CHAPTER 2

Communication Across the Life Span

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LEARNING OBJECTIVES

1. To learn about the major processes in communication
2. To know the definition of language
3. To understand the processes and systems that underlie speech and language development
4. To differentiate between language form, content, and use
5. To learn about important changes in language development that occur during four major periods of development: infancy, the preschool years, the school-age years, and adulthood

This is a book about communication and the ways that it can be disrupted. **Communication** is any exchange of meaning between a sender and a receiver. This seemingly simple exchange is the primary means by which humans share their thoughts and feelings, express their identity, build relationships, pass on traditions, conduct business, teach, and learn. Some communication is intentional, as when you tell your friend about your course schedule. Some communication is unintentional, as when your friend interprets your facial expressions or your body language that indicate that you do not like your schedule.

Most of the time, meaning is exchanged via a code, called *language*. **Language** is best defined as a standard set of symbols

(sounds or letters) and the rules for combining those symbols into words, sentences, and texts to convey ideas and feelings. Let's consider the parts of that definition more carefully.

Language is composed of a standard set of symbols. This means that one thing (a combination of sounds, letters, or hand movements) represents or stands for something else (ideas, feelings, or objects). Groups of sounds, printed letters, or hand movements (as in the case of **American Sign Language**) do not have an intrinsic meaning; rather, their meaning is standardized (agreed upon) by the people who use a language. For example, the sounds *t – r – ee* are unrelated to a plant with branches and leaves. However, speakers of English agree that the group of sounds *t – r – ee*, spoken in succession, represents a tall object with a trunk and leaves. We may not all have exactly the same type of tree in our minds when we hear the three sounds *t – r – ee*, but nearly all speakers of English share the same general concept. Therefore, the term standardized means that the speakers of a particular language share reasonably similar meanings for certain groups of sounds, letters, or hand movements.

Languages need more than just words. Most of our thoughts are so complex that we cannot express them adequately with single words. Groups of words are needed (**Box 2-1**). Another important aspect of language, referred to as **syntax**, relates to the conventions (or rules) for grouping words together. For there to be meaningful communication, speakers need to agree not only on word meanings but also on meanings that are inherent in word order. For example, if I said, "Mary helped Billy," we would all agree that Mary was the helper, and Billy was the person who was helped. That is not the same thing as "Billy helped Mary," even though the words themselves did not change. Our knowledge of the word-order conventions of our language makes it possible for us to know which person is the actor and which person was acted upon.

The Process of Language Production and Comprehension

Figure 2-1 depicts the primary processes that are involved in spoken language. In language production, senders encode their thoughts into some form of a language code. This code is usually spoken or written, but it can also be signed. In speech, which is

Box 2-1 Online Video Segment Summary

There are ten online video segments that accompany this chapter. The first group of videos (Erin, Age 2; Erin, Age 4; Trey, Age 5; Andrea, Age 8; Jorge, Age 11; Jennifer, Age 12; Brandi, Age 14) show children of various ages telling a story. We refer to various segments of this video to demonstrate changes in language development over time. The next videos (Jargon and Pre-Verbal Communication) show a 2-year-old boy playing with a graduate student in speech-language pathology. These segments illustrate preverbal and early verbal communication. Another video (Aaron, Age 9 Alien) shows a 9-year-old boy telling a story while looking at a picture of an alien spaceship landing in a park.

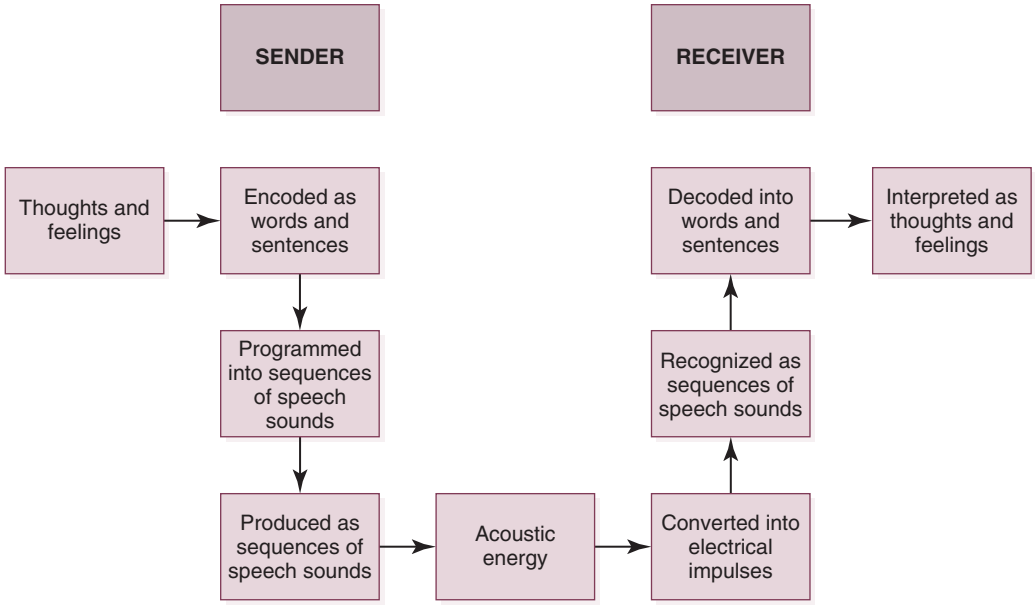

Figure 2-1 A basic model of speech communication processes

the most common means of expressing language, the sounds, words, and sentences that express the speaker's thoughts are formed by sending commands to the muscles responsible for respiration (primarily the diaphragm), voicing (primarily the larynx), and articulation (primarily the tongue, lips, and jaw). Sequences of spoken sounds leave the oral cavity in the form of sound waves.

In listening and comprehension, the sound waves enter the receiver's ear, where they are turned into electrical impulses in the cochlea. These impulses are carried to the brain by the auditory nerve and auditory pathways, where they are recognized as speech and then interpreted as words and sentences. Listeners interpret the words and sentences based on their understanding of the meaning of the words in relation to the other words that were spoken and the speaking context.

The Building Blocks of Speech

Speech production depends on two critical components: phonemes and syllables. The next section explains the roles that phonemes and syllables play in creating spoken words.

Phonemes

Languages have two basic types of sounds: consonants and vowels. Think about the words *bee, key*, and *tea*. Each word ends with the same vowel, the long [ee] sound. They are spelled differently because, in English, sounds in words can be represented by many different letters. But let's put spelling aside for the moment. *Bee, key*, and *tea* are three words with different meanings because the first consonant in each one differs. The sounds /b/, /k/, and /t/

differ in the way they are produced, and that difference results in a change in word meaning. Sounds of a language that cause changes in meaning are called **phonemes**.

Consonants and vowels differ in their basic manner of production. Vowels are produced with much less constriction in the vocal tract, whereas consonants are produced with different degrees of blockage in the vocal tract. The vowels of English, listed in **Table 2-1**, are classified by jaw height and placement of the tongue in the mouth. The tongue can move in the front to back dimension (represented across the top of the table) or in the high to low dimension (listed in the left-hand column of Table 2-1).

The consonants of English are listed in **Table 2-2**. Notice in Tables 2-1 and 2-2 that many of the symbols for sounds correspond to the English alphabet. Some symbols look unfamiliar. These symbols are from the International Phonetic Alphabet. This alphabet is a special set of symbols that we use to represent the sounds of speech in phonetic transcription. This is useful because there are many written letters that correspond to more than one speech sound. For example, the word *garage* begins and ends with two different sounds, even though they are both spelled with the letter *g*. If you look ahead to **Box 2-4**, you can see an example of phonetic transcription.

English consonants are produced by altering the manner and place of articulation or by voicing. **Manner of articulation** refers to the different ways that speakers can block airflow through the oral cavity using different types of constrictions. For example, notice the difference between producing the sound /t/ as in *tea* and the sound /s/ as in *sea*. Different manners of blocking airflow lead to qualitatively different sounds. Another way of modifying speech sounds is to produce blockages at different places in the oral cavity. This is referred to as **place of articulation**. For example, the sound /p/ in *pea* is produced by closing the lips, and the sound /k/ in *key* is produced with the back of the tongue raised. Finally, consonants differ in **voicing**. They may be voiced or unvoiced. Voiced sounds are produced with vibration of the vocal folds (e.g., /v/ as in *valentine*). Voiceless sounds are produced with the vocal folds open (e.g., /f/ as in *face*).

Table 2-1 The Vowels of English

	Front	Central	Back
High	i *key*		u *loot*
	I *lip*		ʊ *look*
Mid	e *made*	ʌ, ə *mud*	o *boat*
	ɛ been	ɝ, ɚ *curd*	
Low	æ *mad*		
	a *hot*		ɔ *bought*

Table 2-2 The Consonants of English

		Bilabial	Labiodental	Dental	Alveolar	Palatal	Velar	Glottal
Plosive	Voiceless	p *pea*			t *tea*		k *king*	
	Voiced	b *bee*			d *dig*		g *gap*	
Fricative	Voiceless		f *fig*	θ *thumb*	s *sea*	ʃ *shoe*		h *high*
	Voiced		v *vest*	ð *them*	z *zoo*	ʒ *garage*		
Affricate	Voiceless					ʧ *chew*		
	Voiced					ʤ *juice*		
Liquid	Central				r *rug*			
	Lateral				l *luck*			
Glide		w *wing*				j *you*		
Nasal		m *men*			n *nose*		ŋ *ring*	

Phonetic transcription of speech is useful when we study the speech production of young children or adults with phonological disorders. In both of these cases, speech patterns do not necessarily correspond directly to the sounds in the words the person is trying to say. By using the symbols from the International Phonetic Alphabet (Tables 2-1 and 2-2), clinicians and researchers can capture in writing precisely how people produce sounds in words. This is helpful for maintaining records of the child's speech development and to compare child production with standard adult production.

Syllables

Suppose that you are asked to read aloud an invented nonsense word such as *gigafibber*. Try reading this nonword aloud to yourself right now. How did you go about deciding how this word is to be pronounced? You probably divided the words into shorter chunks or segments. Most likely, you tried to say the word syllable by syllable. **Syllables** are units of speech that consist of consonants and vowels. Vowels are the central component or the nucleus around which the rest of the syllable is constructed. A syllable may consist of a single vowel (e.g., the *a* in *alone*), although syllables usually contain combinations of consonants and vowels. The most common and easy to produce combination is a consonant and a vowel (e.g., *ba, si*), but syllabic complexity can be increased by adding consonants before the vowel (e.g., *ri, tri, stri*) or after it (e.g., *am, amp*).

The Building Blocks of Language

Language has three interrelated components: content, form, and use (Bloom &

Lahey, 1978). *Content* refers to the meaning of language, *form* refers to the structure of language, and *use* refers to the way speakers select different forms that best fit the communication context. Any sentence contains all three components of language.

Language Content

Language content relates to meaning. Children develop a **lexicon**, which is a mental dictionary of words and their meanings. Word learning is a lifelong process primarily because there are so many words that make up a language, but also because new words are being added all the time (think about all the computer-related vocabulary that has become part of our daily language during the past 10 years). Children's ability to process language well affects the rate of development of their lexicon. Children who discriminate between sounds and have better memory for sounds tend to learn words faster (Fernald & Marchman, 2012).

What makes word learning even harder is that many words have multiple meanings. For example, the word *bark* can refer to something that a dog does or the stuff on the outside of a tree trunk. Imagine how confusing the sentence "That tree has funny bark" might be to a young child who had only heard the word *bark* used with reference to the noise his dog made.

Language content is not only about word meaning. Speakers use groups of words to express ideas about actors, objects, and actions (John threw the ball), as well as ideas about relationships, such as possession or location (John threw Sam's ball into the tree). The linguistic representation of objects, ideas, feelings, and events, as well as the relations among these phenomena, is called **semantics**.

Language Form

Language form, or the structure of language, involves three linguistic systems: phonology, morphology, and syntax. We introduced the concept of phonology when we discussed the sounds of speech. **Phonology** is the study of the sounds we use to make words. For example, /b/, /r/, and /l/ are English language sounds. In Spanish, there are different sounds, such as the trilled /r/ sound, that do not occur in English. Recall that we said a phoneme was the smallest meaningful unit of speech. Take the words /fæn/, /mæn/, and /kæn/ (*fan*, *man*, and *can*). We know that the sounds /f/, /m/, and /k/ are phonemes in English because putting these different sounds in front of the root /æn/ results in a change in meaning.

Morphology is the linguistic system that relates to the internal organization of words. A morpheme is the smallest grammatical unit that has meaning. The word *bird* is a morpheme. It cannot be divided into parts that have any meaning in and of themselves (such as "b" and "ird"). *Bird* is an example of a **free morpheme** because it can stand alone as a word. There are also **bound morphemes**, which are grammatical tags or markers in English. An example of a bound morpheme is the final *-s* in *birds*, which adds grammatical meaning. In this case, *-s* marks plurality, meaning that there is more than one bird. Other examples of bound morphemes include *-ed* (which marks past tense, as in the sentence "He jumped over the wall") and *-ing* (which marks the present progressive tense, as in

the sentence "He is running"). In English, most bound morphemes are placed on the ends of words. However, some are placed at the beginning of words. An example is *un-*, meaning "not," as in *uninteresting*. Some readers may think information about linguistics is uninteresting. However, professionals who assess and treat individuals with communication disorders need to know this information.

Syntax is the linguistic system that relates to the conventions for grouping words together. Basically, syntax is the formal term for grammar. In English, we say *blue ball*; in French, the proper order is *balon bleu*, or "ball blue." The meaning is the same, but the rules governing word order are different for the two languages. Sentences that are ungrammatical may still make sense. Imagine a young child who tells his mother, "Him holded baby doggie." The sentence is ungrammatical because an object pronoun is used in place of the subject (*he*), the regular past tense marker is applied to the word *hold* that has an irregular form (*held*) for the past tense, and the child omitted an article (*the* or *a*) before the object noun phrase (*a baby doggie*). Even though this sentence is ungrammatical, we know exactly what the child meant.

Language Use

Language use concerns the goals of language and the ways we choose words and sentences that are the best fit for the speaking situation. There are sociolinguistic conventions, called **pragmatics**, that help us decide what to say to whom, how to say it, and when to say it. Imagine that you are telling someone about a movie you saw recently. You could say, "That had to be the most uninteresting screenplay I've ever seen," or "That film was so dull I could hardly keep my eyes open," or even, "Talk about a boring movie." We choose different sets of words that we believe will best communicate our meanings to the audience we are addressing.

Effective language requires an interaction of content (semantics), form (phonology, morphology, syntax), and use (pragmatics). Speakers think of something to say and the best words to say it (content), and they put those words in sentences (form) that address their goal (use) given the nature of the speaking situation (use). Similarly, listeners interpret the words (content) and sentences (form) they hear with reference to what they already know about the language being spoken (content and form) and the situation they are in (use).

The Development of Speech and Language

By the time most children are 3 or 4 years old, they can integrate language content, form, and use to understand and produce basic messages. By the time they reach the age of 9 years, most children are capable of understanding and expressing quite complex messages. Communication ability continues to change into adulthood, where it plateaus around the age of 50 years. Late in life, communication skills often decline as a result of hearing loss and the loss of mental functions. Some of the basic milestones of speech and language development are listed in **Table 2-3**.

We describe some of the important milestones in communication development

Table 2-3 Basic Milestones of Speech and Language Development and the Typical Age Range at Which They First Appear

Speech and Language Milestones	Age Range of First Appearance
Understands simple words (*mommy, daddy, dog*)	6–8 months
Reduplicated babbling (*ba-ba*)	6–8 months
Variegated babbling (*ba-do-ke-ga-do*)	6–8 months
First word	10–14 months
Two-word utterances	16–20 months
First grammatical morphemes	1;10–2;2 years
Multiword sentences	2;2–2;6 years
Combinations of sentences that describe events	3;2–3;6 years
Understood by unfamiliar listeners (95% of consonants produced in adult-like manner)	3;10–4;2 years
Identifies beginning sounds in spoken words	5;0–5;8 years
Decodes words	6;0–6;6 years
Tells complex stories	8–10 years
Written stories are more complex than spoken stories	11–13 years
Combines information from multiple sources into research papers	14–15 years
Refines personal speaking and writing styles	15–20 years
Uses vocation-specific vocabulary	21–24 years
Consistent difficulty recalling names and content words	45–47 years

Note: Children's ages are represented by the convention *years;months*. So, 1;10 indicates the age, 1 year, 10 months.

from infancy to very old age in the next section of this chapter. We refer to the period from 0 to 24 months as "from crying to short phrases." We refer to the period from 2 to 5 years as "from early sentences to stories." The school-age years start at kindergarten (age 5) and go through high school (age 18). Finally, we discuss language change during adulthood. We discuss important language characteristics related to content (semantics), form (phonology, morphology, syntax), and use (pragmatics) in each of the four developmental stages.

Knowledge of speech and language development is important to speech-language pathologists, audiologists, and deaf educators. To identify atypical development, you must know what is typical. To assist children and adults with communication disorders, you must be able to

determine their communication abilities. These skills require a solid grounding in speech and language development.

Individual Differences

There is a significant amount of variation in the *rate* of communication development. That is, some children develop language faster than others, and some adults' language skills decline faster than those of others. There is also some variation in the *way* language develops. Some children are risk-takers; they will try to say words that are difficult for them to produce even if the words are not pronounced correctly. Other children prefer not to produce words that may be difficult for them to say until they are sure they can say them correctly. Some children learn lots of nouns (50 or more) before they start producing two-word utterances; other children learn and use social phrases (e.g., *thank you, see ya later, hi daddy*) some time before they have 50-word vocabularies. Finally, there is variation in communication style. Some children and adults are relatively reticent; they tend not to say a whole lot about anything. Other children and adults are quite gregarious; they tend to say a lot about everything!

As a result, it is difficult, if not impossible, to pinpoint what is "normal." Neither can we pinpoint what exactly happens in language development at a particular developmental age. Because there is so much individual variation, we talk about *typical* development instead of normal development, and we provide age ranges for the first appearance of the speech and language behaviors that we discuss. We celebrate diversity in language development and use, and we recognize that differences between speakers make communication more interesting. However, we also know that some children have developmental difficulties that place them at significant risk for social, educational, and vocational difficulties later in life. Well-informed speech-language pathologists and audiologists know how to tell when language development is so far outside the typical range that it leads to negative social, educational, or vocational consequences.

From Crying to Short Phrases: Ages 0–24 Months

Content

Children do not seem to understand different words until they are around 6 months of age. Then they begin to wave "bye-bye" when they are encouraged to do so by their parents, or they may hold up their arms when their sister says, "How big is baby? So big!" By the end of their first year of life, infants usually understand about 20 different words. They start to say words other than *mama* and *dada* between the ages of 10 and 14 months, and their vocabulary can expand to 200 or more words by the time they reach 2 years of age.

Once children have built an adequate lexicon (a personal mental dictionary), they begin to combine words into two- and three-word utterances. This happens around 18 months of age. The ability to produce two-word utterances marks the child's desire to express relationships between ideas, and it shows that children are learning about word order. For example, children will combine a modifier like *big* or *more* with nouns to create such utterances as "big dog" or "more cookie."

Form (Phonology)

Even before they are born, young children are actively sorting out and grouping the sounds of the language they hear. At birth, infants prefer to listen to speech rather than to other types of complex sounds, and they listen longer to the sound patterns of their own language than to those of another language (Jusczyk, 1997). Infants' ability to process speech is a reliable predictor of their later vocabulary development (Vouloumanos & Curtin, 2014).

Speech is secondary to biological functions such as respiration and feeding. As infants gain control over these motor functions, speech begins to emerge. An early phase of vocal development is called *cooing*, in which infants begin to produce a number of types of sounds, such as growls, squeals, raspberries, and adult-like vowel sounds. As children gain greater independent control of the muscles that produce speech, they combine different consonants and vowels and string sets of different syllables together in a way that has a speech-like quality, called **babbling**. Around the age of 7 months, infants start to use their voice to make syllable-like strings, a process called **canonical babbling**. In babbling, they produce rhythmic syllables over and over (e.g., *bababa*), termed **reduplicated babbling**, as well as combine different syllables (e.g., *bawabedo*), termed **variegated babbling**. Around 9 months of age, their babbling starts to take on adult-like intonation patterns. This type of speech is known as **expressive jargon**, which sounds like statements and questions, with the exception that none of the strings of syllables are recognizable words. Children exhibit expressive jargon interspersed with real words until they are 2 years old.

As children approach their first birthday, they begin to use words. Common first words, such as *mama*, *dada*, or *papa*, contain those sounds that children regularly produce in babbled speech (**Box 2-2**).

Form (Morphology and Syntax)

The ability to sequence actions is one of the critical foundations of language, which involves joining sequences of sounds to make words, and sequences of words to

Box 2-2 Examples of Jargon and Early Words

Online video segments Jargon and Pre-Verbal Communication show a little boy, Ryan, playing with Meghan, who is a graduate student in speech-language pathology. Listen carefully to what Ryan says in segment Jargon. Can you understand anything Ryan says? He sounds like he is talking, but he is not using any identifiable words in this segment. This is a good example of jargon. Sometimes Ryan uses sentence-ending intonation patterns. Toward the end of the segment, you will hear Ryan say something that sounds a lot like a question. If you can figure out what the words are, you are a better transcriber than we are.

When you play segment Pre-Verbal Communication, you will hear Ryan say the word *cup* pretty clearly. The rest of his utterances are examples of babbling and jargon. Notice that his babbling sounds a lot like English. One longer utterance contains variegated babbling and ends with the word *cup*.

make sentences. Therefore, sequenced organized behaviors, such as combinations of symbolic play schemes (pretending to pour tea into a cup and then pretending to put the cup to a doll's mouth), are important prerequisites of morphology (sequences of morphemes) and syntax development (sequences of words that form sentences).

As most children near 2 years of age, they start to use two-word utterances such as "Billy go" or "Go there." These utterances are best characterized by semantic relations such as "agent + action" and "action + location." Utterances of this type are the building blocks of syntax because they usually reflect the word order of language (**Boxes 2-3** and **2-4**).

Box 2-3 Two-Word Utterances

Watch segment Erin, Age 2. Brandi and her little sister Erin are looking at a book together. Listen to Erin's two-word utterances. How might we describe the utterances, "going night-night" and "getting out"?

Box 2-4 Examples of Jargon and Early Words

If you look at the transcriptions of the speech samples in parts 1, 2, and 3 of online video segment Erin, Age 2; Erin, Age 4; Trey, Age 5; Andrea, Age 8; Jorge, Age 11; Jennifer, Age 12; Brandi, Age 14, you can see that each child uses increasingly more of the sounds that are expected for his age. You can also see that individual children differ from the norm. For example, /g/ was in the middle set of sounds acquired for 3–5 years, but Erin, who is 2 years, is already using it in her speech.

Part 1: Erin (Age 2 Years) and Brandi

B: What is that?
E: A frog. /ə fɑg/
B: A frog!
B: And what are they in, Erin?
B: Look, what are they in?
E: A room. [ə bum]
B: A room, that's right.
B: And do you know what that is?
E: M-hum. [mhəm]
B: What is that?
B: Is that a window?
E: (Nods head yes)
B: Yea. Now what is going on, what are they doing there?
E: Going night-night. [go naɪnaɪ]
B: They're going night-night.
B: What's the frog doing?
E: Get, getting out. [gɛ gɛɪ aʊ]
B: He's getting out!

Part 2: Older Erin (Age 4 Years)

There was a little frog. [dɛ wɑð ə lɪdəl fɑg]
And then, he, the frog, that frog was mean and that frog was happy.
[æn dɛn hi də fɑg dæ fɑg wʌð min æn dæ fɑg wʌð hæpi]
And he would> [æn hi wʊð]
And there was a possible thing. [æn dɛr wʌð ə pɑsəbəl fɪŋ]
And the frog look like> [æn də fɑg lʊk laɪk]
And he was mean. [æn hi wʌð min]
And he, and he was sad. [æn hi æn hi wʌð sæd]
And he was mad. [æn hi wʌð mæd]
And they were mad. [æn deɪ wʌ mæd]
And he was mad and he was sad. [æn hi wʌð mæd æn hi wʌð sæd]

Language Use (Pragmatics)

In mainstream American culture, we communicate with our children from the first minute we see them. Mothers and fathers hold their infants, look into their faces, and talk to them. When infants make gurgling noises, their parents are quick to say things like, "Yes, I know. You're all full now, aren't you?" We build conversations with our children by treating everything they say and do *as if* it was true intentional communication. However, parents from some cultures do not treat their young children in quite the same way. Differences in child-rearing practices are discussed in greater detail in Chapter 3.

Children communicate without words before they communicate with words. For example, when infants want something they cannot reach, they may point to it and vocalize loudly, "uh, uh, uh!" Even though they are not saying words, they are clearly communicating a form of a command, *Get that for me, Mom!* Other forms of early intentional communication include looking at a parent, and then looking at an object, and then looking back to the parent, and then back to the object, and so on until the parent gets what the child wants. This behavior is very important because it shows children that communication gives them some degree of control over their environment.

Once children start to produce words, they can communicate many different functions with just a few words. For example, a child could say, "go" to tell someone to go away, or he could say, "want" while pointing to tell someone that he wants a cookie.

From Early Sentences to Stories: Ages 2–5 Years

Content

Children's vocabulary grows exponentially during the preschool years. Children *say* approximately 200 different words at 2 years of age, and their expressive vocabulary increases to approximately 1,800 different words by age 4, when they probably *understand* as many as 3,000 or 4,000 different words. During this period, children

continue to expand their noun and verb vocabularies. They also learn prepositions (e.g., over, under, in front of, between), words that express time (e.g., before, after, until), words that express physical relationships (e.g., hard, soft, large, small), adjectives (e.g., blue, red, big, little), and pronouns (e.g., me, you, they, our, herself).

Children are also busy learning how to create sentences that express complex relationships between words. At age 2, children say sentences like, "I want juice." By age 4, children say sentences like, "Billy is riding his red bike in his backyard." This sentence expresses at least five different relationships. The basic relationships are agent (Billy) + action (is riding) + object (bike). The words *red bike* tell about the state (color) of the bike. By adding the word *his* in front of *red bike*, the speaker specifies an ownership relationship. The pronoun makes it clear that it is the agent (Billy) who is the owner. The prepositional phrase *in his backyard* states two important relationships. We know where the event occurs (in the backyard), and we also know that the backyard belongs to Billy. This example shows how many relationships can be expressed in a relatively simple sentence.

Form (Phonology)

From age 2 years on, children begin to produce speech sounds with increasing accuracy. The earliest set of phonemes acquired by children is /m, b, n, w, d, p, h/; these sounds are often acquired by the time children are 3 years old. The next set of phonemes that children acquire, typically between 3 and 5 years of age, includes /t, ŋ, k, g, f, v, ʧ (ch), ʤ (j)/. The last set of phonemes to be acquired includes /ʃ (sh), θ (voiceless th), s, z, ð (voiced th), l, r, ʒ (ge as in garage)/. These sounds are sometimes referred to as the "late eight" sounds. Children may start to acquire these sounds as early as 4 years of age, but these may not be fully acquired until 7 or 8 years of age. It is important to remember that children will use these phonemes inconsistently for a long time before they master them. Thus, children might use a phoneme in places where it does not belong in a word, as when they substitute /t/ for /k/ resulting in /tæp/ *tap* for /kæp/ *cap* or distort a sound, such as /s/ (e.g., young children may produce a "slushy" sound in which the air comes out over the sides of the tongue instead of /s/ in which the air comes out over the tip of the tongue). Speech sound acquisition is a gradual process.

Form (Morphology and Syntax)

During this period, children progress from producing primarily one- and two-word utterances to producing sentences that may contain up to 10 words. As children begin to express more precise meanings with multiword utterances, the use of grammatical morphology and syntax becomes important.

Some of the earliest grammatical morphemes to emerge include forms such as the plural *-s* (*The boys ride*), the possessive *-s* (*The girl's bike*), and the progressive *-ing* (*The dog's barking*). At about 3 years of age, children begin to mark verb tense using the third-person singular *-s* (e.g., *my sister swims*) or the past tense *-ed* (e.g., *The man jumped*). Later, children increase the complexity of their utterances using the copula and auxiliary form of "be," as in "Daddy *is* a clown"

Box 2-5 Morphosyntactic Development

Go back to the speech samples in online video segment Erin, Age 2; Erin, Age 4; Trey, Age 5; Andrea, Age 8; Jorge, Age 11; Jennifer, Age 12; Brandi, Age 14 again and notice how the children's sentences increase in morphosyntactic complexity. For example, when Erin uses a two-word utterance to describe an action, she uses the progressive *-ing* only (i.e., "going night-night"). The older Erin is able to express past tense forms such as *was* and *were*. However, she does not use the past *-ed* on the end of *look* as might be expected. Even after children have begun to use these forms, they may apply them inconsistently.

(a copula form) or "He *is* running" (an auxiliary form). Sex, vocabulary knowledge, and parent input play important roles in grammatical development. Girls with larger vocabularies whose parents use a variety of present and past tense forms tend to develop grammatical morphemes a little faster (Hadley, Rispoli, Fitzgerald, & Bahnsen, 2011).

As children produce longer sentences, they must use appropriate word order (syntax) if they are to be understood. From the time that children use two-word combinations, changes in word order reflect differences in meaning. For example, a child may say "daddy car" to indicate the car belongs to his daddy, and "car daddy" to ask his daddy to take him for a ride in the car.

Ways that young children (between 2 and 3 years of age) add syntactic complexity include using modifiers (e.g., *want blue ball*) and using new forms such as questions (e.g., *see ball?* with a rising intonation). By age 3 years, children start to use prepositions (It's *on* my chair), they use *and* to conjoin elements (I want juice *and* cookie), and they use longer question forms (e.g., *Why you not here?*). By age 4 years, children start using passive sentences, such as "The dog was bitten by the snake," and some complex forms, like "I know how to cut with scissors."

There is a relationship between the way parents interact with their children and their children's language development. It is important for parents to use short, grammatically correct utterances when talking to their children (Oja & Fey, 2014). For example, it is better for parents to say, "The kitty is jumping," than "See kitty jump." In addition, children's grammatical growth can be accelerated as parents use more descriptions of their children's actions (Fitzgerald, Hadley, & Rispoli, 2013). For example, as a child is reaching out to touch the cat, the parent could say, "You're petting the kitty!" (**Box 2-5**).

Use (Pragmatics)

Before children can produce short sentences, adults assume most of the responsibility for conversing with them. By age 3, children begin to play a much larger role in conversation. Look at the example of a conversation between Jennifer and her father. Notice that Jennifer does not have control over all the morphology and syntax necessary to express her ideas grammatically. Nonetheless, she is assertive as she expresses new ideas and asks a question, and she is responsive when she answers her mother's question.

Jennifer: Sara be at school.
Father: She'll be home pretty soon.
Jennifer: Can I go school, Daddy?
Father: Some day. Do you want to play house?
Jennifer: Yea, we play house Daddy.

One important development during the preschool years is the beginning of narration, the ability to express a chain of events in the form of a story. Children's first stories are personal narratives that consist of one or two sentences. For example, an early personal narrative might go as follows:

> Look, I painted a picture. And it got on me. See my shirt? I washed it and it's not go away.

Toward the end of the preschool period, children start to tell stories that contain fictional elements. Many fictional stories follow a similar sequence called a **story grammar**. Stories usually contain **setting** information, plus one or more **episodes**. To have a minimally complete episode, the narrator needs to say what motivated the main character to take an action (the **initiating event**), what actions the character took in response to the initiating event (**attempts**), and what the result of the action was (**consequence**). For example, a complete narrative might go as follows:

> A bunch of mice lived in the woods (setting). One day they were really hungry (initiating event). The mice saw some campers put their backpacks down. They snuck up to the backpacks, looked inside, and found an apple (attempts). They took the apple back to their house and ate it (consequence). Then they weren't hungry anymore.

From Oral Language to Written Language: The School-Age Years

Content (Semantics)

Children's vocabularies continue to expand dramatically during the school-age years. It has been estimated that children acquire as many as 3,000 different words annually during the school-age years. At that rate, high school seniors may know as many as 80,000 different words (Miller & Gildea, 1987).

School-age children have a greater understanding of relationships between concepts and increasing knowledge about the meanings of words. This is seen in their ability to comprehend and use figurative language such as metaphors and idioms. **Metaphors** are expressions in which words that usually designate one thing are used to designate another. For example, "All the world is a stage." **Idioms** are expressions that have literal and figurative meanings. For example, the expression "Reading between the lines" could mean looking for words in the white space between the lines of this text. However, you probably know that this idiom really means to comprehend meanings or to make inferences about meanings that go beyond the literal meanings of the individual words.

Form (Phonology)

Beyond the age of 5 years, children's speech continuously becomes more adult-like. As mentioned earlier, some of the latest sounds are not perfected until children are 7 or 8 years old. Children this age also become more adept at producing consonant

clusters, such as *str-* and *sl-*. They produce most words accurately, but some errors are occasionally observed in the production of complex words or in the production of words containing sounds that are late to be acquired. For example, children may still have difficulty producing multisyllabic words, such as *spaghetti* or *pharmacy*.

In the late preschool years and early school-age years, children become aware of and start to mentally manipulate the sound structure of the words they say and hear. This ability is known as **phonological awareness**, and it has been shown to be a skill that is critically important for learning to read. For example, children can tell that *fan* and *man* rhyme. Later, they realize that *hot* and *horse* begin with the same sounds. By the time they are in second grade, children should be able to segment words into all their constituent phonemes (*sun* is /s/ - /^/ - /n/) and to delete phonemes (say *school* without the /s/).

Form (Morphology and Syntax)

Children use a greater variety of complex sentence forms during the school-age years. That is, they become adept at putting multiple clauses (subject–verb combinations) into single sentences. The earliest and most common complex sentences are formed with conjunctions such as *and* (He came to my party *and* brought me a present). Later, children learn to use adverbial clauses that express time (*After we went to the movie*, we got an ice cream cone) or causality (I want you to come over *because* I don't like to play alone). By the time they are 8 years old, children routinely form sentences that have multiple clauses, such as "We wanted Steve to help us study for our science test, but he wouldn't because he thought he was so much smarter than everyone else."

An important part of language development during the school-age years is learning literate (more formal) language structures. As children read and write with greater frequency, their language sometimes takes on a "literate" sound (**Box 2-6**). For example, the sentence "Readers might be pleased to discover that we will not require memorization of the cranial nerves" sounds more like written language than "I'll bet you will be glad to hear this. We are not going to make you memorize the cranial nerves." Near the end of the elementary school years and into the middle school years, children experiment with the kinds of syntactic devices that are required for literate language, and they discover when and how to use these structures.

Box 2-6 Literate Language

Online video segment Aaron, Age 9 Alien shows a 9-year-old child making up a story that corresponds to a picture of two children looking at aliens getting out of a spaceship. Aaron uses a string of adjectives (which is common in literate language) to describe the aliens, as in the sentence "They looked like they wore purple, had tentacles, and had blue dots on their faces and green." Another device that makes his language more literate-like is his use of character dialogue, as in the sentence "Sarah really wanted to see the aliens but Billy said, 'No don't, you could get hurt.'"

Use (Pragmatics)

A number of important changes in language use occur during the school-age years. School-age children engage in longer conversations. They also become more adept at shifting topics and at shifting the style of their speech to match the nature of the speaking context and their relationship with the person they are talking to. Similarly, their narratives become longer and more complex. School-age children can weave multiple episodes into their stories, and they can tell and write in different **genres** (personal accounts, mysteries, science fiction, horror stories, etc.) (**Box 2-7**).

Children also improve at persuasion and negotiation during the school-age years. To be persuasive, speakers need to be able to adjust their language to the characteristics of their listeners and state why the listener should do something that is needed or wanted. Politeness and bargaining are often helpful as well. The first grader's use of persuasion may be limited to getting a friend to share a new toy. However, by high school, students need to use persuasion and negotiation quite well to gain privileges such as use of their parent's car for the evening.

Box 2-7 Fictional Stories

Online video segment Erin, Age 2; Erin, Age 4; Trey, Age 5; Andrea, Age 8; Jorge, Age 11; Jennifer, Age 12; Brandi, Age 14 shows six children who were filmed as they told the story *Frog Where Are You?* (Mayer, 1973). We spliced sections of their narratives together to create the entire story, starting with Erin (age 2) and ending with her sister Brandi, who is an eighth grader. Note that as children get older, the length of their language increases and their descriptions become more complete and complex. Notice that, beginning at age 8 years, the children's language sounds more literary. The story propositions are named in parentheses following the children's utterances.

Frog Where Are You?

Part 1: Erin (Age 2 Years) and Brandi

B: What is that?
E: A frog.
B: A frog!
B: And what are they in, Erin?
B: Look, what are they in?
E: A room. (Setting)
B: A room, that's right.
B: And do you know what that is?
E: M-hum.
B: What is that?
B: Is that a window?
E: (Nods head yes)
B: Yea. Now what is going on, what are they doing there?
E: Going night-night. (Setting)

(continues)

B: They're going night-night.
B: What's the frog doing?
E: Get, getting out. (Initiating Event)
B: He's getting out!

Part 2: Older Erin (Age 4 Years)

There was a little frog.
And then, he, the frog, that frog was mean and that frog was happy.
And he would>
And there was a possible thing.
And the frog look like>
And he was mean.
And he, and he was sad.
And he was mad.
And they were mad.
And he was mad and he was sad. (Setting)

Part 3: Trey (Kindergartner)

Trey: Well, he escaped while they were sleeping. (Initiating Event)
Trey: And then they woke up. And and it was morning, and he was gone.
Adult: Oh no.
Trey: He looked in the book and the puppy looked in the jar a little bit more closer. (Attempt)
Trey: He stuck his head in there.
Adult: M-hum.
Trey: And then the little boy, and Tom and Spot looked out the window. (Attempt)
Adult: Yes, they did.
Trey: And Spot fell out.
Adult: And then, then what?
Adult: Well, what's happening here?
Trey: Then the glass broke.
Adult: It sure did.
Trey: And then they were yelling with, and and see if the frog would come out. (Attempt)

Part 4: Ashley (Grade 3)

Jimmy went outside in the woods with Spot calling, "Mr. Frog, Mr. Frog, where are you?" (Attempt)
Jimmy looked in a mole hole and called, "Mr. Frog." (Attempt)
And the mole shot up, scolding Jimmy. (Consequence)
While Spot was near a beehive shaking a tree, and it fell.
Jimmy was looking in an owl hole calling, "Mr. Frog, Mr. Frog." (Attempt)
The owl came out and Jimmy fell. (Consequence)

Part 5: Jorge (Grade 6)

The boy was surprised to find the owl in the hole and fell to the ground, (Reaction) while the bees were still chasing the dog.
The owl chases the boy around the rock. When the owl leaves, he climbs the rock.
And the owl said the frog's name. (Attempt)
And then, then a deers, a deer lifted his head, and the boy was on top of the deer's head. (Setting)

Part 6: Jennifer (Grade 6)

And the moose took off! (Initiating Event)
The dog was barking at the moose. (Attempt)
Then the moose stopped at a cliff, and the dog and the boy flew over the cliff into a marshy area.
The boy fell in the water. (Consequence)
Then the boy heard a sound. (Initiating Event)
The dog crawled on top of the boy's head.
Ribbit, ribbit.
"Shhhhh," the boy said to the dog.

Part 7: Brandi (Grade 8)

The little boy told the dog to be very quiet.
He was going to peek over to see what was there. (Plan)
So the boy and the dog looked over the wall. (Attempt)
They found two frogs, a mother and a father. (Consequence)
Then they climbed over and noticed a whole bunch of little babies were hopping through some grass.
And the little boy said, "There's our frog!" (Reaction)
So the little boy scooped up their frog, and the dog and him started going back home. (Reaction)
And they said, "Goodbye" to the little frog family, saying they would come back to see them soon. (Ending)
The end.

Adulthood

By the end of the school-age years, development in language form, content, and use has reached a very high level of complexity. As young people transition from high school to higher education or the workplace, their language continues to change in ways that reflect their vocational choices and interests. Later in life, language begins to decline as a result of cognitive, motor, and environmental changes.

Content (Semantics)

Vocabulary continues to expand throughout the adult years. This is especially true for vocation-specific words. Biologists have different vocabularies from pharmacists, engineers, or speech-language pathologists because members of these professions tend to talk about different things. Shared vocabulary is often used to create social and economic bonds between members of a vocation or people with shared interests.

Late in life, neurological changes may lead to declines in some semantic functions. The ability to comprehend words does not decline much with age. However, the number of different words that are used decreases, as does the speed with which words can be recalled (Benjamin, 1988). There appears to be a "use it or lose it"

quality to the mental lexicon. Older adults who have remained mentally active (those who still work, have busy social lives, and read and write frequently) have better memory and fewer declines in semantic abilities than do older adults who watch more television.

Form (Phonology)

As part of the aging process, muscles atrophy and cartilage stiffens. Physiological changes lead to some changes in the voice. For example, older male speakers may use a somewhat higher pitch, and their voice may sound hoarse compared to younger male speakers. In addition, respiratory support for speech diminishes so that it may be necessary for some speakers to pause more frequently. In regard to articulation, older speakers produce consonants less precisely than younger speakers. Speaking rate may also slow. Generally speaking, articulatory changes in speech production of older adults are not considered problematic.

Form (Morphology and Syntax)

Older speakers demonstrate some changes in their use and understanding of morphology and syntax. Older speakers tend to use a diminishing variety of verb tenses and grammatical forms. Older speakers also may produce grammatical errors somewhat more frequently than younger speakers. Some changes observed in the area of syntax are more closely related to changes in the lexicon and pragmatics. For example, older speakers may rely more on pronouns than on specific nouns when telling a story. Errors may be observed in the production of complex structures such as passive sentences or embedded structures that place demands on memory. It may also be more difficult for older speakers to understand syntactically complex utterances such as "I saw the lady who had a rose in her hair that the little girl picked from a garden on her way to school." This difficulty relates to declines in memory, processing ability, and vocabulary (Waters & Caplan, 2005).

Use (Pragmatics)

Throughout their adult lives, individuals continually refine their discourse to match the needs of the situation. They use persuasion, argument, narration, and explanation in different ways depending on their communication goals, their understanding of the formality of the situation, and assumptions they make about what their listeners already know or think about the topic. Communication style is also related to social and cultural expectations. Manners of expressing oneself are used to create bonds among members of subgroups of society. For example, compare the way newscasters explain a story on National Public *Radio's All Things Considered* with the way the same story might be reported by the newscaster on your local rock-and-roll station.

With aging come shifts in income levels, employment, social status, and leisure time. Many times, older adults relocate to settings like retirement communities or nursing homes where there are few younger individuals. A study of perceptions of older persons' communication noted that changes in discourse style can include dominance of conversations, unwillingness to select topics of interest to listeners, increased verbosity, failure to take the listener's perspective, and more of a rambling style (Shadden, 1988). Discourse changes like the ones just

mentioned could be related to memory loss, a desire for prolonged contact, and decreases in opportunities for socialization with a wide range of people. Once again, it is worth mentioning that there are large individual differences in the degree of discourse change and the ages at which these changes occur.

How Do Speech and Language Develop?

Communication, cognition, neural processing patterns, language, and speech are interrelated and develop together. As children get older, they practice producing speech sounds, and they think about their environment in more complex ways. Their desire to communicate and their capacity for thinking complex thoughts motivate them to produce increasingly more complex language. At the same time, they gain more control over the muscles that are used to produce speech, leading to increases in their ability to put different kinds of sounds and syllables together to produce words. Their continuing speech development makes them more intelligible, so people understand what they are trying to say and are more responsive to their needs. Increased language experience through socialization provides more opportunities for children to hear and use more complex language, and the cycle continues. Thus, we may envision speech, language, cognition, and socialization as having dynamic, reciprocal relationships that drive development.

Figure 2-2 is a very simple model of the dynamic relationships among factors that are known to influence language development: heredity, neural processing, cognitive processing, linguistic knowledge, and socialization. Most researchers and clinicians believe that both environmental and hereditary factors contribute to language development. However, they do not always agree on the extent of the contribution that environmental and hereditary factors make to the developmental process.

Heredity

Children inherit a genetic code from their parents that influences many aspects of mental functioning. The importance of heredity is demonstrated by the fact that there is a higher incidence of communication disorders, such as stuttering, articulatory disorders, and developmental language disorders, in the children of parents who have histories of communication disorders themselves. In fact, genome-wide linkage analyses of families with communication disorders have led to the identification of a number of genetic mutations that relate to communication abilities in affected individuals (Kang & Drayna, 2011).

Notice in Figure 2-2 that the arrows leading from heredity to neural processing, cognitive processing, and linguistic

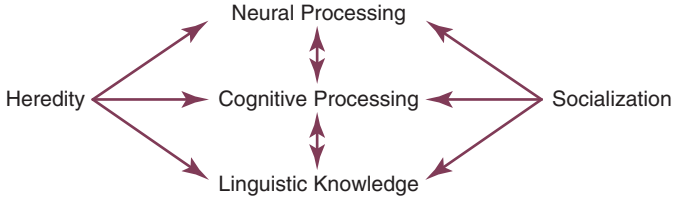

Figure 2-2 A psycholinguistic model of language development

knowledge go one way. Early in life, genes are expressed in particular patterns that determine areas of the cortex that are specialized for language, neural connection patterns between those areas, and performance on a variety of cognitive and linguistic tasks. Children are endowed with a particular genetic structure that cannot be changed. However, given the rapid advances that are occurring in genetic engineering, it is entirely possible that we will be able to alter human genetic structure at some point in the future.

Neural Processing

All language functions originate in the brain. By adulthood, there is strong evidence for brain regions that are specialized for differentiating between speech sounds, for remembering new words, for listening to sentences, and for producing grammatical sentences. You will read more about this in Chapter 4. Unfortunately, our knowledge of the neural correlates of language development is relatively incomplete. There are some neural correlates of language development (Saki, 2005). By 26 weeks' gestation, structures of the ear and the auditory nerve have formed, making it possible for the fetus to detect and react to speech sounds. During the first 4 years of life, when language development is the most rapid, there are large increases in brain volume as well as changes in the brain structures that are active during communication. At birth, the neural substrate of the frontal and temporal lobes is active as children listen to speech, providing a biological basis for language development. The functional and structural connections between the neurons in these areas are immature, with the connections between the two hemispheres being stronger than the connections between the neurons within each hemisphere. However, at around 10 months of age, the frontal and temporal regions within the hemispheres start to form functional and structural relationships. By the preschool years, adult-like neural mechanisms used in comprehending sentences are present in basic form.

In Figure 2-2, notice that the arrow between cognitive processing and linguistic knowledge is facing both ways. It appears that the brain adapts to the experience with hearing and processing language. Through a process known as **neuroplasticity**, brains make physical changes in activation patterns in response to experiences, environmental stimuli, and cognitive activity. For example, listening to maternal speech has been shown to induce increases in the neural connections between the auditory cortex and other brain regions of young children born prematurely. Clearly, children's brains adapt and refine their cortical connections in response to experiences processing, understanding, and remembering language.

Cognitive Processing

We placed cognitive processing in the center of our model because language learning is a mental activity. Mental activity involved in language development is the same as the mental activity involved in learning anything else. Children must attend to the sounds their parents and teachers say and figure out what the sequences of sounds mean. Once

they do that, they need to remember that information, so they can use it the next time they hear those same sequences of sounds or the next time they want to express a similar meaning themselves. Thus, attention, perception, and memory play important roles in language development. As noted, cognitive processing abilities are intricately linked to neural processing patterns and to linguistic knowledge.

Linguistic Knowledge

General information processing mechanisms are not enough to account for the ease and rapidity at which language is learned (Chomsky, 1975; van der Lely & Pinker, 2014). Humans are endowed with abilities that are specific to language learning. There is a basic design to grammar, regardless of the language being spoken, and human brains have special language-learning mechanisms that enable us to break the grammatical code of the language that surrounds us. We store our knowledge of words, rules for combining words into sentences, and contexts for using different words and sentences in long-term memory.

In Figure 2-2, notice that the arrow between cognitive processing and linguistic knowledge is facing both ways. This represents the dynamic relationship between these two factors. The more words and complex sentence structures individuals know, the better they are at processing language. Similarly, the better people are at information processing, the better they are at using the language they know to learn more. Quite simply, the more one knows, the more one is capable of learning.

Socialization

Socialization plays an important role in language development. Parents are their young children's social partners, and they routinely do a number of things that facilitate language development in their children. First, they engage their children in routine events (i.e., bath time, bedtime, meals, routinized play with toys) in which they do and say the same things each time the event takes place. Parents work to establish a shared focus of attention with their children during these routine events and during other instances where they and their children are interacting. That is, parents tend to name the objects and comment on the actions their children are attending to. When they label, parents say short phrases (*See baby!*) or sentences (*That's a doggie.*). They often produce these words slowly and clearly, with exaggerated intonation, and they may repeat them two or three times. This speech style, sometimes referred to as **motherese**, captures children's attention, holds it, and makes the sounds in words distinct. This clarifies the relationships between meanings and words and makes it likely that children will remember the words, phrases, and sentences in the future.

Parents and teachers engage children in a variety of experiences that contribute to language development. One of the most important experiences involves book reading. The stories and pictures in books expose children to new places, new experiences, new words, and new ways of communicating. Studies have shown there are considerable language-learning benefits to reading to children

and, later, to children reading to themselves. At present, we do not know how much social input is necessary or exactly what kinds of input are critically important for language development. Studies of child-rearing practices in differing cultures are necessary to help us answer these questions.

Figure 2-2 has three arrows leading to socialization, suggesting that the language a person comprehends or produces is the outcome of neural processing, cognitive mechanisms, and linguistic knowledge. The arrows face both ways to indicate the dynamic, reciprocal relationships among neural activation patterns, information processing, prior knowledge, and socialization. More complex knowledge, mental processes, and neural connections lead to the child's use of more complex language as they socialize with others. Similarly, socialization contributes to neural connectivity, better information processing, and greater language knowledge.

CHAPTER REVIEW

Summary

People communicate by exchanging meanings with one another. This can be done nonverbally, through gestures and facial expression, but meanings are usually exchanged through spoken, signed, or written language. Languages are symbolic systems that require the integration of form (phonology, morphology, and syntax), content (semantics), and use (pragmatics). Nearly all children begin to develop language during the first year of life, but there is a great deal of individual variation in the rate of development.

During infancy, children explore the world around them with their sensory and motor systems, begin to communicate a variety of meanings nonverbally, and learn their first words. Children begin to produce two-word utterances around age 18 months, and they create their first short sentences at about age 2 years. Language development explodes during the preschool years; by the time children are 5 years old, they know more than 4,000 different words, produce nearly all the sounds of speech correctly, use complex sentences, and tell short stories. The development of reading and writing creates many more opportunities for language development during the school-age years. By the time students graduate from high school, they know as many as 80,000 different words, they can create complex stories with multiple episodes, and they know how to weave sentences together to explain, persuade, and negotiate effectively. Language becomes more specialized during the adult years to match career and social choices. A gradual reduction in language skills often occurs in older adults. Just as there is individual variation in the rate of language growth, there is also a great deal of individual variation in language decline. The most common aspects of language decline involve difficulties in word retrieval, difficulty comprehending nuances of meaning, and a tendency toward a more rambling verbal style.

There are a number of factors that contribute to language development across the life span. Individuals inherit the basic biological mechanisms that support speech and language development. Their cognitive and linguistic learning mechanisms create knowledge out of social experiences. As they communicate more, they are understood better, and they take a more active role in their language interactions. Heightened levels of engagement and sensitivities mix with increased opportunities for language experiences, and this drives the development of complex neural networks, better information processing, and more complex language. In this way, speech, language, neural activation, cognition, storage of linguistic knowledge, and socialization are involved in dynamic relationships that generate further development in each of these domains (**Box 2-8**).

Box 2-8 Personal Story by Ron Gillam

One day, when my daughter Jennifer was nearly 3 years old, she and her older sister, Sara, were playing with some toys together. Jennifer had some zoo animals in a small train, and she was pretending to drive the train to another part of their make-believe zoo. She said to Sara, "Move over. I'm going over there." Sara responded, "You sure are bossy." Jenn replied, "I amn't either!" Sara moved, Jenn managed to get her train where she wanted it, and they resumed playing without further incident.

I found Jenn's use of "amn't" to be particularly interesting. I was relatively certain that she had never heard anyone say "amn't" before. Her utterance was ungrammatical, but it showed a great deal of grammatical knowledge about copula verbs and negative contractions. I suspect that she realized that people often used *isn't, aren't, wasn't*, and *weren't*. If it was all right for people to add the negative contraction to the copula verbs *is, are, was*, and *were*, why couldn't she add the negative contraction to the copula *am*? Her error was consistent with a number of grammatical morphology rules, but it was not consistent with some phonological rules related to connecting nasals in English. The important point is that Jennifer, like nearly all children, was actively re-creating the rules of language that she was exposed to. Her creativity within the learning process resulted in an interesting and amusing error.

Study Questions

1. What is the difference between language production and comprehension?
2. What is the critical difference between these terms: *phonemes, syllables*, and *morphemes*?
3. What linguistic systems are involved in language form, language content, and language use?
4. Why can't we pinpoint the language abilities a child should have at 3 years and 9 months of age?
5. Name one important development that occurs in each area of language (content, form, and use) during each of the four major developmental periods (infancy, the preschool years, the school-age years, and adulthood).
6. What are some examples of sounds that may be difficult for children to produce at the time they enter kindergarten?
7. What are the critical factors that influence language development? How are they related to each other?

Key Terms

American Sign Language
Attempts
Babbling
Bound morphemes
Canonical babbling
Communication

Consequence
Episodes
Expressive jargon
Free morpheme
Genres
Idioms
Initiating event
Language
Language content
Language form
Language use
Lexicon
Manner of articulation
Metaphors
Morphology
Motherese
Neuroplasticity
Phonemes
Phonological awareness
Phonology
Place of articulation
Pragmatics
Reduplicated babbling
Semantics
Setting
Story grammar
Syllables
Syntax
Variegated babbling
Voicing

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