

UNIT 1 COMMUNICATION DISORDERS AND THE PROFESSIONALS WHO WORK WITH THEM

CHAPTER 1 **Essentials of Communication and Its Disorders**
CHAPTER 2 **The Professionals**

CHAPTER 1

Essentials of Communication and Its Disorders

KEY TERMS

acquired disorder
aphasia
aphonia
articulate (articulation)
articulation disorder
audiologist
clinician
cluttering
cognition
cognitive communication disorder
cognitive disorder (cognitive impairment)
process (cognitive process)
communicate (communication)
communication disorder (communicative disorder)
conductive hearing loss
congenital disorder
consonant
context
dementia
disability
disorder
dysphonia
etiology
expressive language
fluency
fluency disorder
functional disorder
General American English (GAE)/ Standard American English (SAE)
grammar
habilitate (habilitation)
handicap
hearing loss/hearing impairment
hypernasality (hypernasal)
hyponasality (hyponasal)/denasality (denasal)
impairment
incidence
inner speech (self-talk)
intelligible (intelligibility)
language
language delay
language difference
language disorders
linguistics
literacy
modality
morpheme
morphology
motor speech disorder
organic disorder
phoneme
phonological disorder
phonology
pragmatics
prevalence
prosody (prosodic)/melody (melodic)
quality of life
receptive language
rehabilitate (rehabilitation)
resonance disorder
semantics
sensorineural hearing loss
social communication disorder
speech
speech disorders
speech-language pathologist (SLP), speech pathologist, speech therapist
speech sound disorder
stuttering (disfluency)
suprasegmentals
syllable
syndrome
syntax
traumatic brain injury (TBI)/head trauma
voice disorder (dysphonia)
vowel

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LEARNING OBJECTIVES

After studying this chapter, you will be able to:

- State the modalities of communication.
- Describe the essential components of oral language: phonology, morphology, syntax, semantics, and pragmatics.
- Briefly explain each of the major communication disorders.
- Explain the emotional and social effects of communication disorders on the person and family.

CHAPTER OUTLINE

Introduction
The Study of Human Communication
Communication Modalities
Oral/Spoken Language
Linguistics
- Phonology
- Morphology
- Syntax
- Semantics
- Pragmatics

Reading and Writing
Disorders of Communication
- Definitions
- Prevalence

Classification of Communication Disorders
- Speech Sound Disorders/Disorders of Articulation
- Disorders of Language
  - Language Disorders in Children
  - Language Disorders in Adults
- Disorders of Fluency
- Disorders of Voice
- Disorders of Resonance
- Disorders of Cognition
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Emotional and Social Effects of Communication Disorders
Chapter Review
Chapter Summary
Study Questions
- Knowledge and Comprehension
- Application
- Analysis and Synthesis

References

Communicate: Any means by which individuals relate their wants, needs, thoughts, feelings, and knowledge to another person.

Communication disorder: An impairment in the ability to receive, comprehend, or send messages, verbally, nonverbally, or graphically; any articulation, language, voice, resonance, cognitive, or hearing impairment that interferes with conveying or understanding a person's wants, needs, thoughts, feelings, and knowledge.

Clinician: Healthcare and rehabilitation professionals, such as physicians, nurses, respiratory therapists, physical therapists, occupational therapists, speech-language pathologists, audiologists, psychiatrists, or psychologists, involved in clinical practice who base their practice on direct observation and treatment of patients and clients. Public school speech-language pathologists (clinicians) are involved in children's speech, language, cognitive, fluency, voice, resonance, and hearing habilitation or rehabilitation.

Introduction

Welcome! You are beginning the study of a basic human need: the need to **communicate**. When two people are interacting, a message is always being communicated, even when neither person is speaking. The old adage still holds true: *We cannot not communicate.* Our ability to communicate is often taken for granted until we have some difficulty communicating or see someone else having difficulty. This text is about the difficulties that children and adults of all ages (newborns to end of life) have with **communication disorders**. As **clinicians**, we need to have a solid foundation in the understanding of the **modalities** of communication—that is, the various ways we communicate. Although **speech-language pathologists (SLPs)** and **audiologists** focus on the *auditory–verbal* modalities (hearing and speaking), *nonverbal modalities* (body language and facial expressions) are also essential to our ability to understand what a person is saying and communicate our own messages in return.

In a way, good communication is like a dance in which each person takes turns leading and following. The individuals try to stay "in step" with each other, "reading" every nuance of choice of words, tone of voice, *inflections* (variations of pitch during speech), pauses, hesitations, facial expressions, postures, and gestures (i.e., *total communication*) so that the conversation has an easy and enjoyable flow. When we meet someone new, it usually does not take long before we decide whether we can "dance" well together and whether we even want to try to dance again.

We use communication to survive and thrive in our homes, communities, schools, and workplaces. With a communication disorder, however, surviving and thriving can be much more difficult.

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Basic Rules of Communication

The following basic rules of communication are seldom taught directly to children.

1. Be warm, attentive, and empathic.
2. Show that you are listening.
3. Use appropriate turn-taking and do not dominate the conversation.
4. Use an appropriate language level based on the listener's age and background.
5. Be congruent by having words, tone of voice, and non-verbal communication (facial expression, gestures, body language) in agreement (all giving the same message).

The Study of Human Communication

The evolution of communication from basic sounds and signs to more sophisticated systems is one of the most important developments in human history. Cave paintings of geometric symbols and animals, dated from more than 30,000 years ago, are among the earliest forms of communication designed to preserve human experiences. More than 3,000 years ago, Egyptians used pictographic hieroglyphs as a formal writing system, with symbols for words and letters of the Egyptian alphabet being carved into stone and later painted on papyrus.

In the modern era, Wolfgang von Kempelen (1734–1804), a Hungarian author and inventor, described, illustrated, and constructed mechanical devices that could produce speech sounds for words. His devices (**FIGURE 1-1**) were composed of bellows for the lungs, a vibrating reed for the vocal folds, and a leather tube the shape of which helped produce different vowel sounds, with constrictions controlled by fingers for generating consonants. To study the production of plosive sounds (e.g., p, b, t, d, k, g), von Kempelen included movable "lips" and a hinged "tongue" in his device. The device could produce intelligible whole words and short sentences. Von Kempelen may be considered the first speech scientist (Gedeon, 2006).

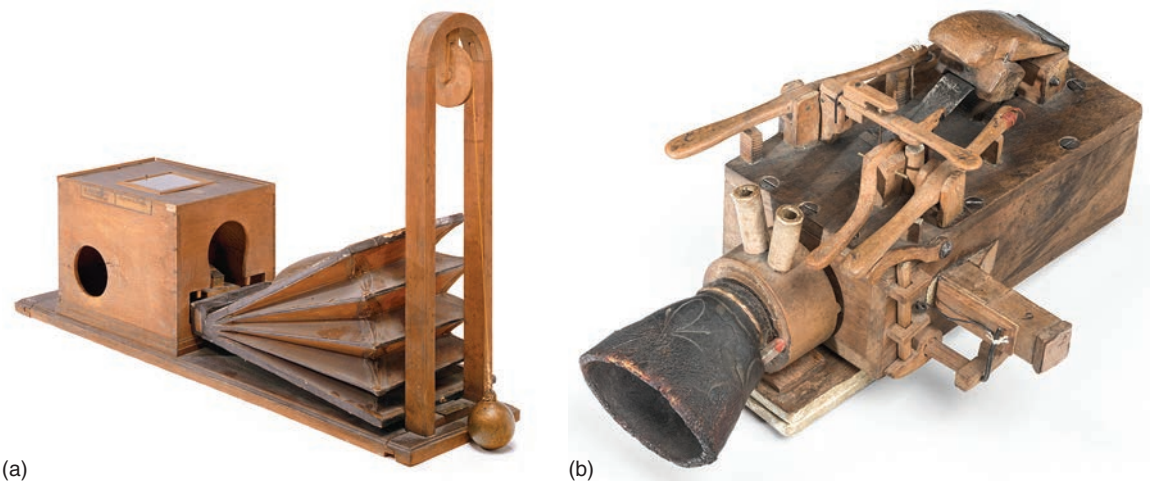
Insight Question

Much of your education in speech-language pathology and audiology involves learning professional terminology. How do you feel about that?

Modalities: Any sensory avenue through which information may be received, that is auditory, visual, tactile, taste, and olfactory (smell).

Speech-language pathologist: A professional who is specifically educated and trained to identify, evaluate, treat, and prevent speech, language, cognitive, and swallowing disorders.

Audiologist: A professional who is specifically educated and trained to identify, evaluate, treat, and prevent hearing disorders, plus select and evaluate hearing aids, and habilitate or rehabilitate individuals with hearing impairments.



(a) (b)

FIGURE 1-1 Von Kempelen's (1791) (a) "lungs" and "voice box" and (b) articulating mouth.

a: Courtesy of Deutsches Museum, Munich, Archive, CD29908; b: Courtesy of Deutsches Museum, Munich, Archive, BN37401.

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Communication Modalities

Communication means conveying messages through one or more modalities (**FIGURE 1-2**). We have three primary modes to *receive* communications: auditory, visual, and tactile. Likewise, we have three primary modes to *send* communications: verbal (including grunts and other noises), graphic (including writing and illustrations), and gestural (including facial expressions, gestures, and body language). As clinicians, we learn to be increasingly aware of the interactions of these modalities and the effects of subtle to complete breakdowns in these modalities.

We normally think of communication as occurring between two or more people; however, much of what we "hear" every day is us talking to ourselves. We commonly have an internal monologue (known as **inner speech** or **self-talk**) going on inside our brains that we refer to as *thinking*. We silently (and sometimes not so silently) talk to ourselves and even argue with ourselves, wrestling with decisions ranging from the mundane ("Where am I going to have lunch?") to the profound ("What am I going to do with my life?"). Our verbal communication is mostly a reflection of our wants, needs, thoughts, feelings, and knowledge (i.e., sharing information).

Inner speech/self-talk: The nearly constant internal monologue a person has with himself at a conscious or semiconscious level that involves thinking in words; a conversation with oneself.

However, spoken words may communicate only a small portion of a person's total message. SLPs and audiologists also need to become skilled in "reading" facial expressions and nonverbal communication (Fogle, 2009). Burgoon, Guerrero, and Floyd (2009) reviewed more than 100 studies on verbal (oral) and nonverbal (body postures, gestures, eye contact, and facial expressions) communication and, among other points, determined the following:

- Verbal content is more important for factual, abstract, and persuasive communication; nonverbal content is more important for judging emotions and attitudes.
- When verbal and nonverbal channels conflict, adults rely more on nonverbal cues (i.e., people believe what they see more than what they hear).

When we think of communication disorders, we usually think of talking and listening. Indeed, most of your education and training in speech-language pathology and audiology will focus on these modalities. Nevertheless, because communication may involve three primary **language** input modalities (auditory, visual, and tactile) and three primary output modalities (verbal, graphic, and gestural), SLPs and audiologists work with more than just speech and hearing. Any or all of the input and output modalities may be involved in a communication disorder.

Language: A socially shared code or conventional system for representing concepts through the use of arbitrary symbols (sounds, letters, gestures), and rule-governed combinations of those symbols.

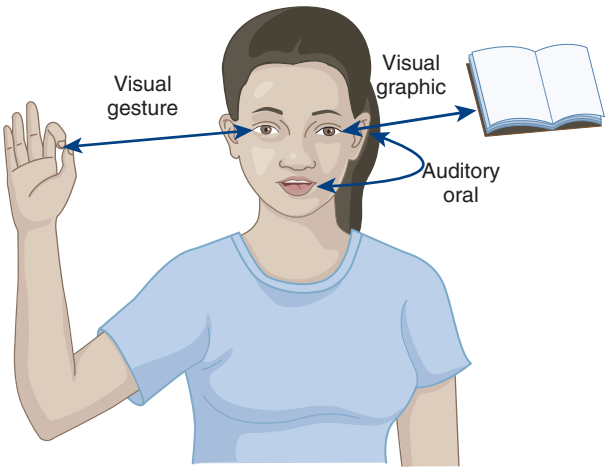


FIGURE 1-2 Modalities of communication.

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Oral/Spoken Language

When sounds are organized into **syllables** and words are organized into grammatical sentences, spoken language is generated. Language has been defined as "a socially shared code or conventional system for representing concepts through the use of arbitrary symbols [sounds and letters] and rule-governed combinations of those symbols [grammar]" (Owens, 2019). Spoken language is our primary and usually most efficient form of communication. There are approximately 7,000 "living languages" (languages widely used as a primary form of communication by specific groups of people) and an unknown number of dead or extinct languages (Lewis, 2015).

Spoken language gives the listener not only the *content* (the words in the message) but also the **prosody (prosodic)/melody (melodic)** that helps the listener understand the true intent of the message by using voice inflections to emphasize or deemphasize aspects of the spoken language (e.g., the difference between "I scream" and "ice cream"). *Prosodic features* (**suprasegmentals**) are important in conveying the emotional aspects of messages, such as happiness, sadness, fear, and surprise. When we cannot see a person's face (e.g., while on the telephone), we usually can still discern the emotions behind the messages based on the prosody.

Syllable: Either a single vowel (V) or a vowel and one or more consonants (C); for example, V+ consonant (VC), VCC, CV, CCV, CVC, etc.

Prosody (prosodic)/melody (melodic): Voice inflections used in a language such as stress, intensity, changes in pitch, duration of a sound, and rhythm that help listeners understand the true intent of a message and that convey the emotional aspects of a message, such as happiness, sadness, fear, or surprise.

Suprasegmentals: Speech features such as stress, pitch, intonation, and rhythm that accompany or are added to consonants, vowels, syllable, words, or phrases that often provide the true meaning of the content words.

Linguistics

Linguistics is the scientific study of language, and *linguists* are individuals who ecialize in the study of linguistics. Traditionally, linguists divide language into several components: **phonemes** (sounds), **morphemes** (groups of sounds that form words or parts of words), **syntax** (rules for combining words into sentences), **semantics** (meaning of the language or message), and **pragmatics** (rules governing the use of language in social situations). *Linguistic competence* is a person's underlying knowledge about the system of rules of a language. Linguistic competence helps us recognize when a sentence is grammatically correct or incorrect.

Linguistics: The scientific study of the structure and function of language and the rules that govern language; includes the study of phonemes, morphemes, syntax, semantics, and pragmatics.

Phonemes: The shortest arbitrary unit of sound in a language that can be recognized as being distinct from other sounds in the language.

Morphemes: The smallest unit of language having a distinct meaning (e.g., a prefix, root word, or suffix).

Syntax: The rules that dictate the acceptable sequence, combination, and function of words in a sentence; the way in which words are put together in a sentence to convey meaning.

Semantics: The study of meaning in language conveyed by words, phrases, and sentences.

Phonology

Phonology is the study of **speech** sounds (phonemes) and the rules for using them to make words in a language. The English language has a limited number of phonemes, but an almost limitless variety of sound combinations can be used in words and to make up new words. Each year, hundreds of words are added to our language that must follow phonological rules. Consider, for example, all the new words that were created when televisions first arrived on the scene or when computers were being invented.

For new words to be accepted by the public, certain phonological rules for combining sounds must be followed. For example, a single letter is not used as a new word, nor is a combination of more than two **consonants** with no **vowels**. A combination of three or more vowels also is not considered to follow English phonological rules. Some foreign languages are difficult for English speakers to learn because their phonologies use consonant and vowel combinations not used in English. Also, many people trying to learn English as a second language find it difficult because the pronunciation of a word may vary considerably depending on the **context**, and the differences in the pronunciation can significantly change a word's meaning. Examples include "He could lead if he got the lead out," "The girl had tears in her eyes because of the tears in her dress," and "Since there is no time like the present, he decided to present the present."

Authors of fiction books sometimes create new words by following phonological rules of English. For example, J. R. R. Tolkien, in *The Lord of the Rings* trilogy, created a great number of new words, including *hobbit, glede,* and *Fallohides*.

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Pragmatics: The rules governing the use of language in social situations; includes the speaker-listener relationship and intentions and all elements in the environment surrounding the interaction—the *context*.

Phonology: The study of speech sounds and the system of rules underlying sound production and sound combinations in the formation of words.

Speech: The production of oral language using phonemes for communication through the process of respiration, phonation, resonation, and articulation.

Consonant: Speech sounds articulated by either stopping the outgoing air stream or creating a narrow opening of resistance using the articulators.

Vowel: Voiced speech sounds from the unrestricted passage of the air stream through the mouth without audible stoppage or friction.

Context: The circumstances or events that form the environment within which something exists or takes place; also, the words, phrases, or narrative that come before and after a particular word or phrase in speech or a piece of writing that helps to explain its full meaning.

Morphology: The study of the structure (form) of words.

Grammar: The rules of the use of morphology and syntax in a language.

J. K. Rowling, the author of the *Harry Potter* books, also created *quidditch* and *muggle*. (*Muggle* is now in the *New Oxford English Dictionary.*) These words "sound like they could be words," just as any new technical word must follow accepted English phonological rules to eventually become part of our vocabulary (e.g., *byte, megabyte,* and *telecommunication*).

Morphology

Morphology is the study of the way words are formed out of basic units of language—morphemes. Morphemes are one or more letters or sounds that may be used as prefixes, such as *un*comfortable; base (root) words, such as *comfort*; or suffixes, such as *able*. When a morpheme is able to stand alone—that is, when it does not need any other morphemes attached to it to make it a true word—it is called a *free morpheme* (e.g., *culture*, *accept*, and *comfort*). Morphemes that cannot stand alone and must be attached to a free morpheme are referred to as *bound morphemes* (e.g., prefixes such as *pre-*, *dis-*, and *mis-*; suffixes such as the plural *-s,* the past tense *-d,* and the gerund *-ing*; and *base words* such as *-celerate-* and *audio-*). **TABLE 1-1** shows how prefixes, base words, and suffixes (morphemes) combine to make whole words.

Syntax

Syntax and morphology are the two major categories of language structure (i.e., **grammar**). Syntax refers to the rules for acceptable sequences (order) and word combinations in sentences. Various languages have different word orders for sentences. In an English declarative sentence, the subject comes before the verb: "David is going to work." However, when the subject (*David*) and the auxiliary or helping verb (*is*) are reversed in order, the sentence becomes a question: "*Is David* going to work?" English syntax has the adjective preceding the noun (e.g., the green room); in contrast, the syntax of Spanish and French has the adjective following the noun (e.g., the room green). Most English sentences flow from subject to verb to objects or complements.

Native speakers of a language develop a "grammatical intuition" that helps them recognize when a sentence is not quite grammatically correct, but they may have some difficulty pinpointing or explaining what is not correct about it. When people who have learned English as a second language are speaking, they may use some incorrect word order or omit morphemes (e.g., the plural *-s*) that a native speaker of English recognizes and may be a little uncomfortable with, feeling a need to correct the nonnative speaker.

Semantics

Semantics is the study of meaning in language that is conveyed by the words, phrases, and sentences communicated. Semantics may be thought of as the *content expressed* by the speaker and the *content understood* by the listener. Miscommunication

TABLE 1-1 Examples of Whole Words, Prefixes, Base Words, and Suffixes

Whole Word	Prefix	Base Word	Suffix
miscommunication	mis	communicate	tion
indefensible	in	defense	ible
disorienting	dis	orient	ing

Insight Question

How good is your grammatical intuition; that is, how easily do you automatically detect or recognize grammatical errors in other people's speech? In your own speech?

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occurs when there is a discrepancy between the two. For example, if a person says, "I really need to go.", meaning that he needs to be somewhere else soon, but the listener felt the content expressed in the message was "He wants to get away from me.", the content of the message was misunderstood; that is, a miscommunication.

Social and cultural factors play significant roles in the way we use and understand language (Hyter & Salas-Provance, 2019; Rose, 2013; Roseberry-McKibbon, 2022). For example, a word's meaning in one region of the United States may be quite different from its meaning in another region. In many western regions of the United States, *dinner* is the evening meal; in contrast, in many midwestern and southern regions, *dinner* is the noon meal and *supper* is the evening meal. In English-speaking countries, significant differences also can arise in the use of different words for the same thing. For example, in England a *restroom* is called a *lavatory* or *water closet* (WC), and in Australia a *napkin* is a *diaper.* The differences in the semantic use of words and the meanings of words can certainly affect communication, even among people who do not have communication disorders.

Pragmatics

Pragmatics comprises the rules governing the use of language in social situations. Some elements included in pragmatics are the *relationship* of the people talking (e.g., friend, relative, or stranger), the context or environment they are in (e.g., social versus business), and the *intentions* of the communication (e.g., friendliness or hostility). The context in which a message is framed significantly affects its true meaning. Pragmatics places greater emphasis on the functions of language than on the structure of language.

Pragmatics is culturally based or influenced. For example, in some regions of the world, such as the Middle East, an initial business meeting may be devoted to sharing about family and friends, and the business may not be discussed until a later meeting. Also, the beginning of each new business meeting may be devoted to extended casual conversation rather than moving to the task at hand. When business people do not know the cultural traditions of the people with whom they are dealing, disastrous consequences may result.

Reading and Writing

Many speech-language pathologists, particularly in the public schools, are involved in the area of **literacy** with children who have reading and writing problems. Reading and writing may be more challenging for the brain to **process** (**cognitive process**) and, therefore, more difficult to develop than auditory–verbal abilities. In a way, we have two languages: listening–speaking (*auditory–verbal* or *aural–oral*) and reading–writing (*visual–graphic*). The auditory–verbal language is developed in the early years of life; however, the reading–writing language does not normally start developing until the early years of schooling. Also, a person may become verbal and be considered a good communicator, but that does not mean he is an equally good reader or writer.

Literacy: The ability to communicate through written language, both reading and writing.

Process (cognitive process): The things individuals do with their brains (minds) that involve attention, perception, memory, ideation, imagination, belief, reasoning, use of language, volition, emotion, and others; the process of thinking. The ability to take in information and transform it, store it, recover it, and use it.

Disorders of Communication

When we listen to someone talk, we typically (consciously or subconsciously) pay attention or notice several features. We notice the person's **articulation** and how clearly and easily we can understand him or her. We pay attention to the person's voice and whether we think it is appropriate for the person's age and sex, and whether it is relatively clear and pleasant. We hear whether a person has a

Articulation: The modifying of the airstream (voiced and unvoiced sounds) into distinctive sounds of a language to produce speech. In speech-language pathology, the movement of the *articulators* (mandible, lips, tongue, and soft palate) to produce sounds of speech.

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resonance problem and sounds like she is either "talking through her nose" or has a "stuffy nose." We listen for the person's language skills and determine whether good syntax is being used with a reasonably appropriate choice of words. We notice whether the person's speech is relatively fluent or whether she has unusual pauses and hesitations, repetitions of sounds and words, or prolongations of sounds. We also notice whether the person's hearing is adequate when we are talking with her or whether we have to speak more loudly than normal or repeat ourselves often. We also may notice whether the person seems embarrassed or frustrated with her own communication. In social conversations, when we notice problems in any of these areas, we usually try not to let the speaker know that we are aware of them. However, in our professional work as speech-language pathologists and audiologists, we need to recognize, analyze, diagnose, and treat a person's communication disorders.

Definitions

A communication **disorder** may be defined as an impairment in the ability to receive, comprehend, or send messages, verbally, nonverbally, or graphically. Alternatively, based on the earlier definition of *communication* (i.e., any means by which individuals relate their wants, needs, thoughts, feelings, and knowledge to another person), a communication disorder may be defined as any speech, language, cognitive, voice, resonance, or hearing impairment that interferes with conveying or understanding a person's wants, needs, thoughts, feelings, and knowledge.

As professionals, SLPs and audiologists try to maintain objectivity in their definitions of terms and diagnoses of communication disorders. In reality, the subjective feelings of clients and patients and their listeners are what determine how much a communication disorder actually affects an individual. Some individuals have very negative reactions to even minor communication problems, whereas others appear (or try to appear) remarkably tolerant, unconcerned, or unaware of even fairly significant problems. In essence, a communication disorder can affect a person's **quality of life**, and the tasks of SLPs and audiologists are to **habilitate** or **rehabilitate** our clients and patients to help improve their quality of life, and the quality of life of their families. Note that the term **handicap** is generally avoided when referring to communication disorders because of its negative connotations, with the terms **disability** and **impairment** now more commonly used. The term *speech impediment* is never used by speech-language pathologist but remains in the general lay person's (i.e., not an SLP or other healthcare or educator) vocabulary.

Prevalence vs Incidence

The term **prevalence** refers to the estimated number of individuals diagnosed with a particular disorder, disability, or disease at a given time in a region or country. The term **incidence** refers to the total number of new diagnoses of a disorder, disability, or disease in the population of a region or country over a 1-year period.

It is impossible to determine the precise prevalence or incidence of any communication disorder in the United States or any country. Moreover, general estimates likely underestimate the number of individuals with any disorder because not all communication disorders are diagnosed or diagnosed with the same criteria, or systematically reported to calculate their totals. In the United States, nearly one in 12 children ages 3–17 has a disorder related to speech, language, voice, or swallowing in the past 12 months, and more than half of them receive intervention (Center for Disease Control and Prevention – CDC, 2012). The data indicate that of the ≈8% of children with a communication or swallowing disorder, 5% have

Disorder: As defined by the World Health Organization (WHO), any loss or abnormality of psychological, physiological, or anatomical structure or function that interferes with normal activities.

Quality of life: A global concept that involves a person's standard of living, personal freedom, and the opportunity to pursue happiness; a measure of a person's ability to cope successfully with the full range of challenges encountered in daily living; the characterization of health concerns or disease effects on a person's lifestyle and daily functioning.

Habilitate: The process of developing a skill or ability to be able to function within the environment; the initial learning and development of a new skill. (See Rehabilitate.)

Rehabilitate: Restoration to normal or to as satisfactory a status as possible of impaired functions and abilities.

Handicap: As defined by the World Health Organization (WHO), loss or limitation of opportunities to take part in the life of the community on an equal level with others; a congenital or acquired physical or intellectual limitation that hinders a person from performing specific tasks.

Disability: As defined by the World Health Organization (WHO), any restriction or lack of ability to perform an activity in the manner or within the range considered normal for a human being; the impairment, loss, or absence of a physical or intellectual function; *physical disability* is any impairment that limits the physical functions of limbs or gross or fine motor abilities; *sensory disability* is impairment of one of the senses (e.g., hearing or vision); *intellectual disability* encompasses intellectual deficits that may appear at any age (e.g., Down syndrome or following a severe TBI).

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speech disorders, ≈3.5% have language disorders, ≈1.5% have voice disorders, and 1% have swallowing disorders. Of the children with communication or swallowing disorders, approximately one-third of children ages 3–10 and one-quarter of children ages 11–17 have more than one disorders. The CDC (2018) reported there are approximately 640,000 children seen in emergency departments each year for a mild to severe **traumatic brain injury (TBI; head injury)**. More than 25% of all children with learning or physical disabilities (e.g., *cerebral palsy*) also have one or more communication disorders (e.g., speech, language, literacy, cognitive, and/or hearing). Males are more likely to have communication disorders at all ages than females (ASHA, 2015); Bitsko, Holbrook, Robinson, et al., 2016; Catts & Kamhi, 2012).

Classification of Communication Disorders

There are numerous approaches to classification of **speech disorders** and **language disorders**. (In addition to the term *disorder*, clinicians often use the words *impairment* or *disability*, or more colloquially, *problem* or *difficulty*.) In general, communication disorders are divided into those affecting speech sounds (articulation disorders, phonological disorders, and motor speech disorders), *language* (receptive language and expressive language), *fluency* (stuttering and cluttering), *voice* (aphonia and dysphonia), *resonance* (hypernasality and hyponasality), *cognition* (developmental and acquired disorders [e.g., TBI]), *literacy* (reading and writing disorders), and *hearing* (conductive, sensorineural, and mixed losses) (**FIGURE 1-3**). Although a *swallowing disorder* (discussed in the *Swallowing Disorders/Dysphagia* chapter) is not technically a communication disorder, it is a major area of concern for SLPs, especially in medical settings. Swallowing disorders are often associated with motor speech disorders, particularly dysarthria.

SLPs and audiologists often try to determine *dichotomies* (i.e., either this or that) when classifying disorders. For example, a disorder may be considered *congenital* or *acquired*, *organic* or *functional*, an *articulation disorder* or a *phonological disorder*, a *receptive language disorder* or an *expressive language disorder*, a *child communication disorder* or an *adult communication disorder*, or a *stroke* or *traumatic brain injury,* etc. In many cases, two or more disorders may occur concurrently (i.e., a *mixed*, *coexisting*, or *comorbid* disorder), such as in a child who has articulation and language disorders or in an adult who has both language and cognitive disorders.

Congenital disorders are those that are present at birth and are usually considered either hereditary (e.g., some **syndromes**, such as Down syndrome), problems caused during pregnancy (e.g., maternal drug or alcohol abuse), or a complication at birth (e.g., fetal *anoxia* [no oxygen] or *hypoxia* [inadequate oxygen]). **Acquired disorders** are those that begin after an individual has developed normal communication abilities, such as a hearing loss from loud noise exposure, or a speech, language, or cognitive disorder caused by a traumatic brain injury (TBI; head trauma).

When considering the **etiology** or cause of a disorder, some clinicians use the terms **functional disorder** and **organic disorder**. A functional disorder is a problem or impairment that has some behavioral or emotional components but no known anatomic, physiologic, or neurological basis. An organic disorder has an anatomic, physiologic, or neurological basis and may have behavioral or emotional components. In some cases, it is difficult to clearly determine whether a disorder is purely or primarily an organic disorder or a functional disorder. (Organic disorders commonly have functional components.)

Impairment: Any loss or abnormality of an anatomical structure or physiological, neurological, or psychological function.

Prevalence: The estimated total number of individuals diagnosed with a particular disorder at a given time in a population, or the percentage of people in a population with the disorder.

Incidence: The rate at which a disorder appears in the normal population over a period of time, typically 1 year.

Traumatic brain injury (TBI)/head trauma: An acquired injury to the brain caused by an external force that results in partial or total functional disability, including physical, communication, cognitive, and psychosocial impairments.

Speech disorders: Any deviation or abnormality of speech outside the range of acceptable variation in a given environment.

Language disorders: An impairment of receptive and/or expressive linguistic symbols (morphemes, words, semantics, syntax, or pragmatics) that affects comprehension and/or expression of wants, needs, thoughts, feelings, or knowledge through the verbal, written, or gestural modalities.

Congenital disorders: A disorder that is present at birth.

Syndrome: A complex of signs and symptoms resulting from a common etiology or appearing together that presents a clinical picture of a disease or inherited anomaly.

Acquired disorders: A disorder that begins after an individual has developed normal communication abilities, such as a hearing loss from loud noise exposure or a speech, language, or cognitive disorder caused by a traumatic brain injury.

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Etiology: The cause of an occurrence (e.g., a medical problem that results in a disorder or disability).

Functional disorder: A problem or impairment with no known anatomical, physiological, or neurological basis that may have behavioral or emotional causes or components (i.e., idiopathic—no known cause).

Organic disorders: An underlying motor/neurological disorder (e.g., childhood apraxia of speech and dysarthria), structural (e.g., cleft/lip/palate and other structural deficits or anomalies), or sensory/perceptual disorder (e.g., hearing impairment); a problem or impairment with a known anatomical, physiological, or neurological basis.

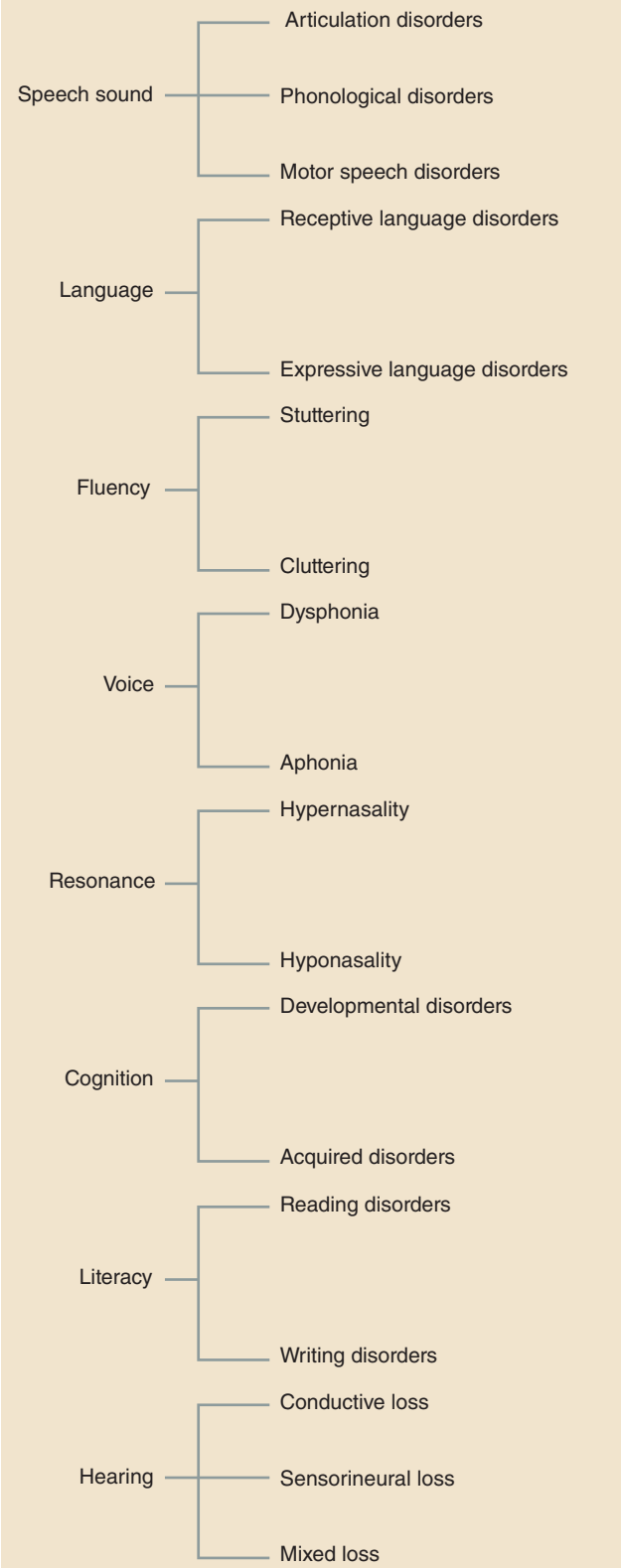


FIGURE 1-3 Major categories of communication disorders.

Speech sound disorder: An umbrella term referring to any difficulty or combination of difficulties with perception, motor production, or phonological representation of speech sounds and speech segments—including phonotactic rules governing permissible speech sound sequences in a language.

Speech Sound Disorders

ASHA (ASHA Practice Portal: Speech Sound Disorder, n.d.) defines a **speech sound disorder** as an umbrella term referring to any difficulty or combination of difficulties with perception, motor production, or phonological representation of speech sounds and speech segments—including phonotactic rules governing permissible speech sound sequences in a language.

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A speech sound disorder is present when a child cannot correctly *produce* (say) speech sounds used in the child's language and is less intelligible than other children of the same age in the absence of an obvious sensory (e.g., hearing), structural (e.g., cleft palate), or neurological (e.g., cerebral palsy) etiology (Brosseau-Lapre & Schumaker, 2020; Koch, 2019). Speech sound disorders can be organic or functional in nature.

Functional speech sound disorders include those related to the articulation of speech sounds—that is, an **articulation disorder**. An articulation disorder is the incorrect production of speech sounds due to faulty placement, timing, direction, pressure, speed, or integration of the movements of the mandible, lips, tongue, or velum. Most articulation disorders are the result of inaccurate placement of the tongue. A **phonological disorder** is present when errors are predictable and rule-based (e.g., fronting, stopping, and final consonant deletion) that affect more than one sound and form phoneme patterns in which a child simplifies individual sounds or sound combinations (i.e., the child is unintentionally trying to make the sounds easier for himself to say). It is often difficult to clearly differentiate between articulation and phonological disorders; therefore, clinicians and researchers prefer to use the broader term *speech sound disorder* when referring to speech errors of unknown cause. *Organic speech sound disorders* include those resulting from motor/neurological disorders (e.g., childhood apraxia of speech and dysarthria), structural abnormalities (e.g., cleft lip/palate), and sensory/perceptual disorders (e.g., hearing impairment) (ASHA Practice Portal: Speech Sound Disorder, n.d.).

Articulation disorder: The incorrect production of speech sounds due to faulty placement, timing, direction, pressure, speed, or integration of the movements of the mandible, lips, tongue, or velum.

Phonological disorder: Predictable, rule-based (e.g., fronting, stopping, and final consonant deletion) errors that affect more than one sound and form phoneme patterns in which a child simplifies individual sounds or sound combinations.

Motor speech disorders occur in some children (*childhood apraxia of speech* and *dysarthria*) but are more commonly observed in adults. Motor speech disorders are the result of neurological impairments or differences that affect *motor* (i.e., movement) planning (programming), coordination, rate of speech (including pausing), or the strength of the articulators for the rapid and complex movements needed for smooth, effortless, and **intelligible**, well-articulated speech (Murray, Iuzzini-Seigel, Maas, Terband, & Ballard, 2020). In adults, motor speech disorders are most often caused by strokes, TBIs, or *neuromuscular diseases* (diseases of the nervous system that affect the muscles), such as Parkinson's disease (Duffy, 2012).

Motor speech disorder: Impaired speech intelligibility that is caused by a neurological impairment or difference that affects the motor (movement) planning or the strength of the articulators needed for rapid, complex movements in smooth, effortless speech.

Intelligible: The degree of clarity with which an utterance is understood by the average listener, which is influenced by articulation, rate, fluency, vocal quality, and intensity (loudness) of voice.

Disorders of Language

Many children have difficulty developing normal language abilities, and these difficulties may become increasingly apparent as the child gets older and more sophisticated language is expected. Adults who have had normal language all their lives may have acquired language impairments because of neurological disorders such as strokes or head injuries.

Language Disorders in Children

ASHA (ASHA, Practice Portal: Spoken Language Disorders, n.d.) defines a spoken language disorder (oral language disorder) as representing a significant impairment in the acquisition and use of language across modalities due to deficits in comprehension and/or production across any of the five language domains (i.e., phonology, morphology, syntax, semantics, pragmatics). Language disorders may persist across the lifespan and symptoms may change over time.

Language disorders in children—developmental language disorders (DLD)/specific language impairment (SLI)—can vary greatly in how they manifest during language development in both **receptive language** (how well a child understands what she hears) and **expressive language** (how well a child can verbally communicate her messages), with age of a child being a significant factor. Children who have difficulty understanding language commonly have difficulty

Receptive language: What a person understands of what is said.

Expressive language: The words, grammatical structures, and meanings that a person uses verbally.

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Language delay: An abnormal slowness in developing language skills that may result in incomplete language development.

expressing themselves. Some children are slow to develop language and may be considered to have a **language delay**, but then develop normal language. Parents and pediatricians often refer to these children as "slow talkers" and "late talkers." Language disorders are associated with more than 75% of children who have learning disabilities (McDowell, 2018).

Causes of language disorders may include hearing loss, autism spectrum disorder, various genetic syndromes, intellectual disabilities, and traumatic brain injury. Most children with such disorders have articulation disorders in conjunction with their language disorders or language delays. Approximately 87% of SLPs working in schools report that they work with children who have language impairments (ASHA, 2020).

Language difference: Variations in speech and language production that are the result of a person's cultural, linguistic, and social environments.

General American English (GAE)/Standard American English (SAE): The speech of native speakers of American English that is typical of the United States and that excludes phonological forms easily recognized as regional dialects (e.g., Northeastern or Southeastern) or limited to particular ethnic or social groups, and that is not identified as a nonnative American accent; the norm of pronunciation by national radio and television broadcasters.

Children's culturally and linguistically diverse backgrounds can significantly affect their expressive language. However, expressive language affected by cultural and linguistic diversity is not a disorder—it is a *difference*. **Language differences** are variations in speech and language production that are the result of a person's cultural, linguistic, and social environments (Saad, 2009). When determining whether a particular child's language is a disorder or a difference, we must consider two norms: **General American English (GAE)**, also known as **Standard American English (SAE)**, and the cultural norms of the child (Paul, Norbury, & Gosse, 2018). A 1983 American Speech-Language-Hearing Association position paper on social dialects stated, "No dialect variety of English is a disorder or a pathological form of speech or language. Each social dialect is considered adequate as a functional and effective variety of English" (p. 24).

Social communication disorder: Difficulties with the use of verbal and nonverbal language for social purposes such as social interactions, social cognition (thinking about social interactions), and pragmatics (e.g., appropriately matching communication to the social context, following rules of communication, and understanding nonliteral [implied] messages).

Social communication is the use of language in social contexts. It is the ability to use language that is appropriate to the context. It encompasses social interaction, social cognition, pragmatics, and language processing. Social communication skills include the ability to vary speech style, take the perspective of others, understand and appropriately use the rules for verbal and nonverbal communication, and use the structural aspects of language (e.g., vocabulary, syntax, and phonology) to accomplish these goals. Social communication skills are needed for language expression and comprehension in both spoken and written modalities. Spoken and written language skills allow for effective communication in a variety of social contexts and for a variety of purposes (Greenslade, 2020). **Social communication disorders** are characterized by difficulties with the use of verbal and nonverbal language for social purposes. Primary difficulties are in social interaction, social cognition, and pragmatics. Specific deficits are seen in a persons ability to:

- communicate for social purposes in ways that are appropriate for the particular social context;
- change communication to match the context or needs of the listener;
- follow rules for conversation and storytelling;
- understand nonliterate or ambiguous language; and
- understand what is not explicitly stated.

Social communication disorder can result in far-reaching problems, including difficulty participating in social settings, developing peer relationships, achieving academic success, and performing successfully on the job. Social communication disorder may be a distinct diagnosis or may co-occur with other conditions, such as developmental disabilities, autism spectrum disorders, language disorders, traumatic brain injury, and others (ASHA Practice Portal: Social Communication Disorder).

Language Disorders in Adults

Impaired language (verbal comprehension and expression or written comprehension or expression) in adulthood may be a continuation of the language problems

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of a child or adolescent. Nevertheless, we typically think of language disorders in adults as being acquired because of neurological impairments such as strokes and traumatic brain injuries. Strokes and aphasia are more common after age 65, although they can occur in much younger adults, but rarely in adolescents and children. Adults have lived their entire lives, often at very high functioning levels, and then because of medical problems or accidents develop communication disorders that they could never have imagined. Damage to the brain's left hemisphere can cause both language impairments (**aphasia**) and motor speech disorders (apraxia of speech and dysarthria (Coppens & Patterson, 2018; Manasco, 2021). It is estimated that the incidence is ≈180,000 new cases of aphasia each year in the United States and the prevalence is ≈1 million people living with aphasia (National Institute of Deafness and Other Communication Disorders [NIDCD], 2015).

Aphasia: An impairment in language processing that may affect any or all input modalities (auditory, visual, and tactile) and any or all output modalities (speaking, writing, and gesturing).

Disorders of Fluency/Disfluency/Stuttering

Fluency refers to continuity, smoothness, rate, and effort in speech production. All speakers are disfluent at times. They may hesitate when speaking, use fillers ("like" or "uh"), or repeat a word or phrase. These are called typical disfluencies or nonfluencies. A **fluency disorder** (**disfluency/stuttering**) is an interruption in the flow of speaking characterized by atypical rate, rhythm, and disfluencies (e.g., repetitions of sounds, syllables, words, and phrases; sound prolongations; and blocks), which may also be accompanied by excessive tension, speaking avoidance, struggle behaviors, and secondary mannerisms. People with fluency disorders also frequently experience psychological, emotional, social, and functional impacts as a result of their communication disorder (Tichenor & Yaruss, 2019a).

Fluency: The continuity, smoothness, rate, and effort in speech production.

Fluency disorder: An interruption in the flow of speaking characterized by atypical rate, rhythm, and disfluencies (e.g., repetitions of sounds, syllables, words, and phrases; sound prolongations; and blocks), which may also be accompanied by excessive tension, speaking avoidance, struggle behaviors, and secondary mannerisms.

Stuttering (disfluency) is likely the most common problem people think of when they think of a speech disorder. Probably most adults have encountered someone who stutters, and the media (including cartoons) have parodied people who stutter countless times. Stuttering is usually heard as repetitions of sounds, syllables, or words; prolongations of sounds; and abnormal stoppages or "silent blocks" while a child or adult is talking. There can be visible tension and struggle behaviors, such as blinking the eyes, looking away just at the moment of stuttering, and a variety of facial grimaces and unusual arm, hand, and other body part movements. Stuttering can be one of the most emotionally difficult communication disorders (Bloodstein & Bernstein Ratner, 2008; Jackson, Yaruss, Quesal, Terranova, & Whalen, 2015). Approximately 5% of preschool-age children have episodes of disfluency, and in the general population approximately 1% of school-age children and adults stutter (Yairi & Ambrose, 2013).

Stuttering (disfluency): A disturbance in the normal flow and time patterning of speech characterized by one of more of the following: repetitions of sounds, syllables, or words; prolongations of sounds; abnormal stoppages or "silent blocks" within or between words; interjections of unnecessary sounds or words; circumlocutions (talking around an intended word); sounds and words produced with excessive tension; or the substitution of a sound or word that is easier to say than the intended or desired sound or word.

Cluttering is considered a fluency disorder that shares some characteristics of stuttering but differs in several important ways. Cluttered speech is abnormally fast, with omissions of sounds and syllables so that words sound compressed or *truncated* (reduced in length). A person who clutters has abnormal patterns of pausing and phrasing, and has bursts of speech that may be unintelligible (St. Louis, 2020).

Cluttering: Speech that is abnormally fast with omission of sounds and syllables of words, abnormal patterns of pausing and phrasing, and often spoken in bursts that may be unintelligible; frequently includes abnormalities in syntax, semantics, and pragmatics.

Disorders of Voice

A **voice disorder (dysphonia)** occurs when the loudness, pitch, or quality (i.e., "smoothness") of a person's voice is outside the normal range for the person's age, gender, or the speaking environment, or when the voice is unpleasant to hear. Children and adults can have severe voice disorders that leave them without a functional voice for communicating essential messages. Most voice disorders in children and adults are diagnosed as **dysphonias** in which the person's voice sounds rough, raspy, or hoarse. Dysphonia may be caused by laryngitis, masses on the vocal folds (e.g., vocal nodules [cheerleader's nodules]), neurological damage

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Voice disorder (dysphonia): Any deviation of loudness, pitch, or quality of voice that is outside the normal range of a person's age, gender, or geographic cultural background that interferes with communication, draws unfavorable attention to itself, or adversely affects the speaker or listener.

Dysphonia: A general term that means a voice disorder, with the person's voice typically sounding rough, raspy, or hoarse.

Aphonia: A complete loss of voice followed by whispering for oral communication that typically has psychological causes such as emotional stress.

Resonance disorder: Abnormal modification of the voice by passing through the nasal cavities during production of oral sounds (*hypernasality*) or not passing through the nasal cavities during production of nasal sounds /m/, /n/, or /ŋ – ng/ (*hyponasality*).

Hypernasality (hypernasal): A resonance disorder that occurs when oral consonants and vowels enter the nasal cavity because of clefts of the hard and soft palates or weakness of the soft palate, causing a person to sound like he is "talking through his nose."

Hyponasality (hyponasal/denasality/denasal): Lack of normal resonance for the three English phonemes (/m/, /n/, and /ŋ - ng/) caused by partial or complete obstruction in the nasal tract.

Cognition: The mental processes involved in gaining knowledge and the act or process of thinking and learning that involves attention, perceiving stimuli, memory, organization and categorization of information, abstraction, generalization, reasoning, judgment, and problem solving; closely related to intelligence.

that causes weakness of the vocal folds, or psychological causes, such as tension in the vocal mechanism (*larynx*) (Stewart, Kling, & Allen, 2016). In children, voice disorders are significantly more prevalent in males than females; however, in adults, the prevalence is much higher in females than males (Martins, so Armaral, Tavares, Martins, Goncalves, et al., 2016). **Aphonia** is a complete loss of voice, which is rare, and typically has psychological causes such as emotional stress. Following the complete loss of voice, the person may use whispering or writing to communicate and often avoids communicating (Ferrand, 2019).

Disorders of Resonance

Speech resonance is the result of the transfer of sound produced by the vocal folds through the vocal tract comprised of the pharynx, oral cavity, and nasal cavity. Normal resonance is achieved through an appropriate balance of oral and nasal sound energy, based on the intended speech sound. **Resonance disorders** (**hypernasality (hypernasal)**, **hyponasality (hyponasal/denasality/denasal)**) involve abnormal structures or functioning of the *hard* and *soft palates* (the roof of the mouth, front to back) that cause the voice to be directed inappropriately into the *oral cavity* (mouth) for *oral sounds* or directed into the *nasal cavities* for *nasal sounds* (i.e., /m/, /n/, and "ng"). Resonance disorders result from too much or too little nasal and/or oral sound energy in the speech signal. They can result from structural (e.g., *cleft palate*) or neurogenic (e.g., weakness of the soft palate) causes and occasionally are due to mislearning (e.g., articulation errors that can lead to the perception of a resonance disorder). Most resonance disorders in children are the result of cleft palates, which have an overall prevalence of approximately 0.001% to 0.002% in the general population (i.e., 1 to 2 per 1,000 live births) (Bloomfield & Liao, 2015; Kummer, 2020).

Hypernasality occurs when there is sound energy in the nasal cavity during production of voiced, oral sounds. In hypernasality, oral consonants and vowels that should exit the mouth instead pass into the nasal passages, where they are *resonated* (i.e., increased vibration and amplification of sounds). Listeners perceive the person's speech as though the person is "talking through his nose." **Hyponasality** (**denasality**) occurs because of partial or complete obstruction of the nasal passages (e.g., enlarged adenoids), causing the /m/, /n/, and "ng" sounds to not have their normal nasal resonance (Kummer, 2020; Peterson-Falzone, Hardin-Jones, & Karnell, 2009). Acquired resonance disorders in adults are usually the result of a weak soft palate (as in dysarthria) that is caused by strokes and head injuries.

Disorders of Cognition

Cognition is a term referring to the mental processes involved in gaining knowledge and the act or process of thinking and learning that involves attention, perceiving stimuli, memory, organization and categorization of information, abstraction, generalization, reasoning, judgment, and problem solving; it is closely related to intelligence (American Psychological Association, 2018).

Cognitive disorders in children are usually associated with intellectual disabilities. The majority of children who have intellectual disabilities also have mild to profound language delays, with some children never developing functional language skills or the ability to live independently. Relatively intact cognitive abilities are important for development of both speech and language (Goswami, 2019).

Cognitive communication disorders are defined as "difficulty with any aspect of communication that is affected by disruption of cognition" (American Speech-Language Hearing Association, 2005). Cognitive communication disorders

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are commonly seen in individuals of all ages who have sustained a traumatic brain injury. It is often the combination of cognitivecommunication impairments that have the most profound effects on a child's ability to function independently (Lundine & Barron, 2019).

Adults may have acquired cognitive disorders, which are usually the result of damage to the right hemisphere or the frontal lobes of the brain. Cognitive disorders affect attention, perception of stimuli, organization and categorization of information, memory, reasoning, judgment, and problem solving—in a word, *thinking*. Mild to moderate TBIs can result in significant cognitive disorders in individuals of all ages, and severe neurological impairments can result in any combination of aphasia, motor speech disorders, and cognitive disorders (Manasco, 2021). Approximately 1% to 2% of children and adults have TBIs that result in long-term disability (Finnanger, Olsen, Skandsen, Lydersen, Vic, et al., 2015; Fuentes, Wang, Haarbaurer-Krupa, Yeates, Durbin, et al., 2018).

Many elderly people develop **dementia**, a neurological disorder that is a progressive deterioration of cognitive functioning and personality. Alzheimer's disease is just one form of dementia (Robnett, Brossoie, & Chop, 2020). Approximately 8% to 15% of people between 65 and 70 years of age have some level of dementia; this percentage increases significantly with every additional 5 years of age (Powers, Bennet, Turner, Dowling, Ciarleglio, et al., 2020).

Cognitive disorder: An impairment of the mental processes involved in gaining knowledge and the act or process of thinking and learning that involves attention, perceiving stimuli, memory, organization and categorization of information, abstraction, generalization, reasoning, judgment, and problem solving.

Cognitive communication disorder: Difficulty with any aspect of communication that is affected by disruption of cognition; often seen in traumatic brain injuries.

Dementia: A neurological disease that causes intellectual, cognitive, and personality deterioration that is more severe than what would occur through normal aging.

Hearing Loss/Hearing Impairment

Hearing is the foundation for development of speech and language. **Hearing loss (hearing impairment)** can cause numerous speech and language delays and disorders in children that can affect them throughout their lives. Hearing loss is the most common of all physical impairments. Of 35 congenital disorders detected through newborn screening, hearing loss is the most prevalent, affecting ≈1.5% of U.S. infants (CDC, 2018). In addition, 83 out of every 1,000 school-age children have a significant hearing loss (ASHA, 2008b; Mehra, Eavey, & Keamy, 2009). Approximately 4.5% of adults 18 to 44 years of age, 14% of adults 45 to 64 years of age, and 54% of adults 65 years of age and older have some degree of hearing loss (Hoffman, Dobie, Losonczy, Therman, & Flamme, 2017).

Hearing loss/hearing impairment: Abnormal or reduced function in hearing resulting from an auditory disorder.

Adults may acquire hearing impairments at any age from loud noises, medical problems that affect the ear, or the progressive hearing losses that often come with age. The two primary types of hearing impairments are conductive and sensorineural. A **conductive hearing loss** is a decrease in the loudness of a sound because of poor conduction of sound through the outer or middle ear. Conductive hearing losses can have numerous causes, including malformations of the outer ear, occlusion (blockage) of the ear canal from ear wax, damage to the eardrum or the three small bones in the middle ear, or middle ear infections (Welling & Ukstins, 2019).

Conductive hearing loss: A reduction in hearing sensitivity because of a disorder of the outer or middle ear.

In a **sensorineural hearing loss**, a reduction of hearing sensitivity occurs because of a disorder of the inner ear or the auditory nerve that carries the information to the brain. This type of hearing loss typically results in difficulty discriminating speech sounds. Infants may be born with sensorineural hearing losses, or they may develop losses in childhood because of infections such as measles, mumps, and chickenpox. In older children, adolescents, and young adults, sensorineural hearing losses are often caused by listening to loud music for long periods of time. (The most likely cause of hearing loss among teens and college students is the use of MP3 and MP4 players and headphones or earbuds that can present loud music to the ears without disturbing other people [ASHA, 2016; Moore, 2010]). In older adults, sensorineural hearing losses are common with advancing age (Welling & Ukstins, 2019).

Sensorineural hearing loss: A reduction of hearing sensitivity produced by disorders of the cochlea and/or the auditory nerve fibers of the vestibulocochlear (VIII cranial) nerve.

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Emotional and Social Effects of Communication Disorders

Communication disorders can have untold emotional and social effects on people of all ages. Many of these effects are likely undocumented and even unacknowledged by the individuals. However, beyond the individuals with the communication disorders are the parents, grandparents, siblings, husbands and wives, and other family members who are bewildered and anguished by their loved one's communication problems. A communication disorder affects a family—not just the person who has it. Thus, it is essential to educate the family about the communication disorder that their loved one has (Flasher & Fogle, 2012; Tye-Murray, 2012). Each chapter in this text that deals with a disorder has a discussion of the emotional and social effects of that disorder on the person and the family.

As clinicians, we always need to keep in mind the entire person (and the family) with whom we are working, rather than focusing solely on the disorder the person has. We need to place considerable importance on developing good, caring, working relationships with clients and their families to optimally carry out therapy and provide the necessary family education and training. Good people skills and counseling skills are essential when working with clients of all ages and their families (Flasher & Fogle, 2012).

Chapter Review

Chapter Summary

Speech-language pathologists and audiologists work with all areas of communication, including hearing, speaking, reading, writing, and nonverbal communication. We work with all areas of speech and language, including phonology, morphology, syntax, semantics, and pragmatics. Communication disorders may affect articulation, language, fluency, voice, resonance, cognition, and hearing. Communication disorders can have untold emotional and social effects on children, adolescents, and adults, and their families. Although a swallowing disorder is not a communication disorder, it is a major area of concern for SLPs, especially in medical settings.

Study Questions

Knowledge and Comprehension

1. List the four speech systems.
2. Explain morphology. In two three-syllable words, indicate each morpheme.
3. Define pragmatics and explain some of its elements.
4. Define communication disorder.
5. Explain receptive language and expressive language.

Application

1. When talking with clients and their families, discuss why it is helpful to understand that verbal content is usually more important for factual communication and nonverbal content is more important for judging emotions and attitudes.
2. Explain how prosody helps us communicate.
3. Discuss the importance of good pragmatics when working with clients and their families.
4. Discuss how being familiar with the major categories of communication disorders could be helpful in your personal life.
5. Discuss the importance of appreciating and understanding the emotional and social effects of language disorders in children

Analysis and Synthesis

1. Explain what is meant by this statement: "We cannot not communicate."
2. Explain the differences between speech and language.
3. Compare the similarities and differences of *linguistic competence* and *grammatical intuition*.

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4. Discuss how determining dichotomies might be helpful in diagnosing a speech or language disorder.
5. Discuss how cognitive disorders in children might affect their language abilities.

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