have only one label and that novel terms must refer to unfamiliar objects because the objects that they already know already have labels. This concept is called the **contrast assumption** (Waxman & Lidz, 2006). For example, Trent is at the zoo with his family for a day and they are in the petting zoo. Trent goes up to a group of zookeepers who are holding various animals for the children to touch. Trent asks, "What are you guys holding?" One zookeeper says, "We have a snake, a lemur, a rabbit, and a lizard." Trent immediately goes to the person holding the lemur and says, "That is really cool!" Trent knows immediately which animal is the lemur because he knows the names of the other ones, and he assumes that the unfamiliar animal must be called the unfamiliar name.

Grammar

Vocabulary is not the only aspect of language blooming around the age of 4; there is a grammar explosion, as well (Tamis-LeMonda et al., 2006). Children's sentence structures expand to include the missing words that we saw them leave out in telegraphic speech. It is also

during this time that children add an impressive array of articles (*a*, *an*, *the*), conjunctions (*and*, *but*, *or*), possessive adjectives (*your*, *her*), pronouns (*he*, *she*, *her*, *him*), and prepositions (*in*, *on*, *over*, *around*, *under*, *through*) to their vocabularies. Between the ages of 3 and 4, children also start to show knowledge of the rules for combining phrases and clauses into complex sentences.

Even though children are learning all of these new skills in terms of grammar, there are still issues that are being worked out during early childhood. One is **overregularization**: the application of regular grammar rules to form irregular verbs and nouns. In other words, children tend to apply rules of grammar too strictly, even in cases that call for an exception (Jacobson & Schwartz, 2005). For example, we know that to make most nouns plural all we have to do is add an *s* to the end of the word. So the word *shoe* becomes *shoes*. However, consider words like *foot*; if we want to make *foot* plural, we do not add an *s* to the end of it and say *foots*. Instead, we form the irregular plural *feet*. Yet most children in this age group overregularize, saying *foots* instead of *feet*. In addition, we have nouns that do not change at all when we are making them plural, such as *sheep* and *fish*—and many irregular verbs, as well. Most often we just add an *-ed* sound to form the past tense of a verb, so *walk* becomes *walked*, but, again, there are exceptions to that rule. The past tense of *sit* is *sat*, and the word *go* becomes *went*. Children who are overregularizing will say *sitted* and *goed*.

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Toddlers are often able to ask adults many questions.

Parents may notice that their children first form the past tense of irregular verbs correctly (saying *sat* and *went*, for example) but then, as they get older, they make errors (saying *sitted* and *goed*). When this happens, some parents become concerned that their child is regressing in terms of their language development. However, it is important to know that overregularization reflects accurate knowledge of grammar—not faulty language development—so parents should not be worried. The child is progressing from speaking the exact words she hears to the more complex task of applying grammatical rules to create entirely new sentences. Within the next few years, children will learn that *mouse* becomes *mice* and daddy *sat* down.

Another advancement that we see in early childhood is how children ask questions. When children are just beginning to learn language, their questions are often telegraphic (meaning that they only consist of two words) and characterized by a rising pitch at the end (which in the English language signifies a question). However, in early childhood, questions become complete grammatical sentences; that is, instead of saying "more milk," they are much more likely to say, "Can I have some more milk?" or "Is there any milk left?" It is not until children are about 3 years old that they begin to ask the "wh" questions. Some "wh" questions, such as *who*, *what*, and *where*, have a tendency to appear earlier than others (*why*, *when*, *which*, and

how) (Tamis-LaMonda et al., 2006). The *why* question is a sophisticated one and is not typically asked by children who are younger than age 3. By the time a child reaches the age of 4, they are spontaneously asking the *why*, *when*, and *how* questions, such as "Where did mommy go?" or "How does this thing work?"

Pragmatics

Pragmatics refers to the practical aspect of communication. Children will show pragmatism when they adjust their speech for a social situation (Nelson, 2006). For example, when children are playing make believe, they are more likely to use the words "please" and "thank you" when they are portraying the role of someone who has a higher status, such as a teacher or a doctor. They know that adults in those types of professions and settings are more likely to use those words, so they adjust their speech when portraying or talking with them. Recall from earlier in this chapter the discussion of motherese; children use motherese with infants, as well. This is due to pragmatics. Children know that in a setting where there is an infant, formalities such as "please" and "thank you" are less likely; a high-pitched voice and slower speech is more likely. Once a child can begin to see the world through the eyes of others, they advance their abilities in language to make sure that they are understood.

Web Field Trip: Social Communication Skills

Social communication skills develop over time. Read through the behaviors at the following website and consider how you would respond according to how you use words and language.

http://successforkidswithhearingloss.com/wp-content/uploads/2013/08/PRAGMATICS-CHECKLIST.pdf

Once you have looked over the pragmatics checklist, think about the conversations that you have participated in today or that you have overheard. How many items on this checklist could be checked off? Is it just children who still struggle with the social aspect of pragmatics or do adults make mistakes as well?

Language and Cognition

Language development and cognitive development go hand in hand (Waxman & Lidz, 2006). For example, a preschool child may be able to discriminate objects on the basis of distinct features, such as size, movement, sounds that they make, and color. At the same time, their language is also developing and they are adding new words that represent broader categories, such as animals or mammals. Many researchers investigate the question of which comes first. Does the child first develop these concepts and then acquire the language to describe them—or do the child's new language capabilities lead to the development of these new concepts?

The answer to that question depends on who asks it. Piaget (1976) believed that cognitive development came before language development. He thought that children must understand concepts before they would be able to use words to describe them. From a Piagetian perspective, children learn words to describe classes or categories that they have already created

(Nelson, 2005). Children can learn the word "birdy" after they notice the characteristics that distinguish a bird from other animals and objects.

Some studies support Piaget's theory that cognitive concepts precede language. For example, the vocabulary explosion that occurs around 18 months of age is related to the child's ability to group a set of objects into two categories, such as "balls" and "trucks" (Gopnik & Meltzoff, 1992). Other research suggests that young children need to experience an action themselves or by observation to learn the meaning of a verb (Pulverman, Hirsh-Pasek, Golinkoff, Pruden, & Salkind, 2006).

Think About It: Language and Cognition: Which Comes First?

Now that you are aware of both perspectives of language and cognition, which do you agree with? Provide scholarly evidence to support your opinion.

However, not everyone agrees with Piaget's view. Others believe the exact opposite—that children create cognitive classes to understand things that are labeled by words (Clark, 1973). When a child hears the word "bird," he tries to understand it by searching for characteristics that separate birds from other things.

6.4 Middle Childhood

When children reach elementary school, they acquire new language skills that include the ability to discuss the world around them even when they cannot see it (Berko Gleason, 2009). Many of these newfound abilities relate to their growing mindfulness of the **alphabetic principle**, which is the awareness that letters of the alphabet represent sounds that make up their language. Vocabulary growth, refinement of the pragmatics of language, and increases in metalinguistic awareness continue to develop during this particular phase of the lifespan.

Vocabulary

During middle childhood, children increasingly organize their mental vocabulary in new ways that include the ability to categorize words by parts of speech (Berko Gleason, 2009; Williams & Larkin, 2013). For example, prior to middle childhood, when younger children are asked to say a word after hearing the word "duck," they may respond, "swims." This is because younger children are more likely to say a word that can immediately follow the given word in a spoken sentence. However, during middle childhood, given the word "duck," a child may now say "dog" or "mouse" or "cat." When given the word "swim," the child may now say "walk" or "run." This is because the child is now able to categorize the words in their mental vocabulary by parts of speech. The ability to categorize words into parts of speech is associated with the size of a child's vocabulary, which grows tremendously during the period of middle childhood. Language researchers currently estimate that the size of a child's vocabulary expands by approximately 30,000 words between first and fifth grade (Sheng, Bedore, Peña, & Fiestas, 2013). The size of a child's vocabulary also has implications for the pragmatics of language.

Pragmatics

During middle childhood, children gain increased competence in terms of the pragmatics of language—the rules that govern language in a social context (Shiel, Cregan, McGough, & Archer, 2012). That is, children during this stage of development become more aware of how to speak to individuals and engage in a back-and-forth dialogue that is typical of social settings and social interactions (Ariza & Lapp, 2011; Siegel & Surian, 2010). For example, before middle childhood, a child may engage in dialogue that appears to be more of a parallel process. This can be seen in the following exchange between two 5-year-olds:

Molly: "My dad works for UPS."

Finn: "My dad's name is Ralph."

Molly: "My dad works late at night."

Finn: "My dad is married to my mom."

However, during middle childhood, the conversation is characterized by a great deal of give and take, as children become more aware of the rules that govern conversational exchanges in everyday life. Thus, the following exchange is typical of that between two 10-year-olds:

Molly: "My dad works for UPS."

Finn: "What does he do at UPS?"

Molly: "He drives a truck and delivers packages."

Finn: "I want to do that when I grow up."

Metalinguistic Awareness

Metalinguistic awareness is defined as the understanding and knowledge of one's use of language. Children in middle childhood are able "to think about their language, understand what words are, and even define them" (Berko Gleason, 2009, p. 4). Metalinguistic awareness improves dramatically in elementary school (Pan & Uccelli, 2009). One of the primary reasons for this dramatic improvement is that children in elementary school are actively learning about syntax; are beginning to understand the components of sentences, such as verbs and subjects; and are asked to define words as part of everyday classroom instruction (Melzi & Ely, 2009).

Milestones in Language Development

Two of the key milestones that are related to language development and are typically achieved in middle childhood are a child's ability to read and write. Both of these milestones depend upon our vocabulary. Children who begin elementary school with smaller vocabularies are often at greater risk in terms of learning to read (Berko Gleason, 2009). In addition, having a well-developed vocabulary is associated with greater ease in terms of reading and writing (Cunningham & Allington, 2011).

Reading

The way in which children are presently taught to read is currently debated and generally falls within two different schools of thought: the whole-language approach or the phonics approach (Christie, Enz, & Vukelich, 2011; Otto, 2010; Tompkins, 2011). The **whole-language approach** is defined as an approach to reading instruction that mimics the way in which children learn language naturally. For example, students in whole-language classes may be taught whole words, entire sentences, or complete paragraphs. Students are then encouraged to use the context of the sentence (or paragraph) to help them understand what a single word might mean. In whole-language reading classes, students are given reading material in its entirety. Children read entire books, stories, or poems. In addition, the communicative function of language is emphasized, and, as such, reading, listening, and writing share equally important roles. Whole-language approaches to reading also encourage cross-discipline and real-world applications. That is, reading is frequently integrated with classes such as science or social studies, and students are often encouraged to read everyday reading materials, such as newspapers and magazines.

The **phonics approach** emphasizes individual sounds and applies basic rules for the translation of written symbols into sounds. Simply put, phonics instruction breaks individual words into their component syllables. This then allows the child to sound out each syllable and then put them back together into the whole word. Phonics-centered reading materials often begin simple, and only after children have grasped the corresponding rules for reading are they given more complex reading materials (Fox, 2010, 2012).

Both the whole-language and phonics approaches to reading instruction facilitate and foster reading skills. However, while both approaches benefit children, research suggests that phonics instruction should be emphasized (Fox & Alexander, 2011). In fact, increasingly more reading researchers see the direct instruction in phonics as a foundational element in learning to read (Cunningham & Allington, 2011).

Becoming a good reader involves reading fluency (Reutzel & Cooter, 2012; Snowling & Gobel, 2011). Because they are concentrating on recognizing words as they read, early readers often fumble with the grouping of words, phrases, and even sentences. However, as their reading skills become more sophisticated, their ability to process words and entire passages improves and becomes more automatic; as a result, their reading becomes more fluent (Fox & Alexander, 2011).

Writing

Children's writing abilities begin to emerge at an early age, with most 4- and 5-year olds able to write their names. As they gradually learn the characteristics of letters, they begin to form more sophisticated words and sentences. However, throughout elementary school, children may frequently reverse similar letters. For example, a child may use a "d" when a "b" was intended or a "p" when a "q" was intended (Temple, Nathan, Temple, & Burris, 1993). In addition, children will often engage in spelling invention when they do not know how to correctly spell a word. For example, they may spell "ready" as "rede" or "children" as "chiljrin" (Spandel, 2009).

The acquisition of writing skills requires practice, and children should be afforded ample opportunity to develop writing skills as part of a standard curriculum (Christie, Enz, & Vukelich, 2011; Cunningham & Allington, 2011). Just as with spoken language development, writing

skills are based upon the understanding of syntax and grammar. As the child develops competence in these areas, his writing improves.

Teachers play a critical role in terms of a child's writing (and language and reading) development (Cunningham & Allington, 2011; White, 2013). Developing effective writing involves instruction that focuses on planning, drafting, and revising (Mayer, 2008). In fact, interventions that target strategy instruction, summarization, peer assistance, and the setting of goals appear to offer the most effective ways in which to improve writing amongst children (Graham & Perin, 2007).

Comstock Images/Stockbyte/Thinkstock

The ability to write is another major milestone of middle childhood.

Bilingualism

For decades, it was believed that if a child had not learned another language by puberty, he or she would not be able to speak the language as fluently as individuals who speak the language as their native tongue (Johnson & Newport, 1991). However, relatively recent research has demonstrated that critical periods for second language acquisition vary across cultures (Thomas & Johnson, 2008). In fact, adults appear to learn new vocabularies easier than new sounds or grammar and often tend to learn a new language faster than children, but the extent to which they can speak the language fluently will not be as advanced as if they learned the language as children (Neville, 2006). One of the reasons for this may be that when learning a second language, children are less sensitive to feedback, are less likely to use explicit learning strategies, and are more likely to learn the language from a variety of sources (Thomas & Johnson, 2008).

There is research support for the contention that children who are fluent in two languages perform better on tests of attention, concept formation, cognitive flexibility, analytical reasoning, and cognitive complexity than their single-language counterparts (Bialystok & Craik, 2010). In addition, bilingual children appear to be more conscious of the structure of language in that they are able to identify grammatical errors more readily than children who only speak one language (Barac & Bialystok, 2012). However, these increased abilities may come at a price, as there is evidence to suggest that bilingual children may have smaller vocabularies in each respective language than children who only speak one language (Bialystok & Luk, 2012).

Currently, millions of children in the United States come from homes in which English is not the native or primary language that is spoken in the home (Diaz-Rico, 2012) and there is considerable debate regarding how these children should be taught in school. Over the last few decades, **bilingual education** has been the preferred strategy (Shoba & Chimbutane, 2013) in which children are taught academic subjects in their native language while concurrently learning English gradually. Critics of bilingual education argue that it often takes immigrant children multiple years to develop reading and language proficiencies in English and that

not all English language learners have the same abilities with regard to learning the English language (Echevarria & Vogt, 2011; Hakuta, Butler, & Witt, 2001). In addition, bilingual education researchers have also reported that opposition to bilingual education is often highest in areas where immigration is highest (Hempel, Dowling, Boardman, & Ellison, 2013). Nonetheless, bilingual education continues to be the preferred format because children have more difficulty learning subject matter in a language that is not their own and because when both languages are presented concurrently, children are better able to learn English (Hermanto, Moreno, & Bialystok, 2012; Moreno, 2012).

Summary and Resources

Summary

There are currently three perspectives that form a continuum of language development and acquisition theories: the biological, environmental, and interactionist perspectives. Each of these fields of thought offers valuable insight into the complex phenomena and associated processes that constitute language development and acquisition. In fact, the process of language acquisition undergoes a number of development milestones and transitions throughout infancy, early, and middle childhood. At various stages of development, our language abilities are dependent upon a number of advances and limitations that occur during each particular period.

Key Ideas

- Childhood language acquisition has typically been explained through biological, environmental, and interactionist theoretical perspectives.
- The biological perspective is rooted in the premise that children from all across the world acquire language in extraordinarily similar ways.
- As a theoretical construct, support for Chomsky's language acquisition device is buoyed by the universality of human language abilities, the regularity of the early production of sounds, and the fundamental sequence of language development that is seen among children speaking any language.
- Skinner (1957) detailed the process of learning as a function of reinforcement and conditioning, and early behaviorists argued that language acquisition follows the same principles outlined by these fundamental concepts.
- The interactionist theoretical perspective maintains that neither the biological nor the environmental perspective accounts for language acquisition in its entirety, and it argues that the full acquisition of language requires both biological processes *and* experience.
- Children develop language according to an invariant sequence of steps or stages.
- There are several different types of gestures that infants engage in.
- Vocabulary development refers to the child learning the meanings of words. Children have two different types of vocabulary: expressive and receptive.
- Language acquisition explodes during early childhood years. Preschoolers, on average, are learning about nine new words a day and grammar skills also grow exponentially.
- Children show pragmatism when they adjust their speech for a social situation.

- Language development and cognitive development go hand in hand.
- When children reach elementary school, new skills are acquired, including the abilities to discuss objects and people not present, to recognize words, and to talk about various sounds.
- During middle childhood, children increasingly organize their mental vocabulary in new ways that include the ability to categorize words by parts of speech.
- During middle childhood, children gain additional competence in terms of pragmatics—the rules that govern language in a social context.
- Metalinguistic awareness improves dramatically in elementary school.
- Two of the key milestones that are related to language development and are typically achieved in middle childhood are a child's ability to read and write.
- The way in which children are presently taught to read is currently debated and generally falls within two different schools of thought: the whole-language approach or the phonics approach.
- Children's writing abilities begin to emerge at an early age, with most 4- and 5-year-olds being able to write their names. As they gradually learn the characteristics of letters, they begin to form more sophisticated words and sentences.
- For decades, it was believed that if a child had not learned another language by puberty, he or she would not be able to speak the language as fluently as individuals who speak the language natively.
- Bilingual education continues to be the preferred format for children learning English as a second language because they have increased difficulty learning subject matter in a language that is not their own and because when both languages are presented concurrently, they are better able to learn English.

Critical Thinking Questions

1. You are working with a young child and you are having a very hard time understanding him when he talks. You know that he is trying, but he is having difficulty producing clear speech and using the proper words. When you talk to his mother, she tells you that he is just doing this to get attention. Do you agree or disagree with his mother? Why?
2. Do you think that Chomsky's language acquisition device is a useful construct? Why or why not? Provide scholarly support for your opinion.
3. Out of the three strategies (recasting, expanding, and labeling) used to help children learn language, which one do you think is the most important to use? Why? What scholarly sources support your opinion?
4. What would you tell someone who believes that an infant is not able to communicate until they are able to produce words?
5. You overhear your neighbor telling her friend that her son, who is 20 months old, is a genius because he only knew about 50 words 2 months ago and now he is saying over 200 words. Do you agree that this child is extremely advanced in his language skills? Why or why not?
6. You are working in a preschool classroom and you notice that many of the children are using incorrect grammar. They say things like, "He sitted right here" or "Can you help me put my shoes on my feets?" A teacher from another classroom overhears some of these conversations and tells you that you have a huge problem on your hands. Do you agree with this teacher? Why or why not?

7. In terms of language and cognition in early childhood, which do you believe is the order of events: first children understand language and then they grasp the cognitive concepts to support it, or the other way around? Why?
8. When examining the two approaches to reading development, which do you think is most effective, the whole-language approach or phonics? Why? Provide scholarly support for your decision.
9. What would you say to someone who says that the earlier you teach your child a second language the better they will speak it? Use scholarly sources to support your assertions.

Key Terms

alphabetic principle The awareness that letters of the alphabet represent sounds that constitute language.

aphasia A loss or impairment with regard to language processing.

babbling The first vocalizing that sounds like human speech.

bilingual education The process by which children are taught academic subjects in their native language while concurrently learning English.

contrast assumption The process by which children assume that objects have only one label and that new terms must refer to unfamiliar objects because familiar objects already have labels.

deep structure The proposition that all languages share an underlying set of rules that govern our ability to transform ideas into words.

echolalia The automatic repetition of sounds of words.

expanding The purposeful restatement of a simple phrase into a linguistically sophisticated and grammatically correct form.

fast mapping The process by which a child quickly attaches a new word to its appropriate concept.

infant-directed speech (IDS or "motherese") A convention of communication whereby a caregiver speaks more slowly and in a higher pitch than normal, using simple words and sentences.

intonation The use of pitches of varying levels to help communicate meaning.

labeling The intentional naming of objects.

language acquisition device The innate tendency among all individuals to acquire language.

metalinguistic awareness The understanding and knowledge of one's use of language.

nativists Language researchers who believe that biological processes and innate mechanisms direct language development.

overextension The process through which children use a word they know to refer to objects and actions for which they do not know the words.

overregularization The application of regular grammar rules (incorrectly) to form irregular verbs and nouns.

phonics approach An approach to reading instruction that emphasizes syllables and applies basic rules for the translation of written symbols into sounds.

pragmatics The practical, social aspect of communication.

recasting The deliberate rephrasing of an utterance or phrase into a grammatically correct statement or question.

shaping The tendency to require additional refinement in behavior before reinforcement is provided.

surface structure The concept that each language is unique in certain ways (e.g., there is a different vocabulary for each language).

telegraphic speech Brief expressions that have the same meaning as a sentence.

underextension A process of language acquisition in which a child applies a word too narrowly.

universal grammar The notion that all of the world's languages share a similar, underlying structure.

whole-language approach An approach to reading instruction that mimics the way in which children learn spoken language, emphasizing entire words and texts (rather than emphasizing phonemes first).

whole-object assumption A process of speech in which a child assumes that words refer to whole objects and not to their component parts or their characteristics, such as size, color, or texture.

Web Resources

- The relationship between language and the brain:
  http://www.ling.upenn.edu/courses/Fall_2001/ling001/neurology.html
- The areas of the brain associated with language:
  http://www.youtube.com/watch?v=5k8JwC1L9_k
- Language development in infants (video):
  http://www.youtube.com/watch?v=SVnLAONny24
- Noam Chomsky:
  http://www.chomsky.info/
- Debates regarding language and language development:
  http://www.hanen.org/Helpful-Info/Articles/Fact-or-Fiction--The-Top-10-Assumptions-about-Earl.aspx
- Bilingual education:
  http://www.nabe.org/BilingualEducation