
UNIT 4 LANGUAGE AND SPEECH DISORDERS

“Language comes so naturally to us that it is easy to forget what a strange and miraculous gift it is.”

– Steven Pinker

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4.0 INTRODUCTION

Communication is so pervasive in any community in its day-to-day activities that it is often taken for granted (Sternberg, 2001). Normal language develops over a period and it is sequential or ordered (Crystal, 1992). A child acquires vocalisation, speech sounds (vowels and consonants) and then prosodies. This acquisition is in recognisable stages that entail acquisition of form, content, and use (Seymour & Nober, 1997). The form is the system of symbols that convey meaning and it is made up of the phonology, morphology, and syntax of a language. The content includes the individual words and combinations of words to produce meaning in the language. Content is made up of the semantics of a language. Use involves how we use words in contexts and is made up of the pragmatics of a language.

Many things could go wrong with the natural order of language acquisition and development. In every community, we encounter individuals with language and/or a speech disorders. One in 10 people in the United States is affected by a communication disorder (speech, language, or hearing disorders). Unfortunately,

there is much ignorance as far as identifying these disorders is concerned. The ignorance more often than not leads to mishandling of the persons with language and speech disorders.

4.1 OBJECTIVES

After reading this unit, you will be able to:

- Define language and speech disorders;
- Explain speech disorders;
- List the causes for speech disorders;
- Enumerate the language disorders; and
- Explain treatment for the speech and language disorders.

4.2 DEFINITION OF LANGUAGE AND SPEECH DISORDERS

Language and speech are said to be disordered or impaired if they differ from what is considered the norm. As already indicated, the yardstick is embedded in the culture of each language; what may be considered disordered in one language will not necessarily be disordered in another language. There is need, therefore, to distinguish between genuine speech disorder and people's cultural tendencies or practices. For example, Kim (1985) notes that Asian Americans favour verbal hesitancy and ambiguity to avoid offence. They also avoid making spontaneous or critical remarks. One should respect such a community's culture and thus the hesitancy should not be confused with a fluency disorder.

The unique nature of the language and speech disorders is that they are not visible since mostly they are not physically manifested, except defects that affect articulation. Most disorders are not evident until a person opens her/his mouth to speak. The disorders, for the same reason, are often not considered a disability, even by the persons who have them.

Language and speech disorders may be due to factors such as physical, mental, or socialisation defects (Crystal, 1988). Though language and speech disorders are classified together they are slightly different from each other. Let's take them one by one:

4.3 LANGUAGE DISORDERS

Language is the rule-based use of speech sounds to communicate (Sternberg, 2000). Language disorders or language impairments involve the processing of linguistic information. Problems that may be experienced can involve grammar (syntax and/or morphology), semantics (meaning), or other aspects of language. Disordered language may be due to a *receptive problem*, that is, a difficulty in understanding speech sounds (involving impaired language comprehension). It can also be due to an *expressive problem*, that is, a difficulty in producing the speech sounds (involving language production), that follow the arbitrary rules of a specific language. A language disorder can also be due to problems in both reception and expression. Examples include specific language impairment and

aphasia, among others. Language disorders can affect both spoken and written language, and can also affect sign language; typically, all forms of language will be impaired.

Note that these are distinct from speech disorders, which involve difficulty with the act of speech production, but not with language. Language disorders, therefore, refer to the following:

The use of speech sounds in combinations and patterns that fail to follow the arbitrary rules of a particular language is a language disorder. For instance, the lack of communication etiquette is considered a language disorder. Talking out of turn, not talking when it is your turn, or not responding when you are expected to could be disorders if frequently observed in one's language behaviour.

The delay in the use of speech sounds relative to normal development in the physical, cognitive, and social areas is another language disorder. Most language disorders are often diagnosed in conjunction with other developmental delays — for instance, health, sensory, motor, mental, emotional, and behavioural development.

Language disorder is a disorder that is found in the development or use of the knowledge of language. It shows the breakdown in the development of language abilities on the usual developmental schedule. The disorders that come under language disorders are: Autism, Learning Disability, Specific Language Impairment, Developmental Phonological Disorders Aphasia, Dyspraxia, etc. We shall discuss the most common language disorders in detail:

4.3.1 Aphasia

Aphasia is an impairment of language functioning caused by damage to the left hemisphere of the brain (Garrett, 2003; Hillis & Caramazza, 2003). There are different type of aphasias, example; Broca's aphasia and Wernicke's aphasia.

Wernicke's aphasia is caused by damage to the left temporal lobe of the brain. It is characterised by notable impairment in the understanding of spoken words and sentences. People with Wernicke's aphasia have generally fluent phonetic and syntactic but semantically coherent speech.

This coherence is exhibited through the creation of nonsense words for real-world concepts and improper substitutions of function words for content words (e.g., nouns, verbs). It also typically involves the production of sentences that have the basic structure of the language spoken but that make no sense. They are sentences without any meaning, e.g. 'Yeah, that was the pumpkin furthest from my thoughts' and 'the scroolish prastimer ate my spanstakes' (Hillis & Caramazza, 2003).

In the first case, the words make sense, but not in the context they are presented. In the second case, the words themselves are neologisms, or newly created words. Treatment for patients with this type of aphasia frequently involves supporting and encouraging nonlanguage communication (Altschuler et al., 2006).

Broca's aphasia is caused by damage to the brain's premotor area, responsible, in part, for controlling motor commands used in speech production. A person suffering from Broca's aphasia exhibits speech containing excess pauses and

slips of tongue, and s/he has trouble finding words when talking. The person also fails to make use of function words such as *a*, *the*, and *of*. For this reason, Broca's aphasics also produce ungrammatical sentences (Tartter, 1987). Furthermore they have problem using syntactic information when understanding sentences (Just & Carpenter, 1987). For example, while a Broca's aphasic has no trouble understanding a sentence such as "The bicycle that the man is holding is blue", but s/he has trouble comprehending a sentence such as "the dog that the woman is biting is grey."

This difference is due to the fact that while the first sentence can be understood using real-world knowledge (e.g. bicycle, not people, are blue), the second sentence cannot (because it is unlikely that a woman would bite a dog). Because understanding the second sentence requires correctly using syntactic information, which Broca's aphasics have difficulty doing, the sentence poses problem for them (Berndt & Caramazza, 1980).

Broca's aphasia differs from Wernicke's aphasia in two key aspects. First is that speech is agrammatical rather than grammatical, as in Wernicke's. Second is that verbal comprehension is largely preserved.

Diseases like Broca's and Wernicke's aphasia, while tragic, tell us much about the critical functions of certain regions of the brain. Notably, their symptoms suggest that (at least certain) phonological, syntactic, and semantic, language information is stored and processed separately in the brain.

Global aphasia is the combination of highly impaired comprehension and production of speech. It is caused by lesions to both Broca's and Wernicke's areas. Aphasia following a stroke frequently involves damage to both Broca's and Wernicke's areas. In one study, researchers found 32 % of aphasias immediately following a stroke in Broca's and Wernicke's areas (Pedersen, Vinter, & Olsen, 2004).

Anomic aphasia involves difficulties in naming objects in retrieving words. The patient may look at an object and simply be unable to receive the word that corresponds to the object. Sometimes, specific categories of things cannot be recalled, such as names of living things (Warrington & Shallice, 1984).

4.3.2 Autism

Autism is a developmental disorder characterised by abnormalities in social behaviour, language, and cognition (Jarrold & Happé, 2003). It is biological in its origins, although the genes responsible for it have not been conclusively identified (Lamb et al., 2000). Children with autism are identified by around 14 months of age, when they fail to show expected normal patterns of interaction with others. They display repetitive movements and stereotyped patterns of interests and activities. When they interact with someone, they are more likely to view their lips than their eyes. About half of children with autism fail to develop functional speech. The speech they tend to develop is characterised by echolalia, meaning they repeat, over and over again, speech they have heard. Sometimes the repetition occurs several hours after the original use of the words by someone else.

Children with autism show abnormalities in many areas of the brain, including the frontal and parietal lobes, as well as the cerebellum, brainstem, corpus

callosum, basal ganglia, amygdala, and hippocampus. The disease was first identified in the middle of the twentieth century (Kanner, 1943). It is five times more common in males than females. The incidence of diagnosed autism has increased rapidly over recent years (Chen et al., 2007). Autism is diagnosed today in approximately 60 out of every 10,000 children (Fombonne, 2003). The increase in recent times may be a result of a number of causes, including changes in diagnosing strategies or environmental pollution (Jick & Kaye, 2003; Windham et al., 2006).

4.3.3 Learning Disability

Language-based learning disabilities are problems with age-appropriate reading, spelling, and/or writing. Most people diagnosed with learning disabilities have average to superior intelligence. In *language-based learning disability* (or just *learning disabilities*), many children with reading problems have spoken language problems. *Dyslexia* has been used to refer to the specific learning problem of reading.

Dyslexia — Dyslexia has been around for a long time and has been defined in different ways. For example, in 1968, the World Federation of Neurologists defined dyslexia as “a disorder in children who, despite conventional classroom experience, fail to attain the language skills of reading, writing, and spelling commensurate with their intellectual abilities.” Dyslexia is not due to mental retardation, brain damage, or a lack of intelligence. It is caused by an impairment in the brain’s ability to translate images received from the eyes or ears into understandable language. The severity of dyslexia can vary from mild to severe. It is found more often in boys than in girls. The sooner dyslexia is treated, the more favorable the outcome; however, it is never too late for people with dyslexia to learn to improve their language skills (Schulte-Körne, Warnke, & Remschmidt, 2006).

Letter and number reversals are the most common warning sign of dyslexia (Birsh, 2005). Difficulty in copying from the board or a book can also suggest problems. The child may appear to be uncoordinated and have difficulty with organised sports or games. Difficulty with left and right is common, and often dominance for either hand has not been established. Auditory problems in dyslexia encompass a variety of functions. Commonly, a child may have difficulty remembering or understanding what he hears. Parts of words or parts of whole sentences may be missed, and words can come out sounding funny. Children struggling with this problem may know what they want to say but have trouble finding the actual words to express their thoughts (Sperling et al., 2006).

There are several types of dyslexia that can affect the child’s ability to spell as well as read (Heim, Tschierse, & Amunts, 2008). *Primary dyslexia* is a dysfunction of, rather than damage to, the left side of the brain (cerebral cortex) and does not change with age. Individuals with this type are rarely able to read above a fourth-grade level and may struggle with reading, spelling, and writing as adults. Primary dyslexia is passed in family lines through their genes (hereditary). *Secondary or developmental dyslexia* and is felt to be caused by hormonal development during the early stages of fetal development. Developmental dyslexia diminishes as the child matures (Galaburda & Cestnick, 2003).

Dyslexia may affect several different functions. *Visual dyslexia* is characterised by number and letter reversals and the inability to write symbols in the correct sequence. *Auditory dyslexia* involves difficulty with sounds of letters or groups of letters. The sounds are perceived as jumbled or not heard correctly. *Dysgraphia* refers to the child's difficulty holding and controlling a pencil so that the correct markings can be made on the paper (Facoetti et al., 2003).

Many subtle signs can be observed in children with dyslexia. Due to the frustration arising from the difficulty in reading, children may become withdrawn and may show signs of depression and low self-esteem. Peer and sibling interactions can become strained. The child may become unmotivated and develop a dislike for school. The child's success in school may be jeopardised if the problem remains untreated.

4.3.4 Alzheimer's Disease

Alzheimer's disease is a brain disorder which leads to a decrement in language processing ability. This disease primarily afflicts elderly persons and causes progressive, diffused, and irreversible damage to the cortical regions of the brain, impacting markedly on memory functions. Comparison between the language decrements due to the dementing effects of Alzheimer's disease and those noted for the aphasias is useful because the average age of onset of Alzheimer's Disease overlaps that of aphasias (around 50 to 60 years of age).

The language of an Alzheimer's patient is marked by a striking simplification process wherein words that once precisely described some event are now lost and are replaced by more general terms because of a fundamental loss of categorical organisation in semantic memory (Chan et al., 1993; Martin & Fedio, 1983). It appears, however, that in patients suffering from Alzheimer's disease, phonological and syntactic knowledge and use is minimally affected. Finally, a deficit in pragmatic knowledge, concerning the correct recognition of the intention of a speech act (e.g., that an utterance is meant to be taken as a request), turntaking in a conversation, and so on also occurs. Interestingly, this pattern of deficits and nondeficits again argues for the distinctiveness of the various levels of language information similar to what was seen for Broca's and Wernicke's aphasias (Bayles & Kaszniak, 1987).

4.3.5 Specific Language Impairment

Specific language impairment (SLI) is a developmental language disorder in the absence of frank neurological, sensorimotor, nonverbal cognitive or social emotional deficits (see Watkins, 1994). SLI is used to refer to problems in the acquisition and use of language, typically in the context of normal development. Children with SLI lag behind their peers in language production and language comprehension, which contributes to learning and reading disabilities in school.

One of the hallmarks of SLI is a delay or deficit in the use of function morphemes (e.g., *the*, *a*, *is*) and other grammatical morphology (e.g., plural -s, past tense -ed). Individuals with SLI exhibit problems in combining and selecting speech sounds of language into meaningful units (phonological awareness).

These problems are different to speech impairments that arise from difficulties in coordination of oral-motor musculature (Cohen, 2002). Symptoms include

the use of short sentences, and problems producing and understanding syntactically complex sentences. SLI is also associated with an impoverished vocabulary, word finding problems, and difficulty learning new words, whereas the basic tasks for development of phonology and syntax are completed in childhood, vocabulary continues to grow in adulthood (Bishop, 1997).

Some researchers claim that SLI children's difficulty with grammatical morphology is due to delays or difficulty in acquiring a specific underlying linguistic mechanism. For example, difficulty in acquiring the rule that verbs must be marked for tense and number ("he walks", not "he walk") (Rice & Wexler, 1994).

These children have a deficit in processing brief and/or rapidly changing auditory information, and/or in remembering the temporal order of auditory information (Tallal, et al., 1985). Children with SLI have poor short-term memory for speech sounds (example, Gathercole, 1998). In a number of recent studies short-term memory for speech sounds has been shown to correlate highly with vocabulary acquisition and speech production. This has led to the hypothesis that a primary function of this memory is to facilitate language learning.

Moreover, among SLI children, about 50% will go on to experience reading difficulties and develop dyslexia (Bishop & Snowling, 2004).

4.3.6 Developmental Phonological Disorders

"Developmental Phonological Disorders, also known as phonological disability or phonological disorders, are a group of language disorders that affect children's ability to develop easily understood speech by the time they are four years old, and, in some cases, their ability to learn to read and spell. Therefore, Phonological disorders involve a difficulty in learning and organising all the sounds needed for clear speech, reading and spelling" (Bowen, 1998).

Individuals with this Communication Disorder of childhood demonstrate impairment in their ability to produce sounds as expected for their developmental level. Some children with developmental phonological disorders have other speech and language difficulties such as immature grammar and syntax, stuttering or word-retrieval difficulties.

The cause of phonological disorder in children is largely unknown. It has been suggested that this disorder has a genetic component due to the large proportion of children who have relatives with some type of similar disorder. However there is no available data to support these observations. Developmental phonological disorders may occur in conjunction with other communication disorders such as stuttering, specific language impairment (SLI), or developmental apraxia of speech. No matter what combination of difficulties a child with a developmental phonological disorder has, appropriate speech-language pathology treatment is usually successful in eliminating or at the very least, reducing the problem (Bowen, 1998).

4.3.7 Dyspraxia

Developmental dyspraxia is a disorder characterised by impairment in the ability to plan and carry out sensory and motor tasks (Dewey, 1995). Generally, individuals with the disorder appear "out of sync" with their environment.

Symptoms vary and may include poor balance and coordination, clumsiness, vision problems, perception difficulties, emotional and behavioural problems, difficulty with reading, writing, and speaking, poor social skills, poor posture, and poor short-term memory. Although individuals with the disorder may be of average or above average intelligence, they may behave immaturely (Henderson & Henderson, 2003).

Developmental dyspraxia is a lifelong disorder. Many individuals are able to compensate for their disabilities through occupational and speech therapy. Treatment is symptomatic and supportive and may include occupational and speech therapy, and “cueing” or other forms of communication such as using pictures and hand gestures. Many children with the disorder require special education (Alloway & Temple, 2007).

4.4 SPEECH DISORDERS

Speech disorders are characterised by a difficulty in producing normal speech patterns. Children go through many stages of speech production while they are learning to communicate. What is normal in the speech of a child of one age may be a sign of a problem in an older child. Speech is the vocal utterance of language and it is considered disordered in three underlying ways: voice, articulation, and fluency (Roseberry-McKibbin, 1995).

These disorders include *voice disorders* (abnormalities in pitch, volume, vocal quality, resonance, or duration of sounds), *speed sound disorders/articulation disorders* (problems producing speech sounds), and *fluency disorders* (impairment in the normal rate or rhythm of speech, such as stuttering).

4.4.1 Voice Disorders

Voice involves the coordinated effects of the lungs, larynx, vocal chords, and nasal passage to produce recognisable sounds. Voice can thus be considered disordered if it is incorrectly phonated or if it is incorrectly resonated. In the incorrect phonation an individual could have a breathy, strained, husky, or hoarse voice. With the incorrect resonation an individual could have hyper-nasality or hypo-nasality. The voice disorders could also be due to improper voicing habits.

Paralanguage issues, such as use of pitch, volume, and intonation, are diverse for they are culturally determined. Every sound of voice has a possible range of meanings that could be conveyed simply through the voice rather than the words we use. The features that should be considered in determining a voice disorder are:

Volume: how loudly or softly we speak

Pitch: how pleasant or unpleasant

Quality: the highness or lowness of one's voice

Rate: the speed at which one speaks

Voice disorders are interpreted variously in different cultures. For instance, in many African cultures masculinity and femininity are determined by paralinguistic features. A man who speaks in a low volume, a high pitch, or a smooth and slow voice, would be frowned upon and called upon to “speak like a man.”

4.4.2 Speech Sound Disorders

These involve difficulty in producing specific speech sounds (most often certain consonants, such as /s/ or /r/), and are subdivided into articulation disorders (also called phonetic disorders) and phonemic disorders. Articulation disorders are characterised by difficulty learning to physically produce sounds.

Phonemic disorders are characterised by difficulty in learning the sound distinctions of a language, so that one sound may be used in place of many. However, it is not uncommon for a single person to have a mixed speech sound disorder with both phonemic and phonetic components.

- i) **Articulation disorders:** Articulation involves the use of the tongue, lips, teeth and mouth to produce recognisable speech sounds. Articulation is disordered if sounds are added, omitted, substituted or distorted. Articulation disorders may be caused by factors such as structural abnormalities, for example, a cleft lip and/or palate, a tongue-tie, missing teeth, a heavy tongue, or a deformed mouth; faulty or incomplete learning of the sound system; or damage of the nervous system.

Apart from affecting articulation, such conditions also affect the self-concept of the persons (Leonard et al., 1991). For instance, Pinky Sonkar, an eight-year-old girl from Mirzapur in Uttar Pradesh, (On her life the documentary Smile Pinky was made by American filmmaker Magan Mylan, which won Oscars for Best Documentary), had stopped smiling, even stopped going to school because she was ashamed of her cleft lip, a deformity 35,000 children are born with in India every year. Then in 2008, The Smile Train arrived in Pinky's village and a seemingly routine plastic surgery was offered free by doctors' abroad and her world was changed forever.

- ii) **Phonemic disorders:** are speech disorders in which individuals have trouble physically producing certain sounds. In the general population phonemic disorders are sometimes called speech impediments. Usually individuals with phonemic disorders have trouble distinguishing the sounds made by certain letters so that some letters, for example all "t"s or all "c"s, are always pronounced with an incorrect sound as a substitution. Phonemic disorders usually improve with speech therapy, though how much improvement may be made will depend upon each individual case.

4.4.3 Fluency Disorders

Fluency involves appropriate pauses and hesitations to keep speech sounds recognisable. Fluency is disordered if sounds are very rapid with extra sounds (cluttered), if sounds are repeated or blocked especially at the beginnings of words (stuttered), or if words are repeated.

Fluency disorders are more prevalent in children and they are due to a combination of familial, psychological, neurological, and motoric factors.

The social nature of communication is affected when one has disfluent speech. Human beings are social and they spend much of their time together. They first learn how to communicate in a social set up — for instance, with parents, siblings, relations, or friends. Socialisation is adversely affected if one has a fluency speech disorder. A person with disfluency is often mishandled at home, in school, or in public place. Often the individual becomes withdrawn.

4.4.4 Apraxia of Speech

Apraxia of speech, also known as verbal apraxia or dyspraxia, is a speech disorder in which a person has trouble saying what he or she wants to say correctly and consistently. The severity of apraxia of speech can range from mild to severe.

There are two main types of speech apraxia: *acquired apraxia* of speech and *developmental apraxia* of speech. Acquired apraxia of speech can affect a person at any age, although it most typically occurs in adults. It is caused by damage to the parts of the brain that are involved in speaking, and involves the loss or impairment of existing speech abilities. The disorder may result from a stroke, head injury, tumor, or other illness affecting the brain. Acquired apraxia of speech may occur together with muscle weakness affecting speech production (dysarthria) or language difficulties caused by damage to the nervous system (aphasia) (Epstein, Perkin, Cookson, & de Bono, 2003).

Developmental apraxia of speech (DAS) occurs in children and is present from birth. It appears to affect more boys than girls. This speech disorder goes by several other names, including developmental verbal apraxia, developmental verbal dyspraxia, articulatory apraxia, and childhood apraxia of speech. DAS is different from what is known as a developmental delay of speech, in which a child follows the “typical” path of speech development but does so more slowly than normal. The causes of DAS are not yet known. Some scientists believe that DAS is a disorder related to a child’s overall language development.

Others believe it is a neurological disorder that affects the brain’s ability to send the proper signals to move the muscles involved in speech. However, brain imaging and other studies have not found evidence of specific brain lesions or differences in brain structure in children with DAS. Children with DAS often have family members who have a history of communication disorders or learning disabilities. This observation and recent research findings suggest that genetic factors may play a role in the disorder (Kasper et al., 2005).

People with either form of apraxia of speech may have difficulty putting sounds and syllables together in the correct order to form words. They also tend to make inconsistent mistakes when speaking. For example, they may say a difficult word correctly but then have trouble repeating it, or they may be able to say a particular sound one day and have trouble with the same sound the next day. They often appear to be groping for the right sound or word, and may try saying a word several times before they say it correctly. Another common characteristic of apraxia of speech is the incorrect use of “prosody”—that is, the varying rhythms, stresses, and inflections of speech that are used to help express meaning. The severity of both acquired and developmental apraxia of speech varies from person to person. It can range from so mild having trouble with very few speech sounds to the severe cases of being not able to communicate effectively.

4.4.5 Dysprosody

Dysprosody is the rarest neurological speech disorder. It is characterised by alterations in intensity, in the timing of utterance segments, and in rhythm, cadence, and intonation of words. The changes to the duration, the fundamental frequency, and the intensity of tonic and atonic syllables of the sentences spoken, deprive an individual’s particular speech of its characteristics. The cause of

dysprosody is usually associated with neurological pathologies such as brain vascular accidents, cranioencephalic traumatisms, and brain tumors (Pinto, Corso, Guilherme, Pinho, & Nobrega, 2004).

4.4.6 Dysarthria

Dysarthria is a motor speech disorder. It is a weakness or paralysis of speech muscles caused by damage to the nerves and/or brain. The type and severity of dysarthria depend on which area of the nervous system is affected. Dysarthria is often caused by strokes, Parkinson's disease, Amyotrophic lateral sclerosis (ALS), head or neck injuries, surgical accident, or cerebral palsy.

A person with dysarthria may experience any of the following symptoms, depending on the extent and location of damage to the nervous system: "slurred" speech, speaking softly or barely able to whisper, slow rate of speech, rapid rate of speech with a "mumbling" quality, limited tongue, lip, and jaw movement, abnormal intonation (rhythm) when speaking, changes in vocal quality ("nasal" speech or sounding "stuffy"), hoarseness, breathiness, drooling or poor control of saliva, chewing and swallowing difficulty etc.

A speech-language pathologist (SLP) can evaluate a person with speech difficulties and determine the nature and severity of the problem. The SLP will look at movement of the lips, tongue, and face, as well as breath support for speech, voice quality, and more.

Children with isolated speech disorders are often helped by articulation therapy, in which they practice repeating specific sounds, words, phrases, and sentences. For stuttering and other fluency disorders, a popular treatment method is fluency training, which develops coordination between speech and breathing, slows down the rate of speech, and develops the ability to prolong syllables. Delayed auditory feedback (DAF), in which stutterers hear an echo of their own speech sounds, has also been effective in treating stuttering.

When a speech problem is caused by serious or multiple disabilities, a neurodevelopmental approach, which inhibits certain reflexes to promote normal movement, is often preferred. Other techniques used in speech therapy include the motor-kinesthetic approach and biofeedback, which helps children know whether the sounds they are producing are faulty or correct. For children with severe communication disorders, speech pathologists can assist with alternate means of communication, such as manual signing and computer-synthesised speech.

4.5 LET US SUM UP

In this unit we have defined both speech and language disorders. We have also indicated the various causative factors leading to these disorders. Language is the rule-based use of speech sounds to communicate (Sternberg, 2000). Language disorders or language impairments involve the processing of linguistic information. Problems that may be experienced can involve grammar (syntax and/or morphology), semantics (meaning), or other aspects of language. Disordered language may be due to a *receptive problem*, that is, a difficulty in understanding speech sounds (involving impaired language comprehension).

It can also be due to an *expressive problem*, that is, a difficulty in producing the speech sounds (involving language production), that follow the arbitrary rules of a specific language. A language disorder can also be due to problems in both reception and expression. Examples include specific language impairment and aphasia, among others. Language disorders can affect both spoken and written language, and can also affect sign language; typically, all forms of language will be impaired.

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decrements due to the dementing effects of Alzheimer's disease and those noted for the aphasics is useful because the average age of onset of Alzheimer's Disease overlaps that of aphasias (around 50 to 60 years of age).

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Moreover, among SLI children, about 50% will go on to experience reading difficulties and develop dyslexia (Bishop & Snowling, 2004).

"Developmental Phonological Disorders, also known as phonological disability or phonological disorders, are a group of language disorders that affect children's ability to develop easily understood speech by the time they are four years old, and, in some cases, their ability to learn to read and spell. Therefore, Phonological disorders involve a difficulty in learning and organising all the sounds needed for clear speech, reading and spelling" (Bowen, 1998).

Developmental dyspraxia is a lifelong disorder characterised by impairment in the ability to plan and carry out sensory and motor tasks (Dewey, 1995). Generally, individuals with the disorder appear "out of sync" with their environment. Symptoms vary and may include poor balance and coordination, clumsiness, vision problems, perception difficulties, emotional and behavioural problems, difficulty with reading, writing, and speaking, poor social skills, poor posture, and poor short-term memory.

Speech disorders are characterised by a difficulty in producing normal speech patterns. Children go through many stages of speech production while they are learning to communicate. What is normal in the speech of a child of one age may be a sign of a problem in an older child. Speech is the vocal utterance of language and it is considered disordered in three underlying ways: voice, articulation, and fluency (Roseberry-McKibbin, 1995).

These disorders include *voice disorders* (abnormalities in pitch, volume, vocal quality, resonance, or duration of sounds), *speed sound disorders/articulation disorders* (problems producing speech sounds), and *fluency disorders* (impairment in the normal rate or rhythm of speech, such as stuttering).

4.6 UNIT END QUESTIONS

- 1) Compare and contrast the speech errors made by individuals in different speech disorders.
- 2) Based on the discussion of language disorders in this chapter, make a worksheet of different kinds of language disorders and their symptoms and causes.
- 3) What do brain disorders like Broca's and Wernicke's aphasias tell us about how a healthy brain processes phonological, syntactic and semantic information?

- 4) Speech disorders have a negative effect on the personality and overall development of the children. Explain with examples, how?
- 5) What are several major features of speech sound disorder?

4.7 SUGGESTED READINGS AND REFERENCES

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