COMMUNICATION SKILL DEVELOPMENT AND SPECIAL NEEDS

Bed (1.5/2.5/4 YEARS)

CODE No: 8326 UNITS: 1–9



Department of Special Education
Faculty of Education
Allama Iqbal Open University, Islamabad

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FOREWORD

As our understanding of neurodiversity and inclusive education continues to evolve, the importance of effective communication support for individuals with special needs has never been more evident. Communication is more than just a skill—it is a lifeline to learning, relationships, and independence.

This book arrives at a critical time, offering timely insights into the complexities of speech, language, and communication disorders. It stands as a vital resource for those who seek to make a meaningful difference in the lives of children/individuals who experience these challenges. With clarity, depth, and compassion, the authors have compiled a work that reflects both academic rigor and practical wisdom gained through their experiences.

Students and other readers will find themselves equipped not only with the theoretical foundations of communication development but also with actionable strategies tailored to real-world contexts. From understanding the nuances of speech and language disorders to exploring the rich world of nonverbal communication, the content offers a well-rounded and accessible guide for both new learners and seasoned practitioners.

Perhaps most importantly, this book reminds us that every individual—regardless of ability—deserves the opportunity to express themselves, to be understood, and to connect with others. It is a tribute to the resilience of the human spirit and to the professionals who dedicate their lives to supporting communication for all.The content of the book will encourage teachers to develop intervention plans for use in classrooms. Other stakeholders, either from clinical settings or homes across the country, can find culturally and linguistically relevant material and strategies to help children overcome their communication barriers. It will not only inform but also inspire those who engage with children with diverse special needs.

Prof. Dr. Nasir Mahmood
Vice Chancellor, AIOU

PREFACE

Communication is the cornerstone of human connection. For individuals with special needs, the ability to communicate effectively is not only fundamental to their personal and social development but also central to their ability to access education, healthcare, and community support. This book was conceived as a resource to bridge the knowledge gap for professionals, educators, caregivers, and students who work with children facing unique communication challenges due to the special needs arising because of some disability.

The chapters in this book are structured to guide readers from foundational concepts through to specialized interventions. We begin by examining the basics of communication and the crucial role it plays in the lives of individuals with special needs. The journey continues through speech and language development, assessments, and various communication disorders. Explanation highlights the specific therapeutic approaches for articulation, language, and voice disorders, alongside strategies to improve listening skills and auditory processing. Considerable attention is given to nonverbal communication—often an essential tool for individuals/children who cannot rely on speech alone.

Each section is rooted in evidence-based practices and enriched with real-world applications, aiming to equip readers with both knowledge and practical strategies. The specific tools and resources available in our community for professionals or other stakeholders are also discussed to make it a culturally relevant reading material. Whether you are a speech-language pathologist, a special educator, a parent, or a student, this book offers a comprehensive foundation for understanding and supporting the communication needs of individuals with special needs.

It is hoped that this resource will not only enhance your professional practice but also deepen your empathy and advocacy for those whose voices—spoken or unspoken—deserve to be heard. The suggested activities will help you to create an individualized communication plan for a child showing symptoms of communication disorders in your classroom.

Prof. Dr. Nasir Mahmood
Dean Faculty of Education, AIOU

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Dr. Hina Noor
Course Development Coordinator

COURSE INTRODUCTION

"Communication Skill Development and Special Needs" is a comprehensive course designed to address the unique challenges and opportunities in fostering effective communication among individuals with special needs. This course is crafted to provide educators, caregivers, and professionals with the knowledge, skills, and strategies necessary to support the communication development of individuals with special needs. Throughout this course, participants will explore various communication modalities, including verbal, nonverbal, augmentative, and alternative communication systems. By recognizing the diverse needs and abilities of individuals with special needs, participants will learn to tailor communication interventions to meet each individual's unique strengths and challenges.

COURSE OBJECTIVES

By the end of this course, students will be able to:

1. Understand the foundational concepts of communication and its importance for individuals with special needs.
2. Learn about the components of speech and language development and their assessment in individuals with special needs.
3. Identify different types of communication disorders and their impact on individuals with special needs.
4. Acquire techniques for treating articulation disorders to improve speech clarity in individuals with special needs.
5. Explore interventions for language disorders to enhance communication skills in individuals with special needs.
6. Develop strategies to improve listening skills and auditory processing for better communication outcomes in individuals with special needs.
7. Understand voice disorders and implement interventions to promote vocal health and effective communication in individuals with special needs.
8. Recognize the significance of nonverbal communication and learn strategies to enhance its use in individuals with special needs.
9. Explore the unique communication challenges of individuals with special needs and develop tailored interventions to support their communication development and social integration.

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UNIT 1

INTRODUCTION TO COMMUNICATION SKILLS

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INTRODUCTION

Effective communication skills are the foundation of human interaction, enabling individuals to express their thoughts, share emotions, and build meaningful relationships. From early childhood, the ability to communicate effectively plays a vital role in learning, social development, and personal independence. These skills encompass both verbal and non-verbal forms, including speech, gestures, facial expressions, writing, and the use of assistive technologies.

In educational settings, particularly among children with diverse learning needs, communication skills become even more critical. They not only support academic progress but also empower children to express their needs, make choices, and engage meaningfully with peers and adults. Understanding the nature, types, and development of communication skills is essential for educators, caregivers, and professionals working to support every child's full potential.

OBJECTIVES

After reading this unit, students will be able to:

1. Understand the concept of communication skills
2. Comprehend the components of the communication process
3. Explain the difference between communication and functional communication skills
4. Elaborate on the types of communication skills to be developed by children with special needs
5. Delineate the models of communication and their educational implications

1.1 COMMUNICATION SKILLS

Communication skills refer to the ability to share information, ideas, and emotions effectively with others. These skills are fundamental to human interaction and play a critical role in both personal relationships and professional settings. A message is coded in words, gestures, or any means of communication, then it is transmitted via a relevant medium and decoded by the receiver. Communication is a system of commonly shared system of codes. Commonly shared means the sender and receiver should be able to understand that code, otherwise, there will be a communication failure. Communication is considered to be effective if it brings desired or targeted change. Effective communication involves not only speaking or writing clearly but also actively listening and understanding non-verbal cues such as body language and facial expressions. The goal of strong communication skills is to ensure that a message is accurately received and understood as intended. They help individuals express themselves confidently, build rapport with others, and navigate social and workplace situations with greater ease. Developing good communication skills is essential for collaboration, problem-solving, leadership, and overall personal development.

Communication skills in the context of children with special needs refer to the abilities and methods used to help these children express themselves and understand others in ways that accommodate their individual challenges. For children with special needs—such as those with autism, hearing impairments, speech delays, or intellectual disabilities—communication may not follow typical verbal patterns and may require alternative forms like sign language, picture exchange systems, or assistive technology.

Developing communication skills in children with special needs is crucial for their social, emotional, and academic growth. These skills help them express their needs, build relationships, reduce frustration, and participate more fully in daily activities. Effective communication support for these children often involves personalized strategies, including speech therapy, visual aids, simplified language, or consistent routines, all tailored to their unique developmental level and needs.

Early intervention and a supportive environment—whether at home, in school, or through therapy—are key factors in enhancing communication abilities. When caregivers, educators, and therapists work together to provide consistent and encouraging communication opportunities, children with special needs can make significant progress in connecting with others and expressing themselves more confidently.

1.1.1 Tools and strategies

Used to support communication, Early detection and early intervention is a protocol to determine the communication needs of special children and provide support to improve their communication skills. Here are some common **tools and strategies** used to support communication in children with

special needs. These approaches are tailored to meet each child's unique developmental level, strengths, and challenges.

a. Augmentative and Alternative Communication (AAC) Tools

Augmentative communication is to support the message being transmitted for the understanding of the receiver, i.e., the verbal message. When supported with a hand gesture or some other nonverbal mode, it is an augmentation e.g., while calling someone at a distance, the hand gesture can augment and make it understandable. Cued speech, Macintosh, and gestures are examples. Alternative communication means a mode of communication other than verbal, like sign language, PECS, etc. These are methods used to supplement or replace speech when a child cannot communicate verbally.

- **Picture Exchange Communication System (PECS):** A system where children use pictures to communicate their needs and choices.
- **Speech-generating devices (SGDs):** Electronic tools that produce spoken words when a child selects symbols or types text.
- **Communication boards or books:** Contain symbols, pictures, or words that the child can point to express themselves.
- **Sign Language:** Useful for children with hearing impairments or limited speech.

b. Visual Supports and Aids

- **Visual Schedules:** Help children understand routines and transitions by showing activities in sequence.
- **Social Stories:** Short, personalized stories that teach appropriate behavior and communication in specific social situations.
- **Emotion Charts:** Help children identify and communicate their feelings.

c. Speech and Language Therapy

A trained speech-language pathologist assesses the barrier to effective communication. Speech Language Therapists work with children to develop verbal and non-verbal communication skills, improve pronunciation, and understand language concepts. Therapy is often play-based and includes games, songs, and interactive exercises.

d. Behavioral Strategies

- **Prompting and Modeling:** Adults demonstrate or encourage correct communication behaviors, gradually fading support as the child learns.
- **Reinforcement:** Positive responses (like praise or rewards) are used to encourage communication attempts.

- **Functional Communication Training (FCT):** Teaches children to use appropriate communication (e.g., asking for help) instead of challenging behavior.

e. Technology and Apps

Apps like **Proloquo 2 Go**, **Avaz**, or **Touch Chat** help children use images and text-to-speech functions to communicate. Tablets and smartphones can be powerful tools when equipped with the right applications and supervised use.

f. Environmental Strategies

- **Creating a communication-rich environment**: Using clear language, visual cues, and plenty of interaction opportunities.
- **Encouraging peer interaction**: Including the child in group activities to practice communication in real-life settings.

Each child may respond differently to these tools and strategies, so it's essential to customize the approach based on their specific abilities and needs. A multidisciplinary team—including parents, teachers, therapists, and sometimes doctors—often collaborates to design and adjust communication plans.

1.2 ELEMENTS OF THE COMMUNICATION PROCESS

The communication process is a dynamic interaction through which information is exchanged between individuals. It consists of several key elements that work together to ensure that a message is sent, received, and understood correctly. Understanding these elements helps in improving the clarity and effectiveness of communication.

The first element is the **sender**, who is the originator of the message. The sender has an idea or information that they want to share and chooses how to express it. This leads to the second element, **encoding**, which is the process of converting the idea into words, symbols, gestures, or other forms that can be transmitted.

Next is the **message**, which is the actual information or content being communicated. The message must be clear and well-structured to avoid misunderstandings. The **medium** or **channel** is the method used to deliver the message, such as spoken words, written text, body language, phone calls, or digital platforms.

Once the message is transmitted, it reaches the **receiver**, who is the person for whom the message is intended. The receiver then goes through the process of **decoding**, which involves interpreting and making sense of the message. Effective decoding depends on the receiver's background, understanding, and ability to interpret the message correctly.

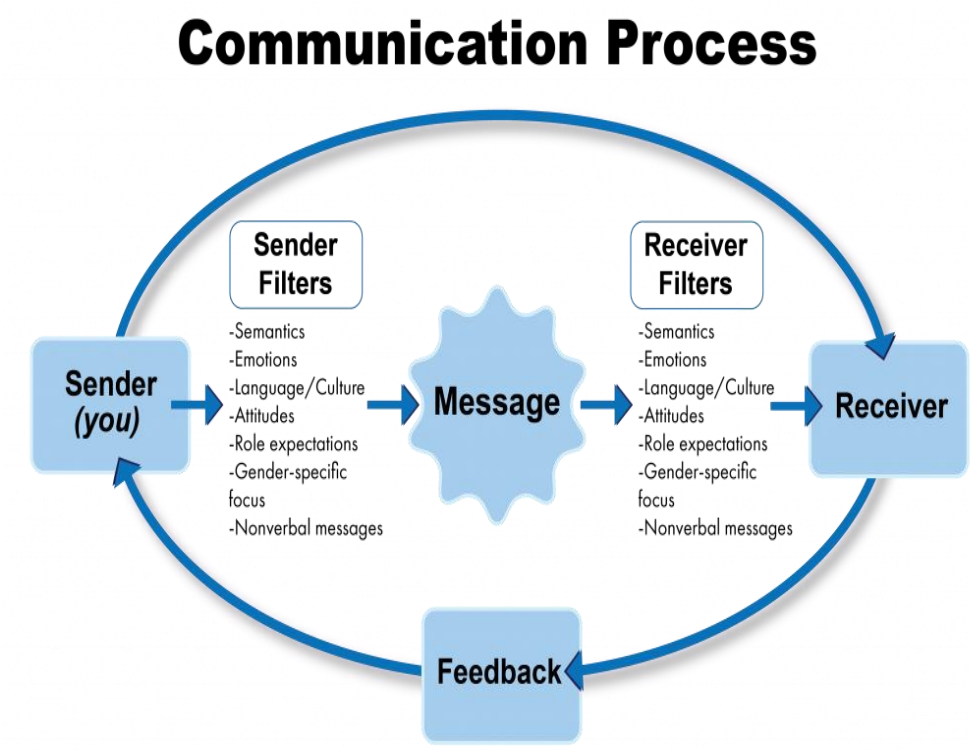
A critical element of the communication process is **feedback**. This is the response given by the receiver to show whether the message was understood as intended. Feedback can be verbal or non-verbal and helps the sender evaluate the effectiveness of the communication.

Finally, **noise** refers to any interference or barrier that distorts or disrupts the communication process. Noise can be physical (like background sounds), psychological (like stress or bias), or semantic (like language differences), and it can occur at any stage of the process.

All these elements must function well together for communication to be successful. Miscommunication often happens when one or more of these elements are unclear, incomplete, or disrupted.

Figure 1.1

The Communication Process



- **Verbal Messages**

Many aspects of the communication process can alter the delivery and interpretation of the message. These aspects relate to the language and experience of both the sender and receiver, referred to as semantics. People

typically refer to things they are familiar with, including landmarks, popular culture, and slang. Barriers can occur even when both parties in the conversation speak the same language. For example, if you asked a person who has never used the Internet to "Google it," they would have no idea what that means.

- **Nonverbal Messages**

Nonverbal messages, also referred to as body language, greatly impact the conversational process. It includes body language and facial expressions, tone of voice, and pace of the conversation. See Figure 1.2 for an illustration of body language communicating a message. Nonverbal communication can have a tremendous impact on the communication experience and may be much more powerful than the verbal message itself. You may have previously learned that 80% of communication is nonverbal communication. The importance of nonverbal communication during conversation has been broken down further, estimating that 55% of communication is body language, 38% is tone of voice, and 7% is the actual words spoken. If the sender or receiver appears disinterested or distracted, the message or interpretation may become distorted or missed.

Figure 1.2
Body Language



A special educator is expected to assess a child's preferred methods of communication and individual characteristics that might influence communication and then adapt communication to meet his/her needs. For example, a teacher may adapt verbal instructions for children with cognitive

disabilities. Although the information provided might be similar to that provided to a child without disabilities, the way the information is provided is adapted based on the child's developmental level. A teacher may ask a cognitively intact person, "What do you want for lunch?" but adapt this information for someone with impaired cognitive function by offering a choice, such as "Do you want a sandwich or soup for lunch?" This adaptation allows the cognitively impaired child to choose without being confused or overwhelmed by too many options.

- **Communication Styles**

In addition to using verbal and nonverbal communication, people communicate with others using one of three styles. A **passive communicator** puts the rights of others before their own. Passive communicators tend to be apologetic or sound tentative when they speak and often do not speak up if they feel as if they are being wronged. **Aggressive communicators**, on the other hand, come across as advocating for their own rights despite possibly violating the rights of others when communicating. They tend to communicate in a way that tells others their feelings don't matter. **Assertive communicators** respect the rights of others while also standing up for their own ideas and rights when communicating. An assertive person is direct, but not insulting or offensive. Assertive communication refers to a way of conveying information that describes the facts and the sender's feelings without disrespecting the receiver's feelings. Assertive communication is different from aggressive communication because it uses "I" messages, such as "I feel…," "I understand…," or "Help me to understand…," to address issues instead of using "you" messages that can cause the receiver to feel as though they are being verbally attacked. Using assertive communication is an effective way to solve problems of children with special needs.

- **Overcoming Communication Barriers**

It is important to reflect on personal factors that influence one's ability to communicate with others effectively. Many factors can distort the message you are trying to communicate, resulting in your message not being perceived by the receiver in the way you intended. When communicating, it is important to seek feedback to ensure that your message is clearly understood.

1.3 FUNCTIONAL COMMUNICATION SKILLS

Functional communication skills refer to the ability to express basic needs, wants, feelings, and information clearly and effectively in daily life. These skills are practical and essential for meaningful interaction and independence, especially for individuals with communication challenges such as autism, developmental delays, or speech/language disorders. Some of the examples of functional communication skills in the context of special needs children, particularly those with developmental delays, autism, or speech/language impairments are: **Saying** "I'm thirsty" to get a drink, **Pointing** to a picture of a

bathroom to indicate the need to use it, **Nodding** "yes" or shaking head "no" to answer questions and using an AAC device to request a favorite toy etc

1.3.1 Key Characteristics of Functional Communication Skills

i. **Purpose-driven**: The communication serves a clear function, such as requesting, rejecting, commenting, or seeking help.

ii. **Contextual**: It is used in real-life situations (e.g., asking for food when hungry, saying "no" when something is unwanted).

iii. **Varied Modes**: It can involve verbal speech, gestures, sign language, picture exchange systems (like PECS), or assistive technology (AAC devices).

1.3.2 Difference between communication and functional communication skills

The difference between **communication** and **functional communication skills** lies in purpose and practicality.

Communication is a broad term that refers to any exchange of information between individuals. It includes all forms of verbal and non-verbal expression, such as speaking, listening, gestures, body language, writing, and even eye contact. Communication can serve many purposes—expressing thoughts, emotions, social interaction, storytelling, or abstract discussion.

Functional communication skills, on the other hand, are a **subset of communication** focused specifically on **practical, goal-oriented exchanges** that help an individual meet their basic needs and navigate everyday life. These skills are especially important for individuals with communication challenges, such as children with autism or speech/language disorders. Functional communication includes things like asking for food, rejecting something unwanted, requesting help, or making a choice—all actions that serve a clear, useful purpose in real-life contexts.

In short, all functional communication is communication, but not all communication is functional—functional communication is about *using communication to accomplish real-world tasks*.

Table 1.1

Comparing communication and functional communication skills:

Aspect	Communication	Functional Communication Skills
Definition	Broad exchange of information, thoughts, or feelings	Practical, purpose-driven communication for everyday needs
Purpose	Can be social, emotional, academic, expressive,	To meet basic needs and perform or essential tasks

Aspect	Communication	Functional Communication Skills
	abstract	
Examples	Telling a story, greeting someone, discussing a movie	Asking for food, requesting help, saying "no," making choices
Who Uses It	Everyone, across all ages and abilities	Especially emphasized for individuals with communication delays
Mode of Expression	Spoken language, writing, gestures, facial expressions, etc.	Often includes pictures, signs, AAC devices, gestures, and simple words.
Context	Social, academic, or personal interactions	Real-life, immediate needs and daily activities

1.4 TYPES OF FUNCTIONAL COMMUNICATION SKILLS

Functional communication skills can be grouped into **six major categories**, each representing a key purpose or function of communication in daily life—especially for children with special needs:

1.4.1 Requesting

One important type involves requesting, where the child communicates wants or needs, such as asking for a favorite toy, a snack, or a break. Examples of requesting skills are:

- A child taps a picture of water on a communication board to indicate they are thirsty.
- A nonverbal child hands an adult a picture of a swing to request outdoor play.
- A child says, "I want more" after finishing a snack.

1.4.2 Protesting or Refusing

Another essential skill is protesting or refusing, where the child learns to express dislike or reject something, which can help reduce frustration and challenging behaviors—examples include saying "no" or turning away from an unwanted item. Examples of refusing skills are:

- A child pushes away an unwanted toy and says, "No."
- A child uses sign language to say "Stop" when overwhelmed.
- A child cries and uses a visual card to show they don't want an activity.

1.4.3 Requesting Help

Requesting help is also crucial, allowing children to seek assistance with tasks they cannot complete independently, such as opening a container or putting on clothing. Examples of requesting skills are:

- A child points to a “help” symbol on an AAC device when a puzzle piece doesn’t fit.
- A child tugs on a teacher’s sleeve and hands over a broken crayon.
- A child says, “Help me open this,” when struggling with a snack wrapper.

1.4.4 Gaining Attention

Gaining attention is a fundamental communication skill where the child signals a desire to interact, such as calling someone’s name, waving, or using a device to say “hi.” Examples of attention-gaining skills are:

- A child waves to get a teacher’s attention.
- A child vocalizes or touches an adult to signal they want to engage.
- A child uses a voice output device to say, “Look at me!”

1.4.5 Making Choices

Making choices is another category, where children express preferences by selecting between options like different snacks, toys, or activities. Examples of choice-making skills are:

- A child selects between two snacks by pointing to a picture card.
- A child says “blue shirt” when choosing what to wear.
- A child uses eye gaze to indicate a preferred toy.

1.4.6 Commenting or Sharing Information

Commenting or sharing information allows a child to express observations, thoughts, or feelings, such as pointing out something they see or labeling an emotion they are experiencing. These functional skills form the foundation of meaningful communication and can be supported through speech, gestures, pictures, or assistive devices. Examples of commenting skills are:

- A child claps and says “fun” after a game.
- A child uses a speech device to say “dog” when seeing one outside.
- A child signs “hot” after touching warm food.

These communication behaviors can be taught and supported through consistent modeling, visual aids, speech therapy, and the use of AAC tools. These resources can be instrumental in enhancing functional communication skills in children with special needs:

a. Communication Tools

i. **Do2Learn – Functional Communication Picture Cards**

Offers a variety of free, ready-to-use picture cards that can help non-verbal or minimally verbal children express their needs and wants. These cards can be used individually or in combination to facilitate communication.

ii. **Twinkl – Communication Worksheets & Printables**
Provides a range of downloadable resources, including communication boards, emotion cards, and daily routine charts, designed to assist children in expressing themselves and understanding their environment.

iii. **Autism Educators – Using Visuals to Encourage Language**
Features tools and strategies for incorporating visual supports into communication practices, aiming to enhance language development and functional communication skills in children with autism.

b. Visual Supports for Communication

i. **Picture Exchange Communication System (PECS)**
A structured approach that uses pictures to teach communication skills, enabling children to express their needs and desires through visual symbols.

ii. **Visual Schedules**
Utilize a series of pictures to communicate a sequence of activities or steps in an activity, helping children understand and manage daily events.

1.5 MODELS OF COMMUNICATION

Several models of communication help explain how information is transmitted and understood between people. These models are used in education, psychology, media, and interpersonal communication studies to describe and analyze the communication process. The most well-known models include the **Linear Model**, the **Interactive Model**, and the **Transactional Model**.

The **Linear Model of Communication** is the most basic and one-directional model. It views communication as a process where a sender encodes a message and sends it through a channel to a receiver, who then decodes it. This model assumes the receiver is passive and does not provide feedback. It is often used to explain mass communication, such as a television broadcast or a public speech, where there is little to no interaction between the sender and audience. While simple, the linear model does not account for misunderstandings, feedback, or noise that might affect the message.

The **Interactive Model of Communication** builds on the linear model by including feedback and context. In this model, both the sender and receiver are active participants. The sender transmits a message, and the receiver responds with feedback, creating a two-way exchange. Additionally, this model introduces the concept of **context**, which includes the environment, cultural background, and personal experiences that influence how messages are sent and received. This model is commonly used in classroom settings and interpersonal communication, where feedback is expected and shapes the conversation.

The most advanced is the Transaction **Model of Communication**, which sees

communication as a simultaneous process. In this model, both parties are senders and receivers at the same time. Communication is dynamic, continuous, and influenced by multiple factors, such as body language, tone, context, and personal interpretation. This model emphasizes that meaning is co-created through interaction, not simply transmitted. It reflects real-life communication more accurately, especially in conversations where people adjust their messages in real time based on reactions and social cues.

Each of these models offers a different perspective on how communication works, from simple one-way messaging to complex, interactive exchanges. They are useful for understanding communication breakdowns and improving effective communication strategies in various settings. Here's an overview of seven influential models of communication, each offering unique perspectives on how information is transmitted and understood:

1.5.1 Shannon-Weaver Model (1948)

Developed by Claude Shannon and Warren Weaver, this model is often referred to as the "mother of all models." It presents communication as a linear process involving a sender, message, channel, receiver, and potential noise that can distort the message. While groundbreaking, it has been critiqued for its simplicity and lack of feedback mechanisms.

This linear model helps understand how communication can break down, particularly in children with speech, language, or processing disorders. For example, if the “channel” is blocked due to a child’s sensory issues or if there is "noise" (distraction, anxiety, etc.), the message may not be received. Teachers and therapists can use this model to identify where in the communication chain breakdowns occur and adjust strategies accordingly—like using visual supports or simplifying language.

1.5.2 Berlo's SMCR Model (1960)

David Berlo's Source-Message-Channel-Receiver model emphasizes the components of communication: the source, the message, the channel, and the receiver. It highlights that the effectiveness of communication depends on the skills, attitudes, knowledge, and social systems of both the source and receiver. This model is particularly useful in understanding the complexities of mass communication.

Berlo emphasized the communication skills and background of both sender and receiver. This is especially important in special education where a teacher must adapt their communication style to suit the child’s developmental level, language skills, and cognitive abilities. For example, a child with autism may process visual information better than verbal input, so the "channel" must be visual rather than auditory.

1.5.3 Schramm's Model (1954)

Wilbur Schramm introduced the concept of the "field of experience," suggesting that effective communication occurs when there is an overlap between the sender's and receiver's experiences. This model incorporates feedback and underscores the dynamic nature of communication, making it more interactive than its predecessors.

This model highlights the importance of shared experience between communicators. For children with special needs, bridging the "field of experience" might involve building background knowledge, using familiar routines, or employing augmentative and alternative communication (AAC) devices to foster shared understanding. Teachers must find overlapping experiences to enhance comprehension and engagement.

1.5.4 Lasswell's Model (1948)

Harold Lasswell's model poses the question, "Who says what to whom in what channel with what effect?" This approach is particularly suited for analyzing mass communication and propaganda, focusing on the sender, message, medium, receiver, and effect. It has been expanded to include considerations of context and purpose.

Lasswell’s focus on "who says what to whom, in what channel, with what effect" is particularly useful for designing individualized education plans (IEPs) and selecting appropriate communication methods for children. For example, a speech-language pathologist might use this model to analyze whether a child understands specific vocabulary, who they communicate best with (peers or adults), and which channels (speech, signs, or pictures) are most effective.

1.5.5 Westley and MacLean's Model (1957)

This model presents communication as a complex, nonlinear process involving multiple senders and receivers. It emphasizes the role of media and feedback loops, making it applicable to modern communication scenarios where information flows in various directions simultaneously.

This model recognizes multiple sources and feedback loops, making it ideal for collaborative special education settings involving teachers, parents, therapists, and the child. It supports the idea that communication for children with special needs is not isolated—it’s influenced by many people and environments. Continuous feedback from all stakeholders helps tailor teaching strategies and communication supports.

1.5.6 Barnlund's Transactional Model (1970)

Dean Barnlund proposed a transactional model where communication is seen as a simultaneous process of sending and receiving messages. It highlights that meaning is co-created by participants and is influenced by their experiences, attitudes, and cultural backgrounds. This model is especially relevant in interpersonal communication contexts.

Barnlund's view of communication as simultaneous and co-created aligns closely with inclusive teaching practices, where interactions are dynamic and adaptable. In the classroom, this model encourages ongoing, two-way communication, allowing children with special needs to contribute in real time using their preferred mode of expression—whether through gestures, visuals, or speech devices.

1.5.7 Helix Model (1972)

The Helix Model, developed by Frank Dance, visualizes communication as a helix, symbolizing its continuous and evolving nature. It suggests that communication is a dynamic process influenced by past experiences and ongoing interactions, emphasizing the complexity and adaptability of human communication.

The helix emphasizes that communication grows and evolves based on past interactions. This perspective is essential in special education, where progress is often gradual. Educators can use this model to understand how communication skills develop over time, influenced by repeated, supportive experiences. It encourages patience and consistency in teaching communication skills, acknowledging that each interaction builds on the last.

Each of these models provides valuable insights into the multifaceted nature of communication, reflecting its evolution from simple transmission to complex, interactive processes.

Self-Assessment Questions

1. Define communication in your own words. Why are communication skills important in early childhood education?
2. How do communication skills impact the learning of children with special needs?
3. What are functional communication skills, and how do they differ from general communication?
4. Provide three examples of functional communication skills in children with special needs.
5. Why is functional communication especially critical for non-verbal or minimally verbal children?
6. List and briefly explain any four types of functional communication.
7. How can making choices be considered a form of functional communication?
8. Describe a classroom situation where a child uses protesting as a communication function.
9. How is general communication different from functional communication in purpose and application? Why is understanding this distinction important in a special education setting?
10. Explain the seven major models of communication discussed.
11. How does the transactional model differ from the linear model of communication?
12. What is the significance of "field of experience" in Schramm's model?
13. How can the Shannon-Weaver model help identify communication breakdowns in special needs students?
14. Why is Barnlund's model particularly relevant for inclusive classrooms?
15. In what way can Dance's Helix model support communication skill development over time?
16. What is the Integrated Model of Communication for Social Change, and why is it important today?
17. How does the Communication Privacy Management (CPM) theory apply to children using AAC or speech devices?

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UNIT 2

SPEECH AND LANGUAGE

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INTRODUCTION

Speech and language development is a vital aspect of a child's overall growth, laying the foundation for communication, learning, and social interaction. This process unfolds in predictable stages and is closely tied to the child's age, environment, and exposure to language. In linguistics, a distinction is made between *linguistic competence*—the internal knowledge of language—and *linguistic performance*, or the actual use of language in real-life situations. Understanding these foundational concepts, along with the key components of language—phonology, morphology, syntax, semantics, and pragmatics—helps professionals and caregivers identify typical versus atypical language development. This is particularly important in multilingual contexts like Pakistan, where Urdu serves as a primary or native language for many children.

For children with special needs, such as those with autism, Down syndrome, or hearing impairments, speech and language development may not follow typical age-based milestones. Therefore, developmental checklists, phonological awareness, and age-appropriate assessments become essential tools for identifying delays and planning interventions. The stages of language development—ranging from babbling in infancy to narrative and academic language use in school years—provide a framework for monitoring progress. In the context of Urdu, unique phonetic and grammatical features must be considered during assessment and therapy. This discussion brings together theoretical foundations, practical checklists, real-world Urdu examples, and current research to offer a comprehensive understanding of how to support and assess language development in both typically developing and special needs children.

OBJECTIVES

After reading this unit, students will be able to:

1. Understand the basic concepts associated with speech and language
2. Differentiate between speech and language
3. Elaborate on the basic components of language
4. Delineate the normal speech and language development process
5. Understand the relationship between speech and language development with age and nature.

2.1 LINGUISTIC COMPETENCE AND LINGUISTIC PERFORMANCE

Chomsky (1960) introduced the concepts of linguistic competence and linguistic performance as crucial elements in the study of language. **Linguistic competence** refers to a speaker's internal, subconscious knowledge of the rules and structure of their language. This includes knowledge of grammar, syntax, vocabulary, and pronunciation, which allows a person to form and understand sentences, even those they have never heard before. It is considered an idealized understanding of language, free from external influences or errors. In contrast, **linguistic performance** is the actual use of language in real-life situations. It includes speaking, listening, writing, and understanding, and is influenced by various factors such as memory limitations, distractions, fatigue, or emotional state. While a person may have perfect linguistic competence, their performance might still contain errors such as slips of the tongue, pauses, or grammatical mistakes due to these external factors. The key difference between the two lies in that competence is the knowledge of language, whereas performance is the application of that knowledge in communication. In essence, competence represents what a speaker knows about their language, while performance reflects how they use that knowledge in practice.

Here is a comparison table that highlights the differences between **linguistic competence** and **linguistic performance**, along with examples for better understanding:

Table 2.1

Linguistic competence and linguistic performance.

Aspect	Linguistic Competence	Linguistic Performance
Definition	Internal knowledge of the rules of a language	Actual use of language in speaking or writing
Nature	Ideal, mental, abstract	Practical, observable, and influenced by external factors
Focus	What a speaker *knows* about their language	What a speaker *does* with their language
Errors	No errors in ideal competence	Can include errors (e.g., slips, pauses, repetitions)
Example 1	Knowing that “She goes to school” is correct grammar	Saying “She goes to school” due to nervousness or distraction

Aspect	Linguistic Competence	Linguistic Performance
Example 2	Understanding the rules for forming questions (e.g., "Are you coming?")	Accidentally saying "You are coming?" as a question in a hurried moment
Consideration of context	Not influenced by memory, stress, or environment	Influenced by memory, stress, attention, tiredness, etc.
Can it be observed?	No, it's an internal cognitive ability	Yes, through speech and writing
Importance in linguistics	Helps describe the ideal speaker's knowledge of language	Helps study how language is used in real-world situations

This table clearly shows that while linguistic competence is about the potential or capacity for language, linguistic performance is about how that potential is realized in everyday communication. For example, a nonverbal autistic child might show strong linguistic competence by pointing correctly to pictures when asked complex questions (e.g., "Show me the dog that is chasing the cat"), indicating understanding of sentence structure. However, their linguistic performance may be limited due to speech challenges or social anxiety. Assessing the linguistic competence and linguistic performance of a child with special needs requires a thoughtful, multi-dimensional approach that is sensitive to the child's cognitive, emotional, and physical abilities.

2.1.1 Assessing Linguistic Competence (Language Knowledge)

This involves evaluating the child's underlying understanding of language structures (grammar, vocabulary, sentence formation, etc.), even if they can't always express it clearly. Different methods involved in assessing linguistic competence of a child with special needs includes:

i. **Standardized Language Tests**: Tools like the *Peabody Picture Vocabulary Test (PPVT)* or the *Clinical Evaluation of Language Fundamentals (CELF)* help measure a child's receptive and expressive language skills.
ii. **Comprehension Tasks**: Ask the child to point to pictures or act out instructions (e.g., "Put the ball under the table") to test understanding of grammar and vocabulary.
iii. **Nonverbal Responses**: Use gesture-based or picture-based responses to assess language knowledge in children with limited speech.
iv. **Observation of Play and Interaction**: Through naturalistic observation, assess how the child uses or responds to language in context (e.g., following commands, naming objects, understanding turn-taking).

2.1.2 Assessing Linguistic Performance (Actual Use)

This focuses on how the child uses language in real situations, considering possible performance issues like speech disorders, attention deficits, or anxiety. Different methods used to assess linguistic performance of the child with special needs include:

i. **Speech Samples**: Record and analyze spontaneous speech for grammar, fluency, word choice, and coherence.
ii. **Conversational Analysis**: Observe how the child initiates conversation, maintains topics, and responds to others.
iii. **Narrative Tasks**: Ask the child to tell a story from a picture sequence or personal experience to gauge language use and structure.
iv. **Pragmatic Assessment**: Evaluate how the child uses language socially—greeting, requesting, apologizing, or asking questions.

2.2 DIFFERENCE BETWEEN SPEECH AND LANGUAGE

Language is a system of communication that uses structured sounds, symbols, or signs to convey meaning. It allows people to express thoughts, emotions, and ideas. Language can be spoken, written, or signed, and it follows specific grammatical rules shared by a community. Every language of the world is a system of communication using words, sounds, or signs that follow specific rules to convey meaning. **English**, **Arabic**, **Hindi**, and **French** are all different languages. Saying *"I am going to school"* in English and *"Main school ja raha hoon"* in Urdu expresses the same idea using different languages.

Speech is the physical act of producing spoken language using the vocal organs such as the tongue, lips, and vocal cords. It is one mode of expressing language and involves the articulation of sounds to form words and sentences that others can hear and understand. When you say out loud *"Good morning!"* to someone, that is speech. A child learning to pronounce the word *"elephant"* is practicing speech. Speech therapy helps people who have trouble producing certain sounds clearly.

Linguistics is the scientific study of language and its structure. It examines how languages are formed, how they function, how they change over time, and how people acquire and use them. Subfields of linguistics include phonetics (sounds), syntax (sentence structure), semantics (meaning), and sociolinguistics (language in society). A linguist might study how children learn their first language or how sentence structures differ between English and Japanese. Analyzing why people in different regions say *"y'all"* or *"you guys"* is a topic in sociolinguistics.

In conclusion **language** is the overall system, **linguistics** is the study of that system, and **speech** is one way we use that system through spoken words. Here's a comparison table that can help you to understand the difference between speech and language.

Table 2.2

Difference Between Speech and Language

Aspect	Speech	Language
Definition	The physical production of sounds using vocal organs	A system of communication using words, symbols, or signs
Focus	How sounds are articulated and spoken	What is being communicated (meaning, structure, vocabulary)
Includes	Articulation, voice, fluency	Grammar, vocabulary, syntax, semantics, and pragmatics
Disorders in Special Ed	Speech disorders include stuttering, lisping, apraxia, and articulation issues	Language disorders include delayed language development, aphasia, and SLI
Assessment Tools	Oral motor exams, speech sound assessments, fluency tests	Language comprehension and expression tests (e.g., CELF, PPVT)
Communication Aid	May need speech therapy to improve sound production	May require augmentative and alternative communication (AAC) tools
Can exist independently?	Yes — a child may have clear language understanding but unclear speech	Yes — a child may speak clearly but struggle with word meaning or grammar
Example	A child says "wabbit" instead of "rabbit" (speech sound error)	A child says "Me go store yesterday" (language structure error)

This comparison helps educators and specialists distinguish the type of support or intervention a child with special needs may require.

Considerations while understanding speech and language for Children with Special Needs

- **Multidisciplinary Collaboration**: Work with speech-language pathologists, psychologists, teachers, and caregivers.
- **Adapted Tools**: Use modified assessments tailored to the child's disability (e.g., using sign language, AAC devices, or visuals).
- **Cultural and Linguistic Sensitivity**: Consider the child's home language, dialect, and cultural background.
- **Dynamic Assessment**: Test-teach-retest approaches help reveal the child's learning potential rather than just current performance.

2.3 COMPONENT OF A LANGUAGE

Alison explain the components of language by categorizing the components into three main areas I.e. form, content and use.

- Form involves Syntax, Morphology, Phonology.
- Content involves Semantics.
- Use involves Pragmatics.

Together, these five components — phonology, morphology, syntax, semantics, and pragmatics — form the foundation of language. Understanding them helps educators, therapists, and caregivers identify specific areas where a child may need support and tailor interventions effectively.

2.3.1 Phonology

Phonology is the study of the sound system of a language. It involves the rules for combining and using sounds in speech. This includes understanding how individual sounds (called phonemes) function within a language. For example, the difference between the sounds /p/ and /b/ in "pat" and "bat" changes meaning, showing they are distinct phonemes in English. In Urdu Phonology (صوتیات) deals with the sound system of Urdu language — how Urdu sounds are organized and used. Urdu distinguishes between aspirated and unaspirated consonants. For example /p/ vs. /ph/ as in پتا (*pata* – leaf) vs. پھٹا (*phata* – torn). Children with phonological issues may not differentiate these sounds, leading to confusion in meaning. In special education, children with phonological disorders may have difficulty recognizing or producing these sounds correctly, which can affect both their speech clarity and reading development.

Phonetics is the branch of linguistics that studies the physical sounds of human speech. It focuses on how speech sounds are produced (articulated) by the vocal organs, how they are transmitted (acoustic properties), and how they are heard and perceived (auditory processing). Phonetics is concerned with actual sounds, regardless of the language they belong to. It uses tools like the International Phonetic Alphabet (IPA) to represent all the sounds found in human languages.

2.3.2 Difference Between Phonetics and Phonology

Here is a comparison to clarify the distinction:

Table 2.3

Difference Between Phonetics and Phonology

Aspect	Phonetics	Phonology
Definition	Study of the physical production and perception of speech sounds	Study of how sounds function within a specific language
Focus	Actual sound (phones)	Sound patterns and rules (phonemes)
Nature	Concrete and universal	Abstract and language-specific
Tools	Uses acoustic instruments and IPA to describe sounds	Uses phonological rules and structures
Example	/p/ and /b/ differ in voicing (phonetics describes how)	In English, /p/ and /b/ change meaning (pat vs. bat) — a phonological contrast
Application	Speech therapy, linguistics, forensic analysis	Language teaching, phonological disorder diagnosis, literacy

In Summary

- **Phonetics** = *How* speech sounds are made and heard.
- **Phonology** = *How* those sounds are used and organized in a language.

Phonetics in Urdu (صوتیات) studies how speech sounds are produced and heard, regardless of meaning. Urdu has many unique sounds for example the sounds /t/ in ت (*te*) and /ʈ/ in ٹ (*ṭe*) are both types of "t" sounds, but they differ phonetically:

- **ت /t/**: A dental sound (tongue touches teeth)
- **ٹ /ʈ/**: A retroflex sound (tongue curls back)

Phonetics tells us how these sounds are physically produced, regardless of whether they make a difference in meaning.

Phonology in Urdu (علمِ صوتیات) studies how these sounds function within the Urdu language system to create meaning. It identifies which sound differences matter for distinguishing words. For example In Urdu **تم** (*tum* – you) vs. ٹم (*ṭum* – a name or meaningless without context). This minimal pair shows that /t/

and /ʈ/ are distinct phonemes in Urdu because switching them changes the word's meaning. Phonology is concerned with these patterns and how native speakers mentally organize and recognize them.

2.3.3 Morphology

Morphology refers to the structure of words and how they are formed from the smallest units of meaning, called morphemes. A morpheme can be a whole word (like "book") or a prefix or suffix (like "-ed" in "walked" indicating past tense). In Urdu Morphology (صرفیات) is the study of Urdu word formation and structure, including prefixes, suffixes, and root words. For example the word کتابیں (*kitaabein*) consists of کتاب (*kitaab* – book) + یں (*-ein* – plural suffix). A child with morphological difficulties might say کتاب (*kitaab*) instead of کتابیں (*kitaabein*) when referring to more than one book. Understanding morphology helps children comprehend and build words correctly. For children with special needs, especially those with language impairments, difficulties in morphology may lead to errors such as omitting endings ("walk" instead of "walked") or misusing prefixes and suffixes.

2.3.4 Syntax

Syntax is the set of rules that governs how words are arranged in sentences. It includes grammar and sentence structure, determining how subjects, verbs, and objects are ordered and connected. For instance, in English, "The cat chased the mouse" is syntactically correct, whereas "Cat the mouse chased" is not. In Urdu Syntax (نحو) refers to Urdu sentence structure and the Urdu grammatical rules that dictate how words are arranged. For example احمد اسکول گیا۔ (*Ahmad school gaya.* – Ahmad went to school is a Correct sentence. Whereas a example of Incorrect Urdu syntax is گیا احمد اسکول۔ (*Gaya Ahmad school.* – Went Ahmad school. Children with syntactic issues may mix up word order, which is especially important in Urdu, where subject-object-verb (SOV) order is standard. In special education, children with syntax difficulties may produce grammatically incorrect sentences or have trouble understanding sentence relationships, which impacts both speaking and reading comprehension.

2.3.5 Semantics

Semantics deals with the meaning of words, phrases, and sentences. It includes understanding vocabulary, word relationships (such as synonyms and antonyms), and figurative language like metaphors and idioms. In the case of the Urdu language, Semantics (معنٰیات) involves the meaning of words and sentences. Understanding the difference between ساگر (*saagar* – ocean) and دریا (*darya* – river) is part of semantic knowledge.
A child with semantic difficulties might use the wrong word or fail to

understand word meanings, leading to confusion in communication. A child with semantic difficulties might understand grammar and pronunciation well but struggle to grasp the meaning of words or use them appropriately. This can affect both academic learning and everyday communication, especially in children with language delays, autism, or cognitive impairments.

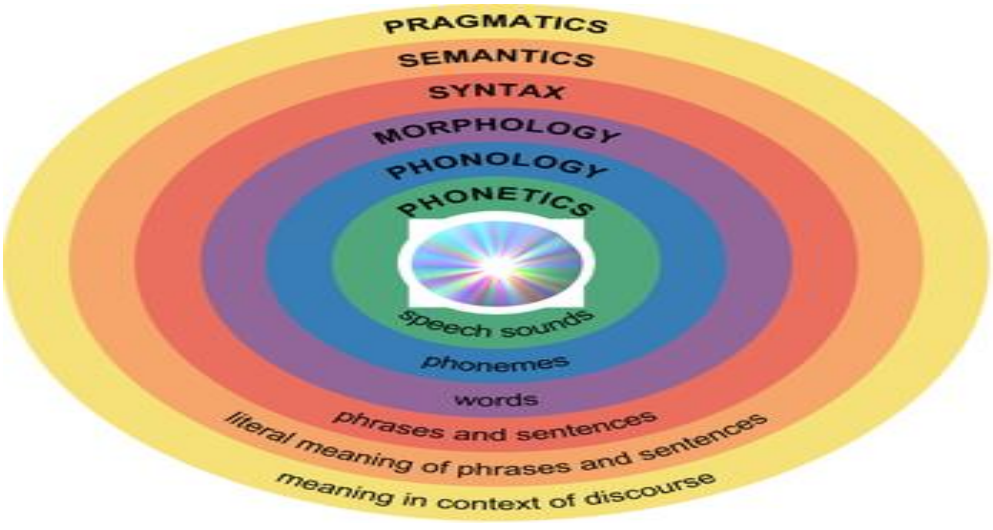
2.3.6 Pragmatics

Pragmatics refers to the social use of language — how language is used appropriately in different contexts and conversations.

It includes understanding things like taking turns in conversation, using polite forms, interpreting tone, or adjusting language depending on the listener. If we talk about Urdu Pragmatics (معاشرتی زبان کا استعمال), it refers to the social rules of language use in different contexts and situations. It means the context change or the situation change may make a response unacceptable in one case and acceptable in a different situation. For example a polite request: براہِ مہربانی مجھے پانی دیں۔ (*Barah-e-meherbani mujhe paani dein.* – Please give me water is expected in formal situations.

We can not use an impolite version: پانی دو۔ (*Paani do.* – Give water to the elders, etc. A child with pragmatic difficulties may not adjust language according to social norms, tone, or audience, which can lead to socially inappropriate communication. Children with pragmatic difficulties, often seen in autism spectrum disorders, may speak in ways that are grammatically correct but socially inappropriate (e.g., talking off-topic, interrupting, or not recognizing sarcasm or facial cues).

Figure 2.1
The components of a language



2.4 DEVELOPMENT OF SPEECH AND LANGUAGE

The first two years of life are very important regarding speech and language development. Any deviation from normal milestones may have a devastating effect on later life development, especially cognitive and social skill development. Speech and language development relies heavily on the input/stimulus available during the early years of life. Any disturbance in the input mechanism, e.g., hearing skill development, may affect speech and language development badly. The figure below shows the speech and language development in relation to listening, cognitive, and social skill development in the first two years of life.

Figure 2.2
Speech, Language and Communication Development Chart



Speech, Language and Communication Development Chart

Age	Attention and Listening	Understanding (Receptive language)	Communicating (Expressive Language)	Social Communication and use of language	Speech Sounds	Play
0-11 months	• Turns towards sounds and locates a range of sounds accurately • By 6m can pay fleeting attention but easily distracted by new event • Stops and looks when hears own name • Is intrigued by new events and actions • Listens to, distinguishes, and responds to intonations and the sounds of voices	• By 6m responds to different tones of voice • Recognises parent's voice • By 10m stops and looks when hears own name • By end of 1st year, begins to understand frequently used words such as *"all gone", "bye bye", "no"* • Understands single signs	• Communicates in a variety of ways including smiling, gurgling, crying, making sounds • By 6m will engage in sound play with familiar adult • Babbling in strings of connected but different sounds, *e.g 'ba-da-ga'* • By 12m, may hear "word" like utterances *e.g. "dada", "mama", "gogo"* • Can point to object or activity to express wants and needs • May have 1 -5 "words" by 12m, related to child's own world and functional needs	• Gazes at faces and copies facial movements e.g. sticking out tongue • Makes sounds with their voice for social interaction • By 12m uses voice, gesture, eye contact & facial expression to make contact with people and keep their attention • Initiates an interaction with adult	• Babbles with range of sound combinations • By 12m consonants such as "b, d, g, m, n, w" predominate	• Exploratory play; mouths, bangs, shakes objects • By 12m, relates 2 objects, e.g. spoon in cup • Plays alone with toys
8-20 months	• Likes to listen to a wide variety of sounds • By 12m concentrates on most powerful stimulus, difficult to re-focus • Is easily distracted by noises or other people talking • By 18m will attend to own choice of activity, tolerates limited intervention	• By 12m understands key words in phrase *e.g. "Where's your nose?"* • By 12m recognises photos of familiar people and objects • Understands simple words in context and understands more than they can say • Understands naming words *e.g. shoe ,ball*	• Creates personal words as begins to develop language • Uses around 10-20 single words although these may not be clear • Beginning to use words for a range of purposes	• Likes being with familiar adults and watches and copies their body language including gesture and pointing • Realises that their voice and actions have an effect on others • Use pointing with eye gaze to share an interest and make a request	• Speech consists of mix of "jargon" and some real words • May be difficult to understand	• Repeats actions that were enjoyed • Begins "pretend" play with toys e.g. gives doll a drink • Involves others in pretend play
16-26 months	• Listens to and enjoys rhythmic patterns in rhymes and stories • Starts to focus on an activity of own choice • Responds to own name and can move attention briefly and then re-focus • Single channelled attention	• Understands action words e.g. *"sleep", "jump"* • By 2y, understands simple instructions/phrases when context apparent, *e.g. "get mummy's shoes"* • Understands instructions with 2 key words (or signs) *e.g. "make teddy jump"*	• By 24m beginning to put 2 words(or signs) together *e.g. "Mummy's car", "more juice"* • Uses different types of everyday words, nouns, adjectives, verbs • Uses up to 50 words • Asks questions e.g. "where drink?"	• Interested in stories, songs and rhymes • Begins to express feelings	• By 2y6m starting to use "f, s, sh" • Immaturities heard e.g. *"tar" for "car" "pu" for "spoon"*	• Starts to demonstrate 2 part play sequence e.g. drives car to petrol station + fills petrol • Beginning to play with miniature toys e.g. small world

From the Worcestershire Speech, Language and Communication Pathway www.worcestershire.gov.uk/slcnpathway
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A general sequence of speech and language development must be in the mind of the stakeholders dealing with children with special needs. Presented below is a brief overview of the different stages of development a normal child undergoes during speech and language development.

2.4.1 Early Language Milestones (0–2 years)

a. Pre-linguistic Stage (0–12 months):

- The child begins with cooing, babbling, and gesture-based communication.
- Babbling in Urdu may start to reflect native sounds like /a/, /m/, /b/, and retroflex consonants (e.g. /ʈ/, /ɖ/).
- They begin recognizing common Urdu words like "mama", "papa", or "doodh" (milk).

b. First Words (12–18 months):

- A child's first words are often concrete nouns or everyday items in Urdu, such as "ghari" (clock), "roti" (bread), or "nahi" (no).
- Speech may not be clear yet, but words are meaningful and contextually used.

2.4.2 Expanding Vocabulary and Sentences (2–4 years)

- The child’s vocabulary grows rapidly, including verbs, adjectives, and pronouns in Urdu.
- They begin forming two- and three-word sentences like: "Mama roti do" (Mama, give me bread). "Yeh meri ball hai" (This is my ball)
- Common grammatical features of Urdu begin to appear:

- Use of postpositions instead of prepositions (e.g., "ghar ke andar" instead of "inside the house")
- Correct gender agreement (e.g., "billi soyi hai" vs. "kutta soya hai")

2.4.3 Complex Sentences and Grammar (4–6 years)

Children can now:

- Use compound and complex sentences in Urdu.
- Ask and answer "kya", "kaun", "kab" (what, who, when) questions.
- Understand and use tense and plural forms correctly (e.g., "bachay khel rahe hain").
- Speech becomes clearer and more intelligible to others.

- They begin understanding figurative language, such as simple idioms used in Urdu conversations.

2.4.4 School Age (6+ years)

Children begin mastering:

- Academic language in Urdu (e.g., synonyms, antonyms, sentence correction).
- Storytelling, sequencing, and expressing opinions in clear Urdu sentences.
- Awareness of formal vs. informal speech (e.g., "aap" vs. "tum").
- If bilingual (e.g., Urdu + English), code-switching may occur naturally, such as:
- "Main school gaya tha, but wahan teacher nahi thi."

- Special Considerations for professionals working in Special Education:

Delayed milestones in children may show as:

- Limited vocabulary in Urdu beyond age 2.
- Inconsistent use of postpositions or verb agreement.
- Difficulty distinguishing sounds like /t/ vs. /ṭ/ (relevant in Urdu phonology).

If so, cultural context must be considered: Caregivers may prioritize oral Urdu and not expect early literacy in formal Urdu script. Assessment should be done in the child's strongest language and may require bilingual tools or professionals. Below is a speech and language development checklist that can be used by parents, teachers, or speech-language therapists to monitor whether a Urdu-speaking child has reached typical developmental milestones. This checklist includes observable behaviors from birth to age 6+ and is designed to be practical and easy to use.

✅ Speech and Language Development Checklist (Urdu-Speaking Child)

Age Range	Milestone	Yes	No	Notes
0–12 months	Responds to sounds and voices	☐	☐	
	Coos and babbles (e.g., "aa", "goo")	☐	☐	
	Reacts to familiar Urdu words like *"mama"*, *"doodh"*	☐	☐	
	Uses eye contact, gestures, or crying to	☐	☐	

Age Range	Milestone	Yes	No	Notes
	communicate needs			
12–24 months	Says first meaningful Urdu words (e.g., *"roti"*, *"aao"*)	☐	☐	
	Follows simple instructions in Urdu (e.g., *"baith jao"*)	☐	☐	
	Combines 2 words (e.g., *"mama pani"*)	☐	☐	
2–4 years	Vocabulary rapidly increases (50+ words)	☐	☐	
	Forms short sentences (e.g., *"mujhe ball do"*)	☐	☐	
	Begins using *"kya"*, *"kaun"*, *"kab"* in questions	☐	☐	
	Understands and uses plural forms (e.g., *"kitaben"*)	☐	☐	
4–6 years	Uses complete sentences (4–6 words) in Urdu	☐	☐	
	Talks about past events (e.g., *"kal school gaya tha"*)	☐	☐	
	Understands basic Urdu stories and retells them	☐	☐	
	Understands basic idioms or metaphors	☐	☐	
6+ years	Uses clear speech with correct Urdu sounds	☐	☐	
	Understands and uses formal and informal forms (*"aap"* vs. *"tum"*)	☐	☐	
	Communicates needs, ideas, and opinions clearly	☐	☐	
	May switch between Urdu and English naturally (if bilingual)	☐	☐	

- How to Use This Checklist:

- Use it during observations at home, school, or clinic.
- Place a check (✓) in the "Yes" or "No" column depending on whether the child consistently shows the behavior.
- Use the "Notes" section to document examples, concerns, or follow-up questions.
- If several “No” responses appear, especially for milestones well below the child’s age, it may indicate the need for further assessment by a speech-language pathologist.

2.5 RELATIONSHIP OF AGE WITH THE DEVELOPMENT OF SPEECH AND LANGUAGE

The relationship between age and the development of speech and language is

foundational in understanding how children acquire communication skills. Speech and language development follows a predictable sequence, with specific abilities typically emerging at certain ages. While individual variation exists, age-based milestones provide crucial guidelines for identifying typical development and spotting potential delays. We can understand how age relates to speech and language development by examining the different stages of speech and language development in connection with different age groups.

1. Infancy (0–12 months)

Key Features of this stage are pre-verbal communication development. Babies begin by cooing and babbling, learning to produce different sounds. They respond to voices, recognize their name, and use nonverbal cues (e.g., pointing, eye contact). They begin to associate sounds with meaning, especially familiar voices and words like *"mama"*, *"doodh"*.

Age-related insight: This stage lays the foundation for speech through listening and experimenting with sound.

2. Toddlerhood (1–2 years)

Key Features of this stage are the first words and word combinations development. Children say their first meaningful words, usually nouns or familiar items. By 18–24 months, toddlers typically combine 2-word phrases (e.g., *"mama pani"*). They begin to understand and follow simple verbal instructions.

Age-related insight: Speech and language skills expand rapidly during this period, often described as a "word explosion."

3. Early Childhood (2–4 years)

Key Features of this stage are rapid vocabulary growth and grammar use development. Vocabulary grows from about 50 words to 1,000+. Children start forming sentences and using basic grammar, including verb tenses and plurals. They begin asking questions and using language for imaginative play.

Age-related insight: This age shows a strong link between cognitive growth and more complex language use.

4. Preschool and Early School Age (4–6 years)

Complex sentence use and storytelling are the key features of this stage. Children can construct longer sentences, tell stories, and describe past events. They begin to use pronouns, conjunctions, and more precise vocabulary. Speech is mostly intelligible to unfamiliar adults.

Age-related insight: Strong language skills support academic readiness, including literacy.

5. School Age (6+ years)

Language mastery and social use are the key features of this stage. Children refine narrative skills, express ideas clearly, and understand figurative language (e.g., idioms, jokes). They adjust language use according to context (formal vs. informal Urdu). If bilingual, code-switching may occur smoothly between Urdu and other languages like English.

Age-related insight: Language becomes a key tool for learning, reasoning, and social interaction.

Summary:

Age Group	Key Language Milestones
0–1 year	Babbling, sound imitation, responding to voice
1–2 years	First words, simple phrases, understanding basic commands
2–4 years	Rapid vocabulary growth, basic grammar, and questions
4–6 years	Storytelling, longer sentences, mostly clear speech
6+ years	Clear expression, figurative language, literacy support

Understanding this relationship helps caregivers and professionals:

- Set realistic expectations,
- Provide age-appropriate stimulation, and
- Recognize when a child may need intervention or support.

Understanding typical speech and language development stages is essential when assessing children with special needs, because these stages provide a baseline for comparison. Any deviation, delay, or difference in progression through these stages helps professionals identify concerns, plan interventions, and track progress.

2.5.1 Link Between Developmental Stages and Assessment in Children with Special Needs

- ***Establishing a Developmental Baseline***

Typical milestones (e.g., saying first words by 12–18 months) serve as reference points. In children with special needs (e.g., autism, intellectual disability, hearing impairment), milestones may be delayed, atypical, or uneven. By comparing a child's skills to age-expected norms, professionals can identify areas of delay (e.g., late onset of babbling or no word combinations by age 2) and can recognize preserved skills (e.g., good vocabulary but poor social use of language).

- ***Tailoring Assessments to Developmental Level (Not Just Chronological Age)***

Some children may be chronologically 5 years old but functioning at a 2-year speech level. Tools like developmental checklists, language sampling, and standardized tests are adapted to the child's functional age. For example, a 6-year-old child with Down syndrome might be assessed using tools meant for the 2–4 age range due to language delay.

- ***Identifying Type and Severity of Language Impairment***

Knowing what is expected at each stage allows professionals to distinguish Speech delays (sound articulation issues), Language delays (vocabulary,

grammar, or comprehension), Disorders (atypical development patterns not just delayed ones), for example, a child with autism might have a rich vocabulary (semantics) but struggle with pragmatics—the social use of language.

- ***Planning Individualized Intervention***

Each stage highlights what skills should be targeted. A child not yet forming 2-word combinations will benefit more from early language stimulation than advanced grammar drills. In special education, IEPs (Individualized Education Plans) often include speech goals linked to developmental levels—e.g., "By the end of the term, the child will use 3-word Urdu sentences to express needs."

- ***Monitoring Progress Over Time***

Developmental stages offer a framework for measuring improvement. Therapists track whether the child is progressing toward age-appropriate milestones or still facing significant gaps. For example, a speech therapist may document that a child with hearing loss has moved from 1-word to 2-word phrases after cochlear implantation—matching the expected path of typical development. In Summary:

Development Stage	Use in Assessment for Special Needs
Infancy (0–1 yr)	Checks for early vocalizations, response to sound (esp. hearing)
Toddler (1–2 yrs)	Assesses word use, understanding, and basic expression
Preschool (2–4 yrs)	Evaluates vocabulary, sentence structure, and comprehension
Early School Age (4–6)	Assesses storytelling, grammar, and speech clarity
6+ years	Focus on complex language, classroom language, and pragmatics.

Self-Assessment Questions

1. What is the difference between language, linguistics, and speech?
2. Can you provide an example of speech versus language in the context of Urdu?
3. Why is it important to distinguish between speech and language in special education?
4. Define linguistic competence and linguistic performance.
5. How are these two concepts different? Can you give examples from Urdu?

6. Why is it important to consider both competence and performance when assessing a child?
7. What are the five main components of language?
8. Can you define each component in your own words?
9. Can you provide an Urdu example for each component (e.g., phonology, morphology)?
10. Why is it important for educators to understand these components when working with bilingual or special needs children?
11. What is the difference between phonetics and phonology?
12. Can you give an Urdu example where two phonetically similar sounds have different phonological meanings?
13. How might this distinction affect children with speech delays or articulation disorders?
14. What are the typical speech and language milestones for Urdu-speaking children from birth to age 6?
15. At what age should a child be expected to say their first Urdu words?
16. What kind of sentences or grammar should be expected by age 4?
17. How does bilingualism (e.g., Urdu + English) affect speech development?
18. Why is age a crucial factor in understanding language development?
19. What might it mean if a 3-year-old speaks like a 1-year-old? How would you assess this?
20. How are typical developmental stages used when assessing children with special needs?
21. Why is it important to consider both chronological age and developmental age?
22. How can speech and language checklists help identify needs in children with disabilities?
23. Have you reviewed or used a speech and language checklist for monitoring progress?
24. What are the benefits of tracking language milestones using a structured tool?
25. Can you describe one way you might adapt an assessment tool for a child with special needs?
26. What role do developmental stages play in diagnosing speech/language delays?

Suggested Reading

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UNIT 3

COMMUNICATION DISORDERS

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INTRODUCTION

Communication disorders (CD) are associated with difficulties in language, speech, verbal, and nonverbal communication. This includes impairments in either language comprehension, speech, social cues, facial expressions, gestures, or emotional perception. Symptoms of Communication disorders usually lie on a spectrum of severity, in which impairments can be mild or more profound. They also tend to coexist with each other, in which an individual is diagnosed with multiple types of CDs.

There are various types of CDs. Although they are different, most share common impairments in verbal and non-verbal communication, displaying difficulties in the following areas:

- Language comprehension
- Speech
- Social cues
- Facial expressions
- Gestures
- Emotional perception

There is no definitive cause of CDs; however, genetic factors and things that affect brain development in the early developmental period can play a role. For an individual to be diagnosed with a CD, they must meet the diagnostic criteria stated in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) and other mental health classification books. Social (pragmatic) communication disorder (SCD) was the most recent CD included in this diagnostic manual.

OBJECTIVES

After reading this unit, students will be able to:

1. Differentiate between Speech disorders and Language disorders
2. Understand the symptoms and causes of Voice disorders
3. Introduce the technicality of Fluency disorders
4. Describe the symptoms of Social communication disorders
5. Differentiate between Hearing disorder and Central auditory processing disorder
6. Comprehend the basics of Unspecified/functional speech disorders

3.1 SPEECH DISORDER

Speech disorders are conditions that affect an individual's ability to produce sounds correctly, fluently, or with the proper vocal quality, making communication difficult. These disorders can impact articulation, voice production, fluency, and even the ability to coordinate speech muscles. Speech disorders can vary in severity, with some being mild and manageable while others significantly interfere with daily communication and social interactions. They can develop in childhood or arise due to neurological, developmental, or environmental factors. Speech difficulties often lead to frustration and self-consciousness, as verbal communication plays a crucial role in social and academic life.

3.1.1 Types and Causes of Speech Disorders

There are several types of speech disorders, each with distinct characteristics. Articulation disorders occur when individuals struggle to pronounce specific sounds correctly, leading to unclear speech.

This may involve substituting one sound for another, omitting sounds, or distorting speech, making communication difficult. Fluency disorders, such as stuttering, cause interruptions in the flow of speech, marked by repetitions, prolongations, and sudden pauses. Stuttering often begins in childhood and can persist in adulthood, affecting confidence and verbal interaction. Another category is voice disorders, where problems arise due to pitch, volume, or quality of the voice.

These may be caused by vocal cord damage, excessive strain, or neurological conditions. Apraxia of speech is a neurological disorder where individuals struggle to coordinate the movements needed for speech, despite knowing what they want to say. Dysarthria, another neurological speech disorder, results from muscle weakness or damage to the nerves that control speech, leading to slurred or slow speech.

The causes of speech disorders vary, ranging from neurological conditions to environmental influences. Genetic predisposition plays a significant role, with some individuals inheriting a likelihood of speech difficulties.

Brain injuries resulting from strokes, trauma, or neurodegenerative diseases can lead to speech impairments by affecting areas responsible for language processing and vocal coordination. Hearing loss in early childhood can hinder speech development, as children learn by mimicking sounds they hear. Developmental delays, such as autism spectrum disorder, can also contribute to speech disorders, making verbal communication challenging.

Psychological factors, such as anxiety or social pressure, may exacerbate fluency disorders like stuttering. In some cases, speech disorders arise from environmental influences, including inadequate speech exposure, emotional trauma, or language-learning difficulties.

3.1.2 Symptoms and Impact of Speech Disorder

Symptoms of speech disorders vary depending on the type and severity. In children, speech development delays, difficulty pronouncing words, and frequent speech interruptions may signal a disorder. Adults may experience changes in speech fluency, hoarseness, or sudden difficulties in articulation. Some individuals show signs of frustration while communicating, often avoiding conversations or struggling with self-expression. Voice disorders may manifest as chronic hoarseness, breathiness, or an unusual pitch. Those with fluency disorders may hesitate excessively or repeat certain syllables involuntarily. Speech disorders can also interfere with social and professional life, affecting confidence and relationships.

The impact of speech disorders on daily life can be significant, influencing social interactions, education, and career opportunities. Children with speech disorders may struggle in school, facing difficulties in reading, writing, and verbal expression. This can lead to lower self-esteem and social withdrawal as communication becomes a barrier. Adults in professional settings may find it challenging to participate in meetings, presentations, or interviews, impacting career growth and confidence. Miscommunication due to speech difficulties can lead to frustration and misunderstandings, making it harder to form relationships or express emotions. Over time, speech disorders may contribute to isolation and reduced participation in social activities.

3.1.3 Standardize Testing and Intervention

Several standardized tests help diagnose speech disorders and assess communication abilities. The Goldman-Fristoe Test of Articulation (GFTA) evaluates articulation skills in children and adults, identifying speech sound errors. The Stuttering Severity Instrument (SSI) measures fluency issues, helping professionals assess the severity of stuttering and track progress in therapy. The Clinical Evaluation of Language Fundamentals (CELF) is useful for diagnosing language disorders, measuring receptive and expressive language abilities. For neurological speech disorders, the Frenchay Dysarthria Assessment (FDA) helps identify symptoms related to muscle weakness affecting speech production.

Speech disorders can be managed through therapy and intervention tailored to the individual's needs. Speech-language pathologists (SLPs) play a crucial role in diagnosing and treating speech disorders, offering exercises, techniques, and behavioral strategies to enhance communication. Early intervention is key, especially for children, as timely support can improve speech development and confidence. Various treatments, including articulation exercises, fluency techniques, and voice therapy, help individuals overcome speech challenges. For neurological speech disorders like dysarthria and apraxia, treatment may

involve muscle-strengthening exercises, alternative communication methods, and adaptive strategies.

Understanding speech disorders allows for better support and intervention. With proper treatment and encouragement, individuals with speech disorders can develop clearer communication, boosting their confidence and ability to connect with others. Speech therapy, medical care, and a supportive environment are essential in helping individuals overcome communication barriers and express themselves more effectively.

3.2 LANGUAGE DISORDER

Language disorders refer to conditions that affect an individual's ability to understand, process, or express spoken or written language. Unlike speech disorders, which primarily involve difficulties with articulation and fluency, language disorders interfere with comprehension, sentence structure, vocabulary, and overall communication skills. These disorders can manifest in childhood, often impacting academic performance and social interactions, or they may develop due to neurological injuries or conditions in adulthood. Language disorders are broadly categorized into expressive language disorders, receptive language disorders, and mixed receptive-expressive language disorders. Expressive language disorders occur when individuals struggle to convey their thoughts, form coherent sentences, or use appropriate grammar and vocabulary. Receptive language disorders, on the other hand, involve difficulties in understanding spoken or written language, leading to confusion in following directions, grasping meanings, or processing information. Mixed receptive-expressive language disorders combine both aspects, where individuals face challenges in both comprehension and verbal expression.

3.2.1 Contributing Factors and Symptoms

Several factors contribute to the development of language disorders, ranging from genetic predisposition to environmental influences. Neurological conditions such as autism spectrum disorder, intellectual disabilities, or brain injuries can significantly affect language acquisition and processing. Hearing impairments also play a role, as difficulties in perceiving sounds can hinder language development. In some cases, developmental delays result in slower language acquisition, making it difficult for children to keep up with their peers. Environmental factors, such as a lack of language exposure, trauma, or neglect, can further exacerbate communication difficulties. Additionally, strokes or neurodegenerative diseases can lead to language disorders in adults by affecting areas of the brain responsible for linguistic processing.

Symptoms of language disorders vary depending on the type and severity. Children with expressive language disorders may struggle to form sentences, use incorrect grammar, or find it challenging to retrieve words. Those with

receptive language disorders may misinterpret conversations, fail to follow complex directions, or have difficulty grasping new vocabulary. Mixed language disorders manifest as a combination of these symptoms, resulting in significant communication struggles. Individuals with language disorders may also exhibit frustration, hesitancy in social interactions, or avoidance of verbal communication due to difficulties expressing or understanding thoughts.

3.2.2 Impact on Daily Life and Standardized Test

The impact of language disorders on daily life is profound, affecting academic performance, social relationships, and professional success. Children with language disorders often face challenges in school, struggling with reading, writing, and verbal expression. These difficulties may result in lower self-esteem, social withdrawal, or behavioral issues due to frustration in communication. Adults with language disorders may find it challenging to engage in conversations, understand workplace instructions, or express ideas effectively, impacting their professional growth and confidence. Social interactions can become stressful, leading to isolation or reluctance to engage in discussions. Miscommunication can also affect relationships, making it difficult to express emotions or understand others accurately.

Several standardized tests help diagnose and assess language disorders. The Clinical Evaluation of Language Fundamentals (CELF) is widely used to evaluate expressive and receptive language abilities in children and adults, identifying areas requiring intervention. The Peabody Picture Vocabulary Test (PPVT) assesses receptive vocabulary comprehension, providing insight into language processing difficulties. The Token Test evaluates auditory comprehension, sentence construction, and memory recall, often used in cases of neurological language impairments. Additionally, the Boston Naming Test (BNT) helps diagnose language disorders related to brain injuries or degenerative diseases by measuring word retrieval difficulties.

Despite the challenges associated with language disorders, intervention and therapy can significantly improve communication abilities. Early intervention is particularly crucial, as structured therapy can enhance language development and confidence in children. Assistive tools, alternative communication methods, and a supportive environment further aid individuals in overcoming communication barriers. Recognizing language disorders and providing appropriate support enables individuals to express themselves more effectively, fostering personal, social, and professional growth.

3.3 VOICE DISORDER

Voice disorders refer to conditions that affect the quality, pitch, volume, or resonance of an individual's voice, making communication difficult. These disorders can range from mild hoarseness to complete voice loss and

significantly impact a person's ability to express themselves. The vocal cords, located in the larynx, play a crucial role in producing sound when air passes through them, causing vibrations. Any disruption in their movement, structure, or function can result in voice disorders. These disorders can be temporary, such as those caused by infections, or chronic, requiring medical intervention and therapy. They not only affect speech but also influence social interactions, self-confidence, and professional opportunities.

3.3.1 Types and Causes

There are several types of voice disorders, each impacting different aspects of voice production. Dysphonia is a general term for voice impairment, causing hoarseness, breathiness, or a weak voice. Aphonia, the complete loss of voice, can result from severe damage to the vocal cords or psychological conditions. Spasmodic dysphonia is a neurological disorder characterized by involuntary muscle spasms in the vocal cords, leading to a shaky or strained voice. Vocal cord nodules and polyps develop due to excessive strain, causing roughness or breathy voice quality. Vocal cord paralysis occurs when one or both vocal cords lose movement due to nerve damage, making speech weak and breathy. Laryngitis, often caused by infections or excessive vocal strain, results in swelling of the vocal cords and temporary hoarseness. Each type of voice disorder presents unique challenges, influencing the clarity and strength of speech.

Voice disorders arise due to various causes, including physical, neurological, and psychological factors. Overuse or strain, such as excessive shouting or prolonged talking, can lead to vocal cord damage, causing voice fatigue. Neurological conditions, such as Parkinson's disease or stroke, affect the muscles controlling vocal cord movement, leading to voice irregularities. Structural abnormalities, like growths on the vocal cords or congenital defects, interfere with normal speech production. Trauma or surgery, including intubation or injuries to the throat, can disrupt voice function. Respiratory conditions, such as asthma or chronic cough, may strain the vocal cords, altering vocal quality. In some cases, psychological stress or anxiety can contribute to voice changes, leading to temporary voice loss or abnormalities.

3.3.2 Symptoms and Impact on Daily Life

Symptoms of voice disorders vary based on their type and severity. Common signs include hoarseness, breathiness, strained voice, reduced vocal strength, and pitch instability. Individuals may experience vocal fatigue, frequent voice breaks, difficulty speaking loudly, and chronic throat discomfort. Sudden changes in pitch or volume can make speech sound unnatural or unstable. In severe cases, voice production may become painful, leading to discomfort while speaking.

The impact of voice disorders on daily life is significant. Communication difficulties affect social interactions, making conversations frustrating and causing individuals to withdraw from social settings. Students may struggle with classroom participation, finding it challenging to read aloud or answer questions confidently. Professional challenges arise, especially for individuals in careers requiring voice projection, such as teachers, singers, or public speakers. Psychological effects, such as low self-esteem and anxiety, develop when individuals feel self-conscious about their voice. Limited career opportunities may occur for those who rely on vocal clarity in their work. The emotional toll of voice disorders can be profound, leading to frustration and reduced confidence in verbal communication.

3.3.3 Standardized Test and Intervention

Various tests help diagnose voice disorders and assess vocal function. The Consensus Auditory-Perceptual Evaluation of Voice (CAPE-V) measures voice quality and severity of abnormalities. Video strobes copy allows doctors to examine vocal cord movement and identify irregularities. The Voice Handicap Index (VHI) evaluates the impact of voice disorders on daily life and psychological well-being. Acoustic analysis uses technology to measure pitch, volume, and resonance patterns, providing detailed vocal assessments.

Treatment for voice disorders depends on the cause and severity. Speech therapy is a primary intervention, focusing on voice exercises, breathing techniques, and vocal relaxation methods. Medical or surgical procedures may be necessary for structural abnormalities, such as polyps or nodules. Lifestyle modifications, including hydration, avoiding vocal strain, and proper breathing techniques, help maintain vocal health. Psychological counseling assists individuals experiencing stress-related voice disorders, promoting relaxation strategies for voice restoration.

Voice disorders present unique communication challenges, but with early diagnosis and treatment, individuals can improve their vocal function and confidence. Speech therapy, medical care, and adaptive communication techniques help individuals regain effective speech, allowing them to participate fully in personal and professional interactions. Recognizing voice disorders and providing necessary support ensures that individuals overcome communication barriers and maintain strong social connections.

3.4 FLUENCY DISORDER

Fluency disorders refer to conditions that disrupt the natural flow, rhythm, and speed of speech, making verbal communication difficult. These disorders can cause speech to sound broken, interrupted, or rushed, affecting the speaker’s ability to express thoughts smoothly. Fluency disorders often emerge in childhood and may persist into adulthood, leading to emotional distress and

challenges in social interactions. The most common types of fluency disorders include stuttering and cluttering, each presenting unique difficulties.

- **Types**

Stuttering is the most recognized fluency disorder, characterized by repeated sounds, syllables, or words, as well as frequent pauses that disrupt speech. People who stutter often experience involuntary repetitions (e.g., "I-I-I want that"), prolongations of sounds (e.g., "ssssnake"), or complete speech blocks where they struggle to produce words. Cluttering, another fluency disorder, results in rapid, irregular, and disorganized speech. Individuals with cluttering may omit syllables, slur words together, or speak in a hurried manner that makes their speech difficult to understand. Unlike stuttering, cluttering is often associated with difficulties in organizing thoughts before speaking. Spasmodic dysfluency is a less common fluency disorder, involving involuntary muscle contractions in the vocal cords that cause sudden interruptions or strained speech.

3.4.1 Causes and Symptoms

The causes of fluency disorders vary and can stem from neurological, genetic, environmental, or psychological factors. Genetics plays a significant role in stuttering, as research indicates that stuttering often runs in families. Neurological differences in brain function and speech coordination can contribute to fluency issues, affecting the timing and rhythm of speech production. Environmental influences, such as excessive pressure to speak perfectly or traumatic events, may exacerbate fluency disorders, especially in young children. Psychological factors, including anxiety or stress, can trigger or worsen fluency disruptions, particularly in social situations.

Symptoms of fluency disorders depend on the type and severity of the condition. Stuttering typically involves speech interruptions, word or sound repetitions, prolonged syllables, and hesitations before speaking. Cluttering presents rapid or erratic speech patterns, omitted syllables, lack of pauses, and difficulty organizing thoughts while speaking. Spasmodic dysfluency manifests as strained speech, sudden voice interruptions, and muscle spasms affecting vocal coordination. Fluency disorders can cause significant distress for individuals who struggle to communicate effectively, leading to avoidance of verbal interactions.

3.4.2 Impact on Daily Life

The impact of fluency disorders on daily life is profound, affecting personal, academic, and professional aspects of communication. Children with fluency disorders may face difficulties participating in classroom discussions, reading aloud, or expressing their thoughts clearly, which can lead to frustration and withdrawal from social interactions. Adults in professional settings may struggle with public speaking, job interviews, and presentations, affecting

career growth and confidence. Social anxiety is common among individuals with fluency disorders, as repeated speech disruptions may lead to embarrassment or self-consciousness when speaking with others. Emotional distress, frustration, and avoidance of verbal communication can contribute to isolation and decreased self-esteem. Despite these challenges, early intervention and therapy can help individuals develop techniques to improve fluency and communication.

3.4.3 Standardized Test

Several tests are used to diagnose fluency disorders and assess their severity. The Stuttering Severity Instrument (SSI) evaluates speech disruptions, helping professionals measure the impact of stuttering over time. The Predictive Cluttering Inventory (PCI) identifies cluttering characteristics, assessing speech rate and organization. The Test of Childhood Stuttering (TOCS) is used to measure fluency difficulties in children, providing insight into developmental speech patterns. For individuals with spasmodic dysfluency, acoustic analysis and neurological assessments help detect irregularities in speech production and vocal cord function.

Although fluency disorders present significant challenges, speech therapy and tailored interventions can improve communication skills. Speech-language pathologists (SLPs) use fluency-shaping techniques, breathing exercises, and desensitization strategies to help individuals manage their speech disruptions. Cognitive-behavioral therapy (CBT) is beneficial for individuals with fluency disorders, as it helps reduce anxiety and increase confidence in communication. Support from family, educators, and peers plays a crucial role in creating an encouraging environment where individuals feel comfortable expressing themselves. With proper intervention, individuals with fluency disorders can develop effective communication strategies, enhancing their ability to engage in conversations, succeed in academic and professional settings, and build meaningful social connections. Recognizing fluency disorders and providing necessary support ensures individuals can navigate their communication challenges and lead fulfilling lives without speech limitations.

3.5 SOCIAL COMMUNICATION DISORDER

Social communication disorders refer to conditions that affect an individual's ability to use verbal and nonverbal communication appropriately in social settings. These disorders impact how people interpret and respond to conversations, gestures, tone, and social cues, making interactions challenging. Unlike speech or language disorders, which affect the ability to produce sounds or understand language, social communication disorders primarily disrupt the understanding of conversational rules, such as taking turns,

maintaining a topic, recognizing body language, and adjusting speech to different contexts. These difficulties can lead to struggles in forming relationships, expressing emotions, and engaging in meaningful conversations.

3.5.1 Types and Causes

There are different types of social communication disorders, each affecting interpersonal interactions in distinct ways. Social (Pragmatic) Communication Disorder (SCD) is a condition where individuals have difficulty using verbal and nonverbal communication appropriately in social settings. They may struggle with adjusting speech based on the listener, understanding idioms or sarcasm, and following conversational rules. Another type is Autism Spectrum Disorder (ASD), where social communication difficulties are a core feature, often accompanied by repetitive behaviors or restricted interests. Individuals with ASD may find it hard to maintain eye contact, understand social norms, or interpret emotions in conversations. Nonverbal Communication Disorders primarily affect an individual's ability to interpret gestures, facial expressions, or tone, leading to misunderstandings in daily interactions. Selective Mutism, though often related to anxiety, is another disorder where individuals speak normally in familiar settings but remain silent in social or unfamiliar situations due to extreme distress.

The causes of social communication disorders can be linked to a combination of neurological, developmental, and environmental factors. Neurological conditions, such as autism spectrum disorder or traumatic brain injuries, affect areas of the brain responsible for processing social cues and language comprehension. Genetic predisposition also plays a role, as some individuals may inherit social communication difficulties. Developmental delays, particularly in early childhood, can interfere with learning social interaction skills. In some cases, psychological factors, such as anxiety or social phobia, contribute to difficulties in communication, leading individuals to withdraw or avoid interactions. Environmental factors, such as lack of exposure to social interactions, neglect, or limited engagement in verbal exchanges, can also impact social communication development.

3.5.2 Symptoms and Impact on Daily Life

Symptoms of social communication disorders vary based on the severity of the condition. Individuals may struggle to initiate or maintain conversations, frequently changing topics or failing to respond appropriately. They may misinterpret gestures, tone, or facial expressions, leading to confusion in social exchanges. Difficulties in understanding figurative language, jokes, or sarcasm are common, making interactions awkward or frustrating. Many individuals with these disorders have trouble adjusting their speech based on the situation, speaking too formally or informally, or failing to recognize when a

conversation requires a different response. Avoidance of social settings, difficulty forming friendships, and emotional distress during interactions are also key indicators of a social communication disorder.

The impact of social communication disorders on daily life can be significant, influencing relationships, education, and professional opportunities. Children with social communication disorders may struggle in school, facing difficulties in group activities, classroom discussions, and peer interactions. This can lead to social isolation, frustration, and lower self-confidence. Adults with these disorders often find it challenging to maintain workplace communication, affecting teamwork, leadership opportunities, and career advancement. Difficulty in interpreting emotions and social expectations can lead to misunderstandings, making relationships strained or challenging. Many individuals experience anxiety in social settings, avoiding interactions to prevent embarrassment or discomfort. Over time, the inability to navigate social situations may result in emotional distress, loneliness, and withdrawal from meaningful engagements.

3.5.3 Standardized Test and Intervention

To diagnose social communication disorders, specialists use a variety of tests and assessments. The Social Communication Questionnaire (SCQ) is commonly used to identify difficulties in social interactions, particularly in children. The Pragmatic Language Skills Inventory (PLSI) helps assess conversational abilities and social language comprehension. For individuals with autism spectrum disorder, the Autism Diagnostic Observation Schedule (ADOS) is widely used to examine communication and social behaviors. Additionally, standardized speech-language evaluations help identify deficits in expressive and receptive language skills that contribute to social communication difficulties.

Intervention and therapy play a vital role in helping individuals with social communication disorders navigate daily interactions. Speech-language therapy focuses on developing conversational skills, improving comprehension of social cues, and practicing appropriate responses in various situations. Behavioral therapy, including cognitive-behavioral strategies, helps individuals manage anxiety, improve self-confidence, and develop coping mechanisms for social interactions. Social skills training in structured environments teaches essential communication techniques, such as turn-taking, eye contact, and interpreting body language. Support from educators, therapists, and family members is crucial in fostering a positive environment where individuals can practice and enhance their social communication abilities.

Despite the challenges associated with social communication disorders, early intervention and structured support can significantly improve social interaction skills. By recognizing the signs of social communication difficulties and

providing appropriate therapy, individuals can develop stronger relationships, confidently engage in conversations, and participate more actively in academic, social, and professional settings. A supportive and understanding approach ensures that those with social communication disorders can overcome barriers and lead fulfilling lives.

3.6 HEARING DISORDERS

Hearing disorders refer to conditions that impair an individual's ability to perceive sound properly, affecting communication, social interactions, and overall quality of life. These disorders can range from mild hearing difficulties to complete deafness, and they can affect one or both ears. Hearing is an essential sense that allows individuals to engage in conversations, understand their environment, and enjoy auditory experiences such as music or speech. When hearing disorders occur, they can lead to frustration, isolation, and challenges in educational and professional settings. The severity and type of hearing loss determine the impact on an individual’s ability to process sound.

3.6.1 Types and Causes

There are several types of hearing disorders, each differing in cause and severity. Conductive hearing loss occurs when sound waves cannot pass efficiently through the outer or middle ear due to blockages such as earwax buildup, infections, or structural abnormalities. Individuals with conductive hearing loss may perceive sounds as muffled or faint. Sensorineural hearing loss results from damage to the inner ear or auditory nerve, typically caused by aging, exposure to loud noises, or genetic factors. This type of hearing loss is usually permanent and affects sound clarity and volume. Mixed hearing loss combines aspects of both conductive and sensorineural hearing loss, presenting challenges in both sound transmission and auditory nerve function. Another type is central auditory processing disorder (CAPD), where the brain struggles to interpret sound correctly, even if hearing ability is normal. Tinnitus, characterized by persistent ringing or buzzing sounds in the ears, is another common auditory disorder that can interfere with concentration and sleep.

The causes of hearing disorders vary based on the type and underlying factors. Genetic predisposition plays a significant role, with some individuals inheriting a higher risk of hearing impairment. Aging-related hearing loss, known as presbycusis, occurs due to gradual wear and tear on the inner ear structures. Exposure to excessive noise, such as loud music, industrial machinery, or gunfire, can cause permanent damage to the auditory system. Infections, including ear infections, meningitis, or viral illnesses, may lead to hearing complications, particularly in young children. Trauma or head injuries affecting the ear or auditory pathways can result in hearing loss. Ototoxic

medications, such as certain antibiotics or chemotherapy drugs, can harm hearing function. Developmental conditions, such as congenital ear malformations, may also affect auditory abilities.

3.6.2 Symptoms and Impact on Daily Life

The symptoms of hearing disorders vary depending on the type and severity of the condition. Individuals with hearing loss may experience difficulty understanding speech, needing to increase the volume on electronic devices, frequently asking others to repeat themselves, and struggling in noisy environments. Sensorineural hearing loss often leads to distorted sound perception, where words may seem unclear even at a high volume. Conductive hearing loss presents symptoms such as ear pain, pressure sensation, or sudden reduced hearing ability. Tinnitus sufferers hear persistent ringing, buzzing, or hissing sounds, even in silence. In cases of central auditory processing disorder, individuals may find it challenging to distinguish similar-sounding words, follow rapid speech, or process auditory information effectively.

The impact of hearing disorders on daily life can be significant. Children with hearing impairments may struggle with language development, affecting their ability to acquire speech skills and communicate effectively. This can lead to academic difficulties, frustration, and social withdrawal. Adults with hearing loss may experience challenges in workplace communication, making it difficult to participate in discussions, hear instructions, or engage in group conversations. Hearing loss often leads to social isolation, as individuals may avoid social gatherings or feel embarrassed about misunderstanding speech. Emotional effects, such as frustration, anxiety, and depression, are common, especially when hearing difficulties interfere with personal relationships. For individuals with severe hearing impairment or deafness, reliance on sign language, lip reading, or assistive hearing devices may be necessary for effective communication.

3.6.3 Standardized Test and Treatment

To diagnose hearing disorders, specialists conduct various tests to assess auditory function. The Pure Tone Audiometry (PTA) test measures an individual's ability to detect different frequencies and sound levels. The Speech Audiometry test evaluates how well speech is understood at various volume levels. Tympanometry examines middle ear function to identify conductive hearing issues such as infections or fluid buildup. The Otoacoustic Emissions (OAE) test assesses inner ear function by measuring responses to sound stimuli. For individuals with suspected central auditory processing disorder, the Auditory Processing Test evaluates how the brain interprets speech and sound patterns.

Treatment for hearing disorders depends on the underlying cause and severity. Hearing aids are commonly used to amplify sound for individuals with sensorineural hearing loss. Cochlear implants provide auditory input for those with severe hearing impairment by bypassing damaged inner ear structures. Medical interventions, such as surgery or medication, may be necessary for conductive hearing loss cases involving infections or structural abnormalities. Speech therapy and auditory training help individuals improve communication skills, particularly those with processing disorders or early-onset hearing impairments. For individuals with profound deafness, sign language and alternative communication methods provide effective ways to interact with others.

Hearing disorders affect an individual's ability to engage in daily activities, but early intervention and supportive measures can improve communication and overall well-being. With advancements in assistive technology, specialized education programs, and medical treatments, individuals with hearing disorders can lead fulfilling lives while overcoming auditory challenges. Recognizing and addressing hearing impairments ensures that individuals receive the necessary support to maintain strong social connections, succeed academically, and participate confidently in professional and personal settings.

3.7 CENTRAL AUDITORY PROCESSING DISORDER

Central Auditory Processing Disorders (CAPD) refer to conditions in which the brain has difficulty processing auditory information despite normal hearing ability. Individuals with CAPD struggle to interpret, differentiate, or respond to sounds properly, leading to communication and learning challenges. Unlike hearing loss, which affects the ability to detect sound, CAPD impacts the brain's ability to make sense of what is heard. This disorder can interfere with the ability to follow conversations, understand verbal instructions, and filter out background noise. CAPD is often diagnosed in childhood but can persist into adulthood, affecting various aspects of daily life, including academic performance, social interactions, and professional communication.

3.7.1 Types and Causes

There are different types of CAPD, each affecting auditory processing in unique ways. Auditory Discrimination Disorder occurs when individuals struggle to differentiate between similar sounds, making words that have subtle differences difficult to distinguish. This affects speech comprehension, particularly in noisy environments. Auditory Figure-Ground Disorder refers to difficulty focusing on speech when there is background noise, making classroom or workplace environments challenging. Auditory Memory Disorder affects the ability to recall spoken information, leading to trouble remembering instructions, recalling details, or following conversations.

Auditory Sequencing Disorder involves difficulty processing sounds in the correct order, resulting in challenges with following multi-step instructions or understanding the sequence of spoken language. Auditory Integration Disorder impacts the coordination between the ears and brain, causing delays in speech comprehension and response time.

The causes of CAPD vary and often involve neurological, developmental, or environmental factors. Brain injuries or trauma, including concussions or stroke, can affect auditory processing centers, leading to CAPD symptoms. Genetic predisposition also plays a role, as some individuals may inherit auditory processing difficulties. Developmental delays, particularly in early childhood, can affect neural pathways responsible for processing sound. Frequent ear infections during childhood may disrupt auditory development and lead to processing difficulties. Exposure to chronic loud noise can interfere with auditory function, making it harder for the brain to process sounds effectively. In some cases, CAPD may be linked to other neuro-developmental conditions, such as dyslexia, ADHD, or autism spectrum disorder.

3.7.2 Symptoms and Impact on Daily Life

Symptoms of CAPD vary depending on its severity and type. Individuals may struggle to understand conversations in noisy environments, frequently ask others to repeat themselves, and misinterpret spoken information. Difficulty following verbal directions, remembering spoken details, and distinguishing between similar sounds are common indicators of the disorder. Many individuals with CAPD experience delayed response time in conversations, confusion with fast speech, and trouble organizing auditory information. Some children may struggle with learning phonics, reading aloud, or developing clear speech, as auditory processing is closely linked to language acquisition. Fatigue from listening efforts is also common, as individuals with CAPD must concentrate harder to understand speech.

The impact of CAPD on daily life is significant, affecting social interactions, education, and professional communication. Children with CAPD may struggle in school, facing difficulties in following lessons, understanding teachers' instructions, and keeping up with classroom discussions. This can lead to academic frustration, decreased confidence, and avoidance of verbal participation. Adults with CAPD may face challenges in professional settings, particularly in meetings or conversations with multiple speakers, affecting workplace communication and career growth. Social interactions can become stressful, as individuals may find it difficult to keep up with conversations, leading to misunderstandings or feelings of isolation. Emotional effects, including anxiety, frustration, and self-doubt, can result from repeated difficulties in processing auditory information. Over time, untreated CAPD

can lead to withdrawal from verbal communication, avoidance of complex auditory tasks, and reliance on written communication over speech.

3.7.3 Diagnostic tests and Intervention

Several diagnostic tests help identify CAPD and assess auditory processing abilities. The Dichotic Listening Test evaluates how well the brain processes sounds presented in both ears. The Speech-in-Noise Test measures an individual's ability to understand speech in background noise. The Auditory Memory Test assesses the ability to recall verbal information. The Filtered Speech Test examines speech comprehension when parts of the auditory signal are distorted. Additionally, Temporal Processing Tests evaluate how the brain processes timing cues in speech and sound patterns.

Treatment and intervention for CAPD focus on improving auditory processing skills and enhancing communication strategies. Speech-language therapy helps individuals develop better listening techniques, auditory discrimination exercises, and memory strategies. Assistive listening devices, such as FM systems, amplify speech sounds and reduce background noise for clearer communication. Environmental modifications, including quiet learning spaces and written instructions, can support individuals with CAPD in school or work settings. Cognitive-behavioral strategies help individuals manage frustration and boost confidence in communication. With early diagnosis, targeted therapy, and adaptive strategies, individuals with CAPD can improve their ability to process auditory information, leading to greater success in social, academic, and professional environments. Recognizing CAPD and providing structured intervention ensures that affected individuals receive the necessary support to navigate auditory processing challenges. With proper assistance, individuals can develop stronger listening skills, enhance verbal comprehension, and build confidence in communication, allowing them to thrive in various aspects of daily life.

3.8 FUNCTIONAL/UNSPECIFIED DISORDERS

Functional or unspecified disorders refer to conditions that affect physical or mental health but lack a clear structural or neurological cause. These disorders often manifest through symptoms that interfere with daily life, yet medical tests may not reveal a definitive underlying issue. Functional disorders are commonly seen in various areas of healthcare, including neurology, gastro-enterology, psychiatry, and speech-language pathology. They are diagnosed based on observed symptoms and patterns rather than identifiable physiological abnormalities. Individuals with these disorders may experience significant distress, leading to challenges in communication, movement, cognition, or overall well-being.

3.8.1 Types and Causes

There are multiple types of functional disorders, each presenting unique symptoms and affecting different aspects of health. Functional neurological disorder (FND) affects movement and sensory functions without detectable damage to the nervous system, leading to tremors, paralysis, or sensory impairments. Functional speech disorders impact verbal communication, causing difficulties in voice production, fluency, or articulation despite the absence of neurological damage. Functional gastrointestinal disorders include conditions like irritable bowel syndrome (IBS), where digestion is impaired without identifiable structural abnormalities. Functional psychiatric disorders, such as somatic symptom disorder, involve physical complaints driven by psychological distress. Some cases of unspecified disorders fall into these categories when symptoms do not align neatly with existing diagnoses.

The causes of functional and unspecified disorders are complex and often involve a combination of psychological, physiological, and environmental factors. Psychological stress and trauma play a significant role, as emotional distress can manifest physically, impacting speech, movement, or bodily functions. Neurological miscommunication between the brain and body may lead to symptoms without physical damage. Genetic predisposition can contribute to a higher likelihood of developing functional disorders. Environmental influences, such as prolonged exposure to stress or social pressures, can exacerbate symptoms. In many cases, individuals with functional disorders may have a history of medical conditions, emotional distress, or chronic pain that contributes to their symptoms.

3.8.2 Symptoms and Impact on Daily Life

Symptoms of functional disorders vary widely based on the affected system. Individuals with functional speech disorders may experience hoarseness, sudden voice loss, difficulty forming words, or unexplained stuttering. Those with functional neurological disorders may present weakness, tremors, coordination issues, or sensory disturbances. Gastrointestinal symptoms often include abdominal pain, bloating, irregular digestion, or discomfort without clear medical causes. Psychological symptoms may involve fatigue, anxiety, unexplained physical pain, or cognitive difficulties. The unpredictability of symptoms often leads to frustration and distress, as affected individuals struggle to find clear medical explanations for their condition.

The impact of functional disorders on daily life can be profound, influencing communication, mobility, social interactions, and emotional health. Children with functional speech disorders may struggle with verbal expression, affecting academic progress and self-confidence. Adults with functional neurological symptoms may experience movement difficulties, leading to challenges in performing routine tasks or maintaining employment.

Individuals with functional gastrointestinal disorders may find it difficult to engage in social activities, fearing unpredictable digestive distress. Psychological effects include anxiety, frustration, social withdrawal, and uncertainty about medical treatment, as the lack of a clear diagnosis can be emotionally taxing. Many individuals face misunderstanding from peers, educators, or employers, as functional disorders are often mistaken for purely psychological conditions, despite their genuine physical manifestations.

3.8.3 Diagnosis and Intervention

Diagnosis of functional disorders involves comprehensive evaluations to rule out other medical conditions and confirm symptom patterns. Specialists conduct neurological assessments, speech-language evaluations, and psychological screenings to identify the presence of functional symptoms. Cognitive and behavioral assessments help determine the impact of emotional distress on physical symptoms. In cases of functional speech disorders, professionals use voice analysis, fluency tests, and articulation assessments to examine verbal difficulties. Since unspecified disorders lack precise classification, medical professionals rely on symptom tracking, detailed patient history, and exclusion of structural abnormalities.

Treatment approaches for functional disorders focus on improving symptom management, restoring functionality, and addressing underlying emotional or physiological factors. Speech therapy helps individuals regain voice control, improve articulation, and reduce fluency disruptions. Cognitive-behavioral therapy (CBT) assists in managing stress, anxiety, and emotional triggers contributing to symptoms. Physical therapy supports individuals with functional neurological impairments, helping restore movement coordination. Dietary modifications and stress management techniques aid those with gastrointestinal disorders. Support groups and counseling offer emotional and psychological support, helping affected individuals cope with the challenges of functional disorders. Despite the complexities of functional and unspecified disorders, early intervention and comprehensive support can help individuals lead fulfilling lives. With proper therapy, lifestyle adjustments, and understanding from caregivers and professionals, many people learn to manage their symptoms effectively. Recognizing these disorders and providing appropriate treatment ensures individuals receive the assistance they need to navigate daily life with confidence and resilience.

Self-Assessment Questions

1) Differentiate between Speech disorders and Language disorders. Give examples of the Urdu language to express the extent of differences.
2) Explain the symptoms and causes of Voice disorders. How diagnosis of common voice disorders usually carried out in schools/clinics?
3) Fluency disorders are diverse and complicated enough to misguide the evaluator. Do you agree with the statement? Justify your answer.
4) Describe the symptoms of Social communication disorders in children at an early age. How can a teacher intervene informally to assist the child in this regard?
5) Differentiate between Hearing disorder and Central auditory processing disorder. How can a teacher assess the child based on responses of the child to sound/speech stimuli?
6) Describe the symptoms, causes, and interventions of Unspecified/functional speech disorders in children with special needs.

Suggested Readings

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UNIT 4

ARTICULATION THERAPY

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INTRODUCTION

Speech sound disorders (SSDs) , also known as articulation disorders, refer to any difficulty or a 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. SSDs can be organic or idiopathic in nature. Organic SSDs result from motor/neurological disorders (e.g., childhood apraxia of speech and dysarthria) , structural abnormalities (e.g., cleft lip/palate, and other structural deficits or anomalies), and sensory/perceptual disorders (e.g., hearing loss and phonological processing disorders, etc). Idiopathic SSDs usually have no known cause. Idiopathic SSDs are disorders of motor production of speech sounds and the linguistic aspects of speech production. These are referred to as articulation and phonological disorders, respectively. It is often difficult to differentiate between articulation and phonological disorders. Expertise is required to diagnose articulation and phonological disorders as two separate disorders. A child might show both articulation and phonological error types. Those specific errors might need different treatment approaches. This unit will reflect upon the symptoms, types, and treatment of articulation disorders.

OBJECTIVES

After reading this unit, students will be able to:

1 Understand the speech mechanism
2 Understand the Urdu speech sound system
3 Comprehend the basics of assessment of articulation skills
4 Delineate the steps of articulation therapy
5 Reflect upon strategies that teachers may use while engaging children in a classroom

4.1 SPEECH MECHANISM

The speech mechanism is a complex process that involves the coordinated function of various anatomical structures and physiological systems. Speech production can be understood by examining the roles of the respiratory system, phonatory system, resonatory system, and articulatory system. Each of these systems plays a crucial part in the generation and modulation of the speech mechanism.

1. Respiratory System

The respiratory system serves as the power source for speech. It includes the lungs, diaphragm, trachea, and associated muscles. During a speech act, air is drawn into the lungs through inspiration and then pushed out through expiration. The diaphragm and intercostal muscles contract and relax to control airflow and pressure. Controlled exhalation provides a steady stream of air, which is necessary to generate vocal sound at the larynx. Without sufficient respiratory support, speech/phonation may sound weaker or irregular even aphonic.

2. Phonatory System

The phonatory system is responsible for sound production and primarily involves the larynx (voice box), which houses the vocal cords (vocal folds). When air from the lungs passes through the glottis (the space between the vocal cords), it causes the vocal cords to vibrate, producing sound (Phonation). The pitch and loudness of the sound are regulated by the tension and length of the vocal cords, which are controlled by intrinsic laryngeal muscles. This sound remains like a buzzing noise until shaped by the upper vocal tract.

3. Resonatory System

The resonatory system modifies the sound produced by the larynx, giving it quality and richness. It includes the pharynx (throat), oral cavity (mouth), and nasal cavity (nose). These structures act as resonating chambers that amplify and produce quality to it. The velum (soft palate) plays a key role in directing the sounds either through the nose (as in nasal sounds like /m/, /n/, and /ng/) or through the mouth/oral cavity (as in most oral speech sounds). The size, shape, and configuration of these cavities program the resonance characteristics of each individual's voice.

4. Articulatory System

The articulatory system shapes the sound/phonation into intelligible speech. It includes the movable and fixed structures of the mouth: the tongue, lips, teeth, alveolar ridge, hard palate, and jaw. The tongue is especially important, since it is responsible for articulating most of the speech sounds by altering the shape of the oral cavity and creating constrictions at specific places. Coordination of these articulators regulates consonants and vowels, which combine to form syllables and words.

In summary, the mechanism of speech involves an intricate coordination between anatomical structures and physiological processes. Airflow from the

lungs powers sound production at the larynx in the form of phonation, which is then resonated and shaped into meaningful speech by the vocal tract. This coordination allows humans to produce a wide range of sounds essential for communication.

Figure 4.1
Anatomical structures involved in speech production

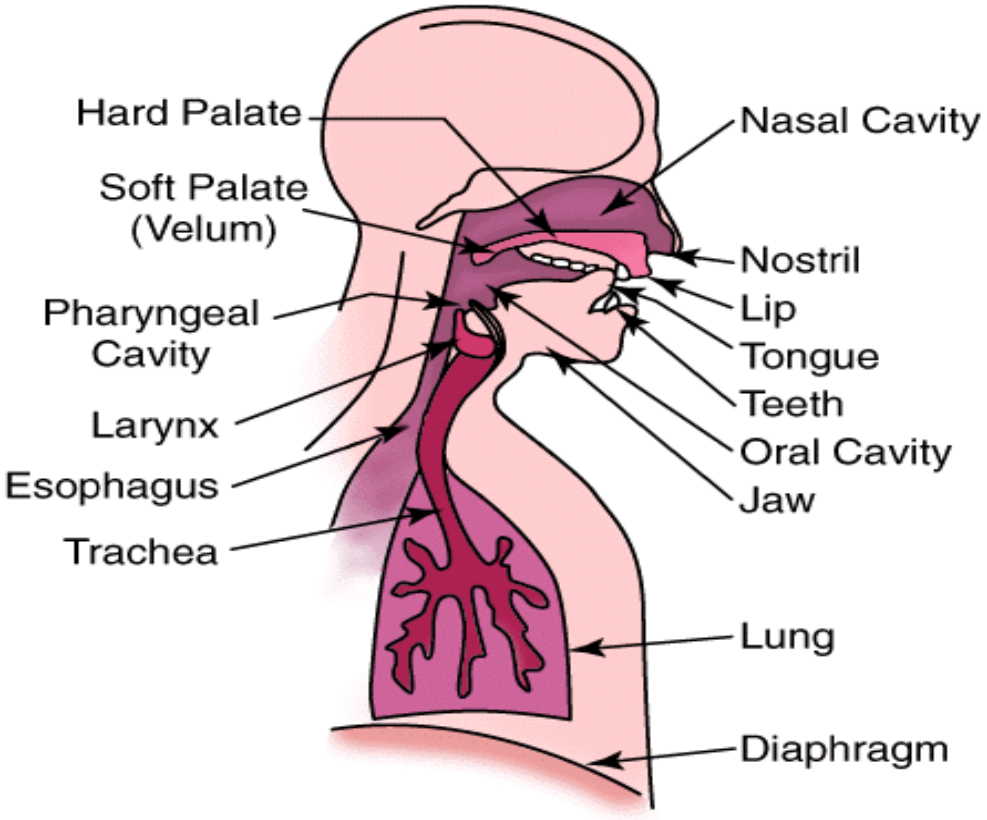


Figure 4.1 illustrates the human speech mechanism, highlighting the key anatomical structures involved in speech production. This diagram provides a visual representation of the various components involved in the process of speech production. Presented below is a breakdown of the **functions of each part** shown in the above diagram of the human speech production system.

1. Lungs

   Act as the primary source of airflow; they provide the necessary air pressure that powers voice production.

2. Diaphragm

   A large muscle below the lungs that contracts and flattens during inhalation; it helps regulate breath support during speech.

3. Trachea (Windpipe)

Serves as a passageway for air from the lungs to the larynx, a part of the respiratory tract.

4. Larynx (Voice Box)
   Houses the vocal folds that vibrate to produce a voiced sound when air passes through them. Vocal Cords, through their unique physiology, help regulate pitch and volume.
5. Vocal Folds (Cords)
   Vocal folds vibrate in response to air pressure provided by the lungs, thus causing phonation. Tension and length of vocal cords change for adjustments/control of loudness and/or pitch. The abduction and abduction process of the vocal cords is regulated by dedicated muscles of the larynx.
6. Pharynx (Throat)
   Acts as a resonating chamber that modifies the sound from the larynx; it connects the nasal and oral cavities to the larynx.
7. Nasal Cavity
   Resonant sounds for nasal phonemes like /m/, /n/, and /ŋ/ by allowing air to pass through the nose.
8. Oral Cavity
   Main resonating chamber for speech sounds; houses the articulators that shape the sound into specific speech phonemes.
9. Soft Palate (Velum)
   Elevates to close off the nasal cavity during most speech sounds (oral sounds), and lowers for nasal sounds.
10. Hard Palate
    Forms the roof of the mouth and serves as a contact point for the tongue in producing certain consonants like /ʃ/ as in ship and /j/ as in yes.
11. Tongue
    The most versatile articulator: shapes the oral cavity, creates constrictions, and modifies airflow to produce vowels and consonants. The tongue serves as the key articulator that reaches out to passive articulators, regulating oral sounds.
12. Lips
    Lips are involved in the production of bilabial and labiodental sounds (/p/, /b/, /f/, /v/). Further to it, lips also assist in shaping vowels by lip rounding sounds like /o/ or /u/.
13. Teeth
    Teeth are primarily responsible for biting and chewing; however, they also have a role as an articulator. The teeth serve as contact points for sounds like /t/, /d/, /θ/, and /ð/; assist the tongue and lips in articulation, and are termed lingua dental sounds.

14. Alveolar Ridge

The teeth are embedded in sockets called alveoli (gums). The alveolar ridge serves as the point of contact for sounds like /t/, /d/, /n/, and /l/.

4.2 INTRODUCTION TO URDU SPEECH SOUNDS

Urdu speech sounds (phonemes) include a wide range of consonants and vowels, influenced by several languages such as Arabic, Persian, Turkish, and Sanskrit. These sounds are produced using the same speech mechanism as in other languages, but Urdu has some distinct phonological features.

1. Consonants in Urdu

Urdu has a rich consonant system. It includes:

a. Plosives (Stops)

These sounds are produced by completely stopping the airflow and then releasing it.

i. **Voiceless Unaspirated:** /p/, /t̪/, /ʈ/, /k/, /q/

Table 4.1

Voiceless Unaspirated Consonants

Phonetic Symbol	Urdu Letter	Example Word (Urdu)	Sound Example (English)
/p/	پ	پتنگ(patang)	*p* as in **spin**
/t̪/	ت	تخت(takht)	Dental *t* (like in Hindi/Urdu)
/ʈ/	ٹ	ٹوپی(ṭopī)	Retroflex *t* (tongue curled back)
/k/	ک	کتاب(kitāb)	*k* as in **skip**
/q/	ق	قرآن(Qurʾān)	Voiceless uvular stop (Arabic-origin, deep *k*-like)

ii. **Voiced Unaspirated:** /b/, /d̪/, /ɖ/, /g/

Table 4.2

Voiced Unaspirated Consonants

Phonetic Symbol	Urdu Letter	Example Word (Urdu)	Sound (English)	Example
/b/	ب	بندر(bandar)	*b* as in **bat**	
/d̪/	د	دروازہ(darwāza)	Dental *d*	
/ɖ/	ڈ	ڈبہ(ḍabbā)	Retroflex *d*	
/g/	گ	گانا(gānā)	*g* as in **go**	

iii. **Voiceless Aspirated:** /pʰ/, /t̪ʰ/, /ʈʰ/, /kʰ/, /qʰ/

Table 4.3

Voiceless Aspirated Consonants

Phonetic Symbol	Urdu Letter	Example Word (Urdu)	Sound Example (English)
/pʰ/	پھ	پھول(phūl)	*ph* (p + strong breath)
/t̪ʰ/	تھ	تھالی(thālī)	Dental *th* (not like "this")
/ʈʰ/	ٹھ	ٹھوکر(ṭhokar)	Retroflex *th*
/kʰ/	کھ	کھانا(khānā)	*kh* (as in **Khan**)
/qʰ/	(rare/foreign)	Not native to Urdu	Voiceless aspirated uvular (not standard)

iv. **Voiced Aspirated:** /bʱ/, /d̪ʱ/, /ɖʱ/, /gʱ/

Table 4.4

Voiced Aspirated Consonants

Phonetic Symbol	Urdu Letter	Example Word (Urdu)	Sound Example (English)
/bʱ/	بھ	بھاری(bhārī)	*bh* (b + breathy voice)
/d̪ʱ/	دھ	دھوکہ(dhōka)	*dh* (d + breathy voice)
/ɖʱ/	ڑھ	ڑھول(ṛhōl) *(rare)*	Retroflex *dh*
/gʱ/	گھ	گھڑی(ghaṛī)	*gh* (g + breathy voice)

b. Nasals

Produced by allowing air to pass through the nose.

/m/, /n/, /ɳ/, /ŋ/

Table 4.5

Nasals (ناک سے نکلنے والے حروف)

Phonetic Symbol	Urdu Letter	Example (Urdu Word)	Sound in English
/m/	م	ماں(mə̃)	*m* as in **man**
/n/	ن	نرگس(nargis)	*n* as in **net**
/ɳ/	ں *(nasal marker)*	ہوں(hoon)	Retroflex nasal (nasalization, no exact English match)
/ŋ/	ں *(word-final)*	رنگ(rang)	*ng* as in **song**

c. Fricatives

Produced by forcing air through a narrow passage.

/f/, /v/, /s/, /z/, /ʃ/, /ʒ/, /x/, /ɣ/, /h/, /ɦ/

Table 4.6

Fricatives (رگڑ سے نکلنے والے حروف)

Phonetic Symbol	Urdu Letter	Example (Urdu Word)	Sound in English
/f/	ف	فلم(film)	*f* as in **fish**
/v/	و (sometimes)	ویلن(vāylan)	*v* as in **van**
/s/	س	سبز(sabz)	*s* as in **sun**
/z/	ز	زرد(zard)	*z* as in **zoo**
/ʃ/	ش	شیر(sheer)	*sh* as in **ship**
/ʒ/	ژ	ژالہ(zhāla)	*zh* as in **measure**
/x/	خ	خواب(k͟hwāb)	Harsh *kh* (no exact English equivalent)
/ɣ/	غ	غیر(ghair)	Soft *gh* (Arabic/Persian origin)
/h/	ہ	ہوا(hawā)	*h* as in **hat**
/ħ/	ح	حسن(ḥasan)	Pharyngeal *h* (stronger, from Arabic)

d. Affricates

A combination of stop and fricative.

/tʃ/, /dʒ/, /tʃʰ/, /dʒʱ/

Table 4.7

Affricates (مرکب بند آوازیں)

Phonetic Symbol	Urdu Letter	Example (Urdu Word)	Sound in English
/tʃ/	چ	چائے(chāy)	*ch* as in **church**
/dʒ/	ج	جادو(jādū)	*j* as in **jam**
/tʃʰ/	چھ	چھری(chhurī)	Aspirated *ch* (ch + breath)
/dʒʱ/	جھ	جھاڑو(jhāṛū)	Aspirated *j* (j + breath)

e. Laterals and Rhotics

Lateral: /l/

Table 4.8

Laterals (کنارے سے نکلنے والی آوازیں)

Phonetic Symbol	Urdu Letter	Example (Urdu Word)	Sound in English
/l/	ل	لال(lāl)	*l* as in **love**

Rhotics: /r/, /ɽ/ (a retroflex flap unique to languages like Urdu and Hindi)

Table 4.9

Rhotics (ر کی آوازیں)

Phonetic Symbol	Urdu Letter	Example Word) (Urdu	Sound in English
/r/	ر	رسی(rassī)	*r* as in **run** (tap/trill in Urdu)
/ɽ/	ڑ	لڑکی(laṛkī)	Retroflex *r*, unique to Urdu/Hindi

f. Glides (Approximants)

/w/, /j/

Table 4.10

Glides / Approximants (پھسلنے والی آوازیں)

Phonetic Symbol	Urdu Letter	Example Word) (Urdu	Sound in English
/w/ or /v/	و	وقت(waqt)	*was* in **water** or *v* as in **van** (contextual)
/j/	ی	یا(yā)	*y* as in **yes**

2. Vowels in Urdu

Urdu vowels can be short, long, or nasalized. The language has both oral and nasal vowel phonemes.

a. Short Vowels

/ɪ/ (as in *kitab* – book)

/ʊ/ (as in *khush* – happy)

/ə/ (as in *safar* – travel)

b. Long Vowels

/iː/, /eː/, /aː/, /oː/, /uː/

Table 4.11

Long Vowels (طویل حرکات)

These vowels are held longer in duration and often have a clear written representation in Urdu script.

Phonetic Symbol	Example Word (Urdu)	Romanized	English Clue
/aː/	بات	*bāt*	like **'a'** in *father*
/iː/	پیار	*piyār*	like **'ee'** in *see*
/eː/	میلے	*mele*	like **'e'** in *they*
/oː/	زور	*zōr*	like **'o'** in *go*
/uː/	پھول	*phūl*	like **'oo'** in *boot*

c. Nasalized Vowels

Nasalization is phonemic in Urdu and changes word meanings.

Examples: /ãː/, /ĩː/, /ũː/

Table 4.12

Nasalized Vowels (ناک سے بولی جانے والی حرکات)

These vowels have a nasal sound added, often indicated by the Urdu letter ں after the vowel.

Phonetic Symbol	Example Word (Urdu)	Romanized	Meaning	English Clue
/ãː/	ماں	*mãĩ*	mother	nasal *a* (no direct English equivalent)
/ĩː/	نہیں	*nahĩ*	no/not	nasal *ee*
/ũː/	ہوں	*hũ*	am (1st person)	nasal *oo*
/ẽː/	کہیں	*kahĩ*	somewhere	nasal *e*
/õː/	گاؤں	*gãĩw̃*	village	nasal *o*

3. Special Features in Urdu Phonology

Retroflex Consonants: Urdu features retroflex sounds like /ʈ/, /ɖ/, /ɳ/, /ɽ/, which are produced with the tongue curled back against the palate.

- /ʈ/ → ٹ (as in □□□□□)
- /ɖ/ → ڈ (as in □□□)
- /ɳ/ → ن with retroflex articulation (not separately written, seen in nasal contexts)
- /ɽ/ → ڑ (as in □□□□)

Aspiration Contrast: There is a clear distinction between aspirated and unaspirated consonants (e.g., /k/ vs /kʰ/).

- k/ → ک (as in □□□□)
- /kʰ/ → کھ (as in □□□□□)

Similarly:

- /p/ → پ, /pʰ/ → پھ
- /b/ → ب, /bʱ/ → بھ
- /t̪/ → ت, /t̪ʰ/ → تھ

Nasalization: A unique feature of Urdu where vowels can be nasalized (e.g., *hũ* means "I am").

Arabic and Persian Loan Sounds: Sounds like /q/, /x/, /ɣ/, and /ħ/ come from Arabic and Persian and are maintained in careful or formal speech.

- /q/ → ق (as in □□□□)
- /x/ → خ (as in □□□□)
- /ɣ/ → غ (as in □□□)
- /ħ/ → ح (as in □□□)

4.3 ASSESSMENT OF ARTICULATION SKILLS

Examining the language systems in use is the first step in the analysis of speech sounds. The tester takes into account speech patterns, rules, and sounds

that are components of the child's linguistic system. **Accents** are defined as systematic deviations in speech production that are distinguished from any native, mainstream, regional, or dialectal form of speech by phonological and/or prosodic characteristics, such as rate and fluency (Celce-Murcia et al., 1996; Valles, 2015). For listeners who are unfamiliar with the language, these linguistic variances may impact intelligibility. **Dialect** refers to a rule-based way of speaking that reflects a person's social or regional background. These rules affect all parts of language, including pronunciation, grammar, word meaning, and how language is used. Understanding the rules of a person's dialect is important when judging their speech, so we don't confuse natural variation with speech errors.

4.3.1 Screening of articulation disorders

Screening is conducted to rule out whether any formal investigation is warranted. The screening of language disorders needs to be carried out in the language normally used by the child in the home or learning environment. The purpose of the screening is to identify if a child requires speech-language assessment and/or referral for a detailed assessment by professionals.

Screening typically includes

- screening of individual speech sounds in single words and connected speech (using formal and/or informal screening measures),
- screening of oral motor functioning (e.g., range of motion of tongue, cleft palate, teeth, etc), and
- an informal assessment of language comprehension and production.

Screening may result in

- determination that speech is appropriate for a child's age ;
- recommendation to monitor speech and re-screen;
- referral for further investigation of probable cause;
- referral for a comprehensive speech sound assessment;
- recommendation for a comprehensive language assessment, if language delay or a language disorder is suspected;
- referral to an audiologist for a hearing evaluation, if hearing loss is suspected; and
- referral for medical or other professional services, as appropriate.

4.3.2 Comprehensive Assessment

The acquisition of speech sounds is a developmental process. Children often demonstrate "typical" errors and phonological patterns during this learning period. Developmental patterns vary across linguistic systems. Speech-language pathologists analyze whether those patterns are typical within the child's linguistic community or if the patterns are unexpected and not age-

appropriate within the linguistic community. Assessment includes a variety of measures and activities, including the administration of standardized and other formal assessment tools.

A. Case History

The case history typically includes gathering information about

- the family's concerns about the child's speech, language, and literacy skills;
- the history of middle ear infections;
- the family history of speech and language difficulties;
- the language(s) and dialect(s) used in the home;
- the primary language(s) and dialect(s) spoken by the child;
- the family's and other communication partners' perceptions of intelligibility;
- the teacher's report of any communication challenges faced by the child, the child's decreasing participation in the school setting, etc.

B. Oral Mechanism Examination

The oral mechanism examination (OMM) evaluates the structure and function of the physical speech mechanism to assess whether the system is adequate for speech production. With the prime focus on structure, strength, and range of articulators involved, OMM typically includes assessment of dental occlusion and specific tooth deviations; the structure of hard and soft palate (clefts, fistulas, bifid uvula); and the function (range of motion) of the lips, jaw, tongue, and velum.

C. Speech Sound Assessment

The speech sound assessment uses both standardized assessment instruments, as appropriate, and other sampling procedures to evaluate production in single words and connected speech. Criterion-referenced assessment procedures can also be used to add to an accurate profile of the child's speech skills, especially for children who use more than one language (Fabiano-Smith, 2019). To elicit a response and collect a speech sample, a testing tool may come in handy. The Test for Assessment of Articulation and Phonology in Urdu (TAAPU) is available to be used in the Pakistani context. It can be purchased at a minimal cost from author Noveen, S. (2018). The tools usually called as articulation test comprise picture cards and/or text that is arranged to justify different sound environments and contexts. The following are some key elements considered while defining the purpose of the test.

i. Single-word testing provides identifiable units of production and allows most consonants in the language to be elicited in various phonetic contexts; however, it may or may not reflect the same sound production as connected speech.

ii. Connected speech sampling provides information about the production of sounds in connected speech. Activities to elicit a connected speech

sample may include storytelling or retelling, describing pictures, and normal conversations about a topic of interest.

Assessment of speech includes an evaluation of the following:

- **Accurate productions**

sounds in various word positions (e.g., initial-word, within-word, and final-word positions) and in different phonetic contexts

sound combinations (e.g., vowel combinations, consonant clusters)

syllable shapes (e.g., from simple consonant–vowel to complex consonant–consonant–vowel–consonant–consonant)

- **Speech sound errors**

error types (e.g., deletions, omissions, substitutions, distortions, additions)

error distribution (e.g., position of the sound in a word)

error patterns (i.e., phonological patterns)—systematic sound changes or simplifications that affect a class of sounds (e.g., fricatives), sound combinations (e.g., consonant clusters), or syllable structures (e.g., complex syllables or multisyllabic words)

consistency of errors (e.g., inconsistent vs. consistent errors, whole-word variation of errors)

Types of Articulation errors/Disorders

- Omissions/deletions—Certain sounds are omitted or deleted (e.g., /kʌ/ for "cup" and /pun/ for "spoon").
- Substitutions—One or more sounds are substituted, which may result in loss of phonemic contrast (e.g., /sing/ for thing and /wabit/ for "rabbit").
- Additions—One or more extra sounds are added or inserted into a word (e.g., /belack/ for "black").
- Distortions—Sounds are altered or changed (e.g., a lateral /s/).
- Syllable-level errors—Weak syllables are deleted (e.g., /tefoon/ for "telephone").
- Inconsistent whole-word productions—The same word is produced differently across repetitions (e.g., "strawberry" as /sebi/, /ʃeberi/, or /tebii/) in the absence of motor speech difficulties.

4.4 STEPS OF ARTICULATION THERAPY

Treatment of speech sound disorders (SSDs) typically involves the following sequence of steps:

1. Establishment—eliciting target sounds and stabilizing production on a voluntary level
2. Generalization—facilitating carryover of sound productions at increasingly challenging levels (e.g., syllables, words, phrases/sentences, conversational speaking)

3. Maintenance—stabilizing target sound production and making it more automatic; encouraging self-monitoring of speech and self-correction of errors

4.4.1 Target Selection

Approaches for selecting initial therapy targets for children with SSDs include the following:

- Client-specific—Target sounds are selected based on factors such as relevance to the child and their family (e.g., sound is in the child's name), stimulability, and/or visibility when produced (e.g., /f/ vs. /k/).
- Degree of deviance and impact on intelligibility—Target sounds are selected based on errors (e.g., omission, initial-consonant deletion) that most affect intelligibility.
- Developmental—Target sounds are selected based on the order of acquisition in typically developing children.
- Theoretically motivated, including the following:

i. Complexity—focuses on more complex, linguistically marked phonological elements not in the child's phonological system to encourage cascading, generalized learning of sounds (Gierut, 2007; Storkel, 2018). These include hierarchies of complexity (e.g., clusters, fricatives, and affricates are more complex than other sound classes) and stimulability (i.e., sounds with the lowest levels of stimulability are most complex).

ii. Dynamic systems—focuses on teaching and stabilizing simple target phonemes that do not introduce new feature contrasts in the child's phonological system to assist in the acquisition of target sounds and more complex targets and features (Rvachew & Bernhardt, 2010).

iii. Systemic—focuses on the function of the sound in the child's phonological organization to achieve maximum phonological reorganization with the least amount of intervention. Target selection is based on a distance metric. Targets can be maximally distinct from each other and the child's error in terms of place, voice, and manner (Williams, 2003b). For example, the SLP might target voiced versus voiceless fricatives and affricates if the child uses /h/ for multiple phonemes

4.4.2 Treatment Strategies

In addition to selecting appropriate targets for intervention, experts may select treatment strategies based on the number of intervention goals addressed in each session and the way these goals are to be implemented. A particular strategy may not be appropriate for all children, and strategies may change

throughout the course of intervention as the child's needs change. The strategies include the following:

- Vertical—intense practice on one or two targets until the child reaches a specific criterion level (usually conversational level) before proceeding to the next target or targets (see, e.g., Fey, 1986).
- Horizontal—less intense practice on a few targets. Multiple targets are addressed individually or interactively in the same session, thus providing exposure to more aspects of the sound system (see, e.g., Fey, 1986).
- Cyclical—incorporating elements of both horizontal and vertical structures. The child is provided with practice on a given target or targets for some predetermined period of time before moving on to another target or targets for a predetermined period of time. Practice then cycles through all targets again (see, e.g., Hodson, 2010)

4.5 PRACTICAL TIPS FOR TEACHERS TO DEVELOP SPEECH IN CLASSROOMS

The following are brief descriptions of both general and specific treatments for children with articulation disorders. These approaches can be used by teachers to treat speech sound problems in a variety of populations, in the absence of professional support.

A. Contextual utilization approaches recognize that speech sounds are produced in syllable-based contexts in connected speech and that some (phonemic/phonetic) contexts can facilitate the correct production of a particular sound. Contextual utilization approaches may be helpful for children who use a sound inconsistently and need a method to facilitate consistent production of that sound in other contexts. For example, the production of a /t/ may be facilitated in the context of a high front vowel, as in "tea" (Bernthal et al., 2022).

B. A core vocabulary approach focuses on whole-word production and is used for children with inconsistent whole-word production (i.e., inconsistent phonological errors) who may be resistant to more traditional therapy approaches. Words selected for practice are those used frequently in the child's functional communication. A list of frequently used words is developed (e.g., based on observation, parent report, and/or teacher report), and of words from this list are selected each week for treatment. The child is taught their "best" word production, and the words are practiced until consistently produced (Dodd et al., 2006).

C. The cycles approach combines target selection strategies and intervention schedule. The cycles approach targets phonological pattern errors and is designed for children with highly unintelligible speech who have extensive omissions, some substitutions, and a

restricted use of consonants. Treatment is scheduled in cycles, ranging from 5 to 16 weeks. During each cycle, one or more phonological patterns are targeted. After each cycle has been completed, another cycle begins, targeting one or more different phonological patterns. Recycling of phonological patterns continues until the targeted patterns are present in the child's spontaneous speech (Hodson, 2010; Prezas & Hodson, 2010; Prezas et al., 2023).

D. Integrated phonological awareness is designed to improve a child's representation of the sound structure of spoken language. Phoneme awareness tasks, combined with letter–sound knowledge, are incorporated into speech sound production intervention. Skills targeted in integrated phonological awareness might include rhyme, phoneme manipulation, phoneme identity, phoneme segmentation, phoneme blending, and linking speech to print (Gillon, 2000).

E. Speech sound perception training is used to help a child acquire a stable perceptual representation for the target phoneme or phonological structure. The goal is to ensure that the child is attending to appropriate acoustic cues and weighing them according to a language-specific strategy (i.e., one that ensures reliable perception of the target in a variety of listening contexts).

Examples of tasks are as follows:

Auditory bombardment—Many and varied target exemplars are presented to the child, sometimes in a meaningful context such as a story, and often with amplification.

Identification tasks—The child identifies correct and incorrect versions of the target (e.g., /ræt/ is a correct exemplar of the word "rat," whereas /wæt/ is not).

Tasks typically progress from the child judging speech produced by others to the child judging the accuracy of their own speech.

F. Metaphon therapy is designed to teach metaphonological awareness, or the awareness of the phonological structure of language. This approach assumes that children with phonological disorders have failed to acquire the rules of the phonological system. The focus is on sound properties that need to be contrasted. For example, for problems with voicing, the concept of "noisy" (voiced) versus "quiet" (voiceless) is taught. Targets typically include processes that affect intelligibility, can be imitated, or are not seen in typically developing children of the same age (Dean et al., 1995; Howell & Dean, 1994).

G. Speech motor chaining, based on motor learning theories, focuses on the repeated motor practice of speech targets (Preston et. al., 2019). Sessions are divided into three phases. The first phase—pre-practice or elicitation—focuses on the child distinguishing between the correct and incorrect productions of speech sounds. Once the child meets the criteria, the child moves onto the second phase, which is structured

practice using speech motor chaining. In the second phase, the child practices the target speech sound in the following progression:

Syllables ⟹ monosyllabic words ⟹ multisyllabic words ⟹ phrases ⟹ self-generated sentences, ⟹ randomized practice

H. Naturalistic speech intelligibility intervention addresses the targeted sound in naturalistic activities that provide the child with frequent opportunities for the sound to occur. For example, using a restaurant menu, signs at the grocery store, or favorite books, the child can be asked questions about words that contain the targeted sound(s). The child's error productions are recast without the use of imitative prompts or direct motor training.

I. Phonological contrast approaches are frequently used to address phonological error patterns. They focus on improving phonemic contrasts in the child's speech by emphasizing sound contrasts necessary to differentiate one word from another. Contrast approaches use contrasting word pairs as targets instead of individual sounds. There are four different contrastive approaches:

1. Minimal oppositions (also known as "minimal pairs" therapy)—uses pairs of words that differ by only one phoneme or single feature signaling a change in meaning. Minimal pairs are used to help establish contrasts not present in the child's phonological system (e.g., /doʊɹ/ /soʊɹ/, /pɑt/ vs. /spɑt/, /ki/ vs. /ti/; Blache et al., 1981; Weiner, 1981).
2. Maximal oppositions—uses pairs of words containing a contrastive sound that is maximally distinct and varies on multiple dimensions (e.g., voice, place, and manner) to teach an unknown sound. For example, /mɑl/ and /kɑl/ are maximal pairs because /m/ is a bilabial voiced nasal, whereas /k/ is a velar voiceless stop (Gierut, 1989, 1990, 1992).
3. Treatment of the empty set—similar to the maximal oppositions approach but uses pairs of words containing two maximally opposing sounds (e.g., /ɹ/ and /d/) that are unknown to the child (e.g., "row" vs. "doe" or "ray" vs. "day"; Gierut, 1992).
4. Multiple oppositions—a variation of the minimal oppositions approach, but uses pairs of words to target phoneme collapse (Storkel, 2022). Phoneme collapse happens when one sound substitutes for many sounds, such as /d/ for /d, f, tʃ, s, t, st/. With multiple oppositions, the clinician could pair "door," "four," "chore," "sore," and "tore," if /d/ is produced for targets /d, f, tʃ, s, t.

- **Some simple tips to support practice**
- Using a mirror for visual feedback of the placement and movement of articulators.

- Using gestural cueing for place or manner of production (e.g., using a long sweeping hand gesture for fricatives vs. a short "chopping" gesture for stops).
- Amplifying target sounds to improve attention, reduce distractibility, and increase sound awareness and discrimination—for example, auditory bombardment with low-level amplification is used with the cycles approach at the beginning and end of each session to help children perceive differences between errors and target sounds (Hodson, 2010).
- Providing spectral biofeedback through a visual representation of the acoustic signal of speech (McAllister Byun & Hitchcock, 2012).
- Providing tactile biofeedback using tools, devices, or substances placed within the mouth (e.g., tongue depressors, peanut butter) to provide feedback on correct tongue placement and coordination (Altshuler, 1961; Leonti et al., 1975; Shriberg, 1980).
- Nonspeech oral motor exercises involve the use of oral motor training before teaching sounds or as a supplement to speech sound instruction.

Self Assessment Questions

1. Explain the roles of the respiratory, phonatory, resonatory, and articulatory systems in speech production.
2. What are the major anatomical parts involved in speech, and how do they function together?
3. How does air pressure from the lungs contribute to sound production?
4. What is the difference between voiced and voiceless sound production?
5. Identify and classify the Urdu consonants and vowels using phonetic symbols.
6. What distinguishes aspirated from unaspirated sounds in Urdu?
7. How are nasalized vowels produced and represented in the Urdu script?
8. Can you enlist retroflex and borrowed sounds from Arabic and Persian in Urdu?
9. What tools and methods are used to assess articulation skills in children?
10. Enlist common articulation errors. How do you determine whether a speech sound error is developmental or disordered?
11. What is the importance of using both informal and standardized assessments?
12. What are the main stages of articulation therapy? How will you select target sounds for articulation therapy?
13. What strategies can be used to help generalize correct sound production into everyday speech?
14. How can a teacher assist a speech therapist to maintain progress during articulation therapy?

15. What classroom strategies can help support speech development in children with articulation delays?
16. How can visual, auditory, and tactile cues aid in teaching correct speech sounds?
17. What are some inclusive practices/strategies that teachers can use to engage children with speech difficulties in the classroom?
18. How should a teacher collaborate with speech-language pathologists and parents?

Suggested Readings

Shipley, K. G., & McAfee, J. G. (2021). *Assessment in speech-language pathology: A resource manual* (6th ed.). Cengage Learning.

Abou-Khalil, R., & Webb, W. (2023). *Neurology for the Speech-Language Pathologist* (7th ed.). Elsevier. ISBN: 9780323830980.

UNIT 5

LANGUAGE THERAPY

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INTRODUCTION

Language skill development refers to the process by which individuals, particularly children, acquire the ability to communicate effectively through language. This development typically involves several stages and is influenced by various factors, including genetics, environment, and individual motivation. Language therapy is a broad label for many types of therapies that a speech-language professional can provide for children and adults having communication challenges. Language therapy addresses children with delays or disorders. As an expert in communication, the speech therapist aims to choose a few targets that one has difficulties with. Most of the time, this involves breaking down the skills training into smaller achievable steps and specifically utilizing behavioral techniques to achieve them. As the targeted behaviors develop, the effort is aimed for accuracy and use in spontaneous conversation. The SLP may use a variety of techniques to help teach skills by using pictures, text, verbal reminders, and other activities of this sort.

OBJECTIVES

After reading the unit, students will be able to:

1Differentiate between Receptive and expressive language skills

1 Understand the strategies to develop listening skills for language development
2 Elaborate the strategies to develop grammar skills in children with special needs
3 Know about the useful tips to develop questioning skills in children
4 Comprehend the significance of developing Social language skills
5 Discuss the importance of developing Literacy skills in early school years
6 Delineate the activities to develop language skills in classrooms

5.1 RECEPTIVE AND EXPRESSIVE LANGUAGE SKILLS

Receptive Language Skills (فہم زبان کی صلاحیتیں) skills involve understanding spoken or written language. It's about how well a person can receive and interpret information. The key skills involved in receptive language skills are:

- Listening
- Understanding vocabulary, grammar, and sentence structure
- Following directions
- Comprehension

Consider if in response to a given direction an accurate behavior is elicited, this would mean that the person has receptive language using which, he was able to follow the direction. Let's make it simpler by giving an easy example. Imagine a child hears the instruction: "کتاب میز پر رکھ دو" (*Put the book on the table*) and was able to correctly follow it is indicative of strong receptive skills. During a story-time in class, a student listens to a story like "ببر شیر نے جنگل میں چہل قدمی کی". If the student understand and recall details of the story later on or answer comprehension questions posed at the end of story. It reflects receptive language skills. A teacher can play a crucial role in developing receptive language skills with the help of simple activities e.g. visuals based stories, giving clear simple instructions to follow, playing listening games etc.

Expressive Language Skills (اظہارِ زبان کی صلاحیتیں) involve using words, sentences, and gestures to express thoughts, ideas, or needs. Key abilities involves in the expressive skills are:

- Naming objects or people
- Answering questions verbally
- Telling a story or describing event.

For example if a child is asked, "یہ کیا ہے؟" (What is this?) while pointing to a کتاب (book), and the child replies, "یہ کتاب ہے". This is an example of expressive language. Similarly if student narrates a story in Urdu: "میں کل پارک گیا تھا۔ وہاں میں نے جھولے لیے"This use of structured, detailed language shows expressive skills. A teacher can use sentence completion exercise, picture description task, story telling competitions, debates, role plays etc., to develop expressive language skills in children with and without special needs.

5.1.1 Language Development

Language development is closely linked to cognitive development, as it helps children learn to think, reason, and solve problems. Strong language skills are essential for success in school, as they enable students to understand and learn from textbooks, lectures, and other educational materials. Language skills are vital for forming relationships, building connections with others,

and navigating social situations.Effective communication and language skills contribute to overall well-being and help individuals feel understood and connected.

- Stages of Language Development:
- **Pre-linguistic Stage:** Babies begin with sounds like crying and cooing before transitioning to babbling, where they produce sounds similar to their language.
- **One-Word Stage:** Children start using single words to express their needs and desires.
- **Two-Word Stage:** They begin combining words to form simple sentences.
- **Telegraphic Stage:** Sentences become more complex, with children using more words and grammatical structures.
- **Multi-word Stage:** Children develop fluency and use more complex sentence structures.

5.1.2 Language Skills

Language Skills includes:

Listening: Actively listening to and understanding what others are saying is a key language skill.
Speaking: Communicating effectively through spoken language involves both articulation and the use of appropriate vocabulary and grammar.
Reading: Understanding written language requires decoding skills, vocabulary knowledge, and comprehension strategies.
Writing: Expressing ideas in written form involves grammar, spelling, and the ability to organize information effectively.
Vocabulary: Having a strong vocabulary allows individuals to communicate more effectively and express themselves more precisely.
Grammar: Understanding and using grammatical rules is essential for producing and understanding grammatically correct sentences.
Phonology: Understanding the sounds of a language, including the pronunciation of words.

5.2 LISTENING SKILLS

Listening skills play a foundational role in language development, particularly in early childhood. Through listening, children learn to understand sounds, words, sentence patterns, and the meaning of language in context. It is by hearing spoken language—whether from parents, teachers, or peers—that children begin to imitate speech, expand their vocabulary, and grasp grammar. For children with special needs, developing listening skills becomes even

more crucial, as it directly influences their ability to communicate effectively, follow instructions, and engage socially. Strong listening abilities also enhance cognitive processes like attention, memory, and comprehension, all of which are essential for academic success. Therefore, nurturing listening skills is not just about language—it's about building the foundation for lifelong learning and interaction.

Developing listening skills is essential for language development, especially in children with special needs. These children may have a range of challenges—such as hearing impairments, auditory processing difficulties, attention deficits, or cognitive delays—that require tailored strategies. Below are effective and inclusive strategies a teacher or caregiver can use:

1. Create a Distraction-Free Listening Environment

- Minimize background noise (e.g., fans, loud peers, traffic).
- Use visual cues (like pictures or flashcards) to support focus.
- Seat the child close to the teacher or speaker for better sound access.

2. Use Visual Supports Alongside Verbal Language

- Pair spoken words with images, gestures, or real objects.
- Helps children with autism or intellectual disabilities process better by showing a toy کتاب (book) while saying: "یہ کتاب ہے، اسے کھولو" (*This is a book, open it*).

3. Break Instructions into Simple Steps

- Use short, clear Urdu sentences.
- Give one-step directions at a time and repeat if needed. Instead of saying "اپنی کتاب نکالو اور صفحہ نمبر پانچ کھولو", say:

i. "اپنی کتاب نکالو"
ii. "صفحہ نمبر پانچ کھولو"

4. Use Repetition and Reinforcement

- Repeat key words and instructions multiple times.
- Reinforce listening behavior with praise or small rewards. For e*xample:* After a child listens and follows, say "شاباش! تم نے میری بات سنی اور صحیح کام کیا".

5. Incorporate Listening Games and Activities

- Games like "Urdu Simon Says", rhymes, and sound matching.
- Use clapping, rhythm, and call-and-response for engagement.

- A simple game we used to play helps to builds attention and processing i.e.
"اگر میں کہوں بیٹھو تو بیٹھو، اگر نہ کہوں تو مت بیٹھو!"

6. Model Good Listening Behavior

- Show active listening (eye contact, nodding, repeating back).
- Children often imitate adult behavior.
- Repeat what the child says to model attention and confirmation.

7. Use Assistive Technology (if needed)

- For children with hearing impairments, use FM systems, hearing aids, or speech-to-text apps.
- Closed captions or visual transcripts help children with auditory processing issues.

8. Collaborate with Speech Therapists and Parents

- Share strategies and observations.
- Use consistent listening cues and prompts across home and school.

A teacher need to individualize strategies based on the child's specific needs, abilities, and learning style.

5.3 GRAMMAR SKILLS

Grammar forms the structural foundation of any language, enabling meaningful communication through correct arrangement of words and phrases. It includes rules for sentence structure, verb tenses, word order, and agreement between subjects and verbs. In the process of language development, grammar plays a critical role by helping children express their thoughts clearly and understand others effectively. Mastery of grammar not only supports spoken and written communication but also strengthens reading comprehension and academic learning. For children with special needs, developing grammar skills is especially important, as difficulties in this area can impact their ability to form coherent sentences, follow instructions, and engage socially. Therefore, targeted support in grammar development is essential to promote overall language growth and effective communication.

Developing grammar skills in children with special needs requires intentional, supportive, and individualized teaching strategies that align with the child's developmental level and learning style. One of the most effective approaches is using modeling, where teachers and caregivers frequently use grammatically correct sentences during natural conversations. For example, instead of correcting a child who says "کتاب گرا" (*book fell*), the teacher might say, "ہاں،

کتاب گر گئی ہے" (*Yes, the book has fallen*), subtly reinforcing correct subject-verb agreement in Urdu. Recasting is another useful technique, where a teacher repeats the child's sentence with correct grammar while keeping the meaning intact. If a child says, "وہ دوڑ" (*he run*), the adult may respond, "ہاں، وہ دوڑ رہا ہے" (*Yes, he is running*), providing a clear grammatical model without direct correction. This helps the child hear correct forms repeatedly in meaningful contexts.

Using visual aids and story-based learning can also significantly support grammar acquisition. Picture books and sequencing cards that illustrate actions (e.g., eating, playing, sleeping) can be used to teach verb tenses and sentence structure. For instance, children can describe what's happening in each picture, and the teacher can guide them to use complete sentences such as "لڑکی کھانا کھا رہی ہے" (*The girl is eating food*), helping reinforce proper syntax.

Interactive activities and games like sentence-building puzzles, fill-in-the-blanks, or matching subjects with appropriate verbs can make learning grammar engaging and multi-sensory. For children with language delays or intellectual disabilities, starting with simple sentence structures (e.g., noun + verb) and gradually increasing complexity helps scaffold their understanding.

Consistency across environments is crucial. Teachers and parents should collaborate to ensure the child receives repeated exposure to correct grammar both at school and at home. In cases where a child has more significant language difficulties, speech-language therapists can provide targeted intervention, using tools such as visual schedules, augmentative communication systems, or grammar-focused drills tailored to the child's individual needs. In summary, grammar development in children with special needs can be effectively supported through naturalistic modeling, structured activities, and consistent, encouraging communication that respects each child's pace and ability.

5.4 QUESTIONING SKILLS

Questioning is a vital communication skill that allows individuals to seek information, express curiosity, and engage meaningfully in conversations. It involves both the ability to ask and answer questions, using appropriate vocabulary, sentence structure, and intonation. In language development, questioning serves as a tool for learning, critical thinking, and social interaction. For children with special needs, the development of questioning skills is particularly significant, as it enhances their ability to express needs, clarify confusion, and participate actively in classroom and social settings. A lack of questioning ability may limit a child's independence, reduce opportunities for learning, and hinder their interaction with peers and adults.

To develop questioning skills in children with special needs, educators and caregivers must use structured and supportive strategies. Modeling is one effective approach, where adults frequently use various types of questions (e.g., "کیا؟"، "کیوں؟"، "کہاں؟") during everyday interactions. For example, while

showing a picture, the teacher might say, "یہ کیا ہے؟" (*What is this?*) and then answer it, "یہ سیب ہے" (*This is an apple*), giving the child a model to imitate.

Visual supports like question word cards or picture prompts can help children understand and remember different types of questions. For children with limited verbal skills, using AAC (augmentative and alternative communication) systems—such as communication boards with question symbols—can encourage question-asking even before verbal skills are fully developed. Reinforcement and prompting also play a crucial role. When a child attempts to ask or answer a question, even imperfectly, the adult should respond positively and build on it. For instance, if a child says "کہاں؟", the teacher can expand it into a full sentence: "تم پوچھ رہے ہو، کتاب کہاں ہے؟" (*You are asking, where is the book?*). Gradually, the child learns both the question form and its purpose.

Additionally, interactive games and storytelling that involve asking and answering questions in a fun, engaging way can strengthen this skill. Teachers can use puppets, role-play, or picture books and pause to ask questions like, "لڑکا کہاں جا رہا ہے؟" (*Where is the boy going?*), encouraging children to think and respond.

In conclusion, questioning is more than just a language skill—it's a gateway to learning, independence, and social connection. For children with special needs, intentional support in developing this skill can lead to significant gains in confidence, communication, and participation.

5.5 SOCIAL LANGUAGE SKILLS

Social language skills refer to the ability to use language appropriately in social situations. This includes knowing what to say, how to say it, when to say it, and to whom to say it. These skills are part of pragmatic language, a branch of language development that deals with the use of language in context rather than just grammar or vocabulary.

Social language skills includes:

- Initiating and maintaining conversations
- Understanding tone, facial expressions, and body language
- Taking turns while speaking
- Using polite forms (e.g., greetings, requests, and apologies)
- Understanding social rules, like staying on topic or adjusting language based on the listener (e.g., speaking differently to a friend vs. a teacher)

Social language skills are essential for building relationships, participating in school activities, and engaging in everyday interactions. Without these skills, a child may struggle to make friends, understand social cues, or work in groups. For children with special needs—such as those with autism, ADHD, or speech and language delays—social communication may be especially challenging, which can lead to social isolation, behavioral issues, or low self-esteem.

Supporting these skills is crucial for their overall emotional and academic development.

5.5.1 Strategies to Develop Social Language Skills in Children with Special Needs

i. Start by using **role-play and modeling**. Teachers and caregivers can act out common social situations (e.g., greeting someone, asking for help) and demonstrate the appropriate language and tone. For example, model how to say, **"السلام علیکم، آپ کیسے ہیں؟"** (*Hello, how are you?*) and guide the child to repeat it.

ii. Use **visual supports** such as social stories, emotion cards, and behavior charts to explain social rules and expectations. A story about "How to make a new friend" in Urdu can illustrate steps like saying **"کیا میں تمہارے ساتھ کھیل سکتا ہوں؟"** (*Can I play with you?*), helping children understand and practice real interactions.

iii. Encourage **peer interaction** in structured settings like group activities or paired tasks. The teacher can facilitate conversation by prompting children to ask questions or give compliments, such as **"تمہارا رنگ خوبصورت ہے"** (*Your drawing is beautiful*).

iv. Teach **emotional awareness and expression** using feelings charts or games. Helping children recognize and label emotions like خوشی (happiness), غصہ(anger), or اداسی (sadness) enables them to respond to others appropriately.

v. Practice **turn-taking and listening skills** through board games, storytelling, or conversation circles. Children can take turns speaking, learning when to talk and when to listen—critical elements of effective communication.

vi. Provide **consistent feedback and positive reinforcement**. When a child uses appropriate social language, praise them specifically: **"کی تم نے اپنے دوست سے اچھی طرح بات !زبردست"** (*Well done! You spoke nicely with your friend*).

vii. Finally, collaboration with **speech-language therapists**, parents, and school staff ensures the child gets consistent support across different environments.

In conclusion, nurturing social language skills in children with special needs helps them build relationships, express themselves, and participate meaningfully in daily life. With patience, structure, and encouragement, these skills can be taught and strengthened over time.

5.6 LITERACY SKILLS

Literacy skills refer to the ability to read, write, understand, and use language effectively in everyday life. These foundational skills are essential for academic success, communication, and lifelong learning. Literacy

development includes recognizing letters and sounds (phonemic awareness), understanding how print works, developing vocabulary, reading comprehension, and written expression. For children with special needs, building literacy skills is particularly important, as challenges in this area can limit access to education, reduce independence, and hinder full participation in society. Literacy empowers children to express themselves, engage with stories and information, and build confidence in their learning abilities.

Developing literacy skills in children with special needs requires a structured, multi-sensory, and individualized approach. Phonological awareness activities—such as rhyming games, clapping out syllables, or matching beginning sounds—help children understand the sound structure of language. For example, a teacher might say, "کتاب اور جناب میں کیا چیز ایک جیسی ہے؟" (*What is the same in kitab and janab?*) to highlight rhyming sounds.

Visual aids and tactile materials can support letter recognition and word formation. Using sandpaper letters, magnetic alphabets, or large print flashcards can make learning more accessible, especially for children with visual or motor difficulties. Repeated exposure to print in meaningful contexts—such as labels on classroom objects or daily routine charts—also reinforces recognition and understanding of written words.

Shared reading and interactive storytelling are powerful tools to develop both listening and reading comprehension. Reading Urdu storybooks aloud, pointing to words, and asking predictive questions like " آپ کو کیا لگتا ہے آگے کیا ہوگا؟" (*What do you think will happen next?*) engage the child actively and build vocabulary and comprehension.

Writing activities should begin with pre-writing skills, such as drawing shapes and tracing letters, and gradually move to copying, dictating, and eventually writing simple words and sentences. For children with limited fine motor skills, assistive tools like pencil grips, lined paper, or even typing devices can make writing easier and more comfortable.

Encouragement and positive reinforcement are key throughout the literacy learning process. Celebrating small milestones, like identifying the first letter of their name or reading a simple word, helps build motivation and confidence. Collaboration between teachers, parents, and specialists ensures consistency and reinforces learning across environments.

In summary, literacy is more than just reading and writing—it is a vital skill that opens doors to knowledge, expression, and independence. With the right strategies, tools, and support, children with special needs can develop strong literacy foundations that empower them to thrive in school and beyond.

5.7 VOCABULARY DEVELOPMENT

Teaching is language-based, so children with poor skills in vocabulary and concepts will be at a disadvantage in school. Vocabulary may be regarded as the building blocks of all language. Children may have a poor vocabulary for a range of reasons, including general poor language skills or specific language

difficulties. Explicit teaching of vocabulary can therefore assist the language skills of all children and will also impact reading comprehension. Vocabulary means words, whilst concepts are broader ideas. When vocabulary is linked, concepts can be formed. Thinking in concepts allows for the organization of large amounts of information.

5.7.1 Strategies to support vocabulary development

General strategies to consider are as follows:

- Never presume a child will know a word, even if it's a very basic word.
- Introduce new words gradually. Avoid overwhelming children with too many new words at once.
- Repeat and revisit new words frequently.
- Offer positive reinforcement and guidance to encourage vocabulary growth.
- Recognize and celebrate any progress made in vocabulary development to maintain motivation.
- Use books with pictures and diagrams.
- Encourage the child to draw new words. Doing something active to internalize the word whenever possible.
- Use real objects and pictures (use key vocabulary on class displays with the words and pictures together).
- Children need to say new words themselves, not just hear an adult say them.
- Vocabulary will not be internalized unless it is used in sentences. Opportunities to use vocabulary verbally are necessary.
- Word pots, word walls, word bags, etc. may be used to support both curriculum and general vocabulary. Asking children to put a chosen word into a sentence reinforces understanding.
- Word games are available for all levels of vocabulary development.
- Talk about the topic. Repeating the vocabulary and giving the children opportunities to identify key topic words. Make a topic web.
- Visual and multi-sensory strategies support the learning of vocabulary. Once children can connect words, concepts, and ideas, they can think in new ways, solve problems, and ask questions. Children with language difficulties often have problems organizing information.
- Grouping and categorization skills support the storage and retrieval of new words. Strengthening the child's knowledge of categories by being able to classify them allows children to remember words. This means they can link new words with information they already know. Using category boxes or collections encourages vocabulary development by the naming of the objects, describing the objects, using the correct verbs associated with the objects, etc.

- Using word maps to develop awareness of word relationships (category, opposite, same as, kind of, etc.) through games.
- Topic webs (or mind maps) can be used to show a child how words link together. Make sure you use pictures/symbols to help the child remember the words. You can gradually add to the topic web over time and come back to 'revise' old words before adding new ones.
- Recognize that children with special needs may have different learning styles and needs, so adapt your approach accordingly.
- Encourage children to actively participate in learning new words, such as through drawing, using clay to form words, or dramatizing their meanings.
- Involve multiple senses to make learning more engaging and memorable.

A teacher may use any one or combination of strategies as discussed to improve the vocabulary of children with special needs. Don't hesitate to seek guidance from professionals or support groups if you are facing challenges.

Self Assessment Questions

1. How does the development of listening skills support other aspects of language development, such as vocabulary and comprehension?
2. Describe a classroom activity that could enhance the listening skills of children with special needs.
3. How do environmental factors (such as background noise or distractions) affect a child's ability to listen and comprehend language?
4. Why are grammar skills essential for language development? How do they contribute to both written and spoken communication?
5. Provide an example of a Urdu sentence that demonstrates the subject-verb agreement rule.
6. How can the incorrect use of tense affect the meaning of a sentence? Correct the following sentence: "میں کل اسکول جا رہا تھا" (I was going to school yesterday).
7. What are some strategies a teacher can use to teach complex sentence structures to children with special needs?
8. Why is questioning considered an important skill for language development? How does it promote communication and cognitive thinking?
9. What is the difference between closed-ended and open-ended questions? Provide one example of each in Urdu.
10. How can teachers use peer interactions to promote the development of questioning skills in children with special needs?
11. Explain the role of phonemic awareness in the development of literacy skills. How does it help children decode words?

12. Describe a classroom activity that can help children with special needs improve their reading comprehension.
13. How can writing activities be adapted to help children with fine motor difficulties develop their writing skills?
14. What are pragmatic language skills, and why are they important for children's social interactions and language development?
15. How can teachers use role-play activities to enhance social language skills in children with special needs? Provide an example in Urdu.
16. How can a child's understanding of emotion words (e.g., happy, sad, angry) improve their social language skills? How would you teach a child to express their feelings using correct language?
17. Prepare a plan to improve the vocabulary of a child with mild intellectual disability.

Suggested Readings

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UNIT 6

LISTENING SKILLS AND COMMUNICATION

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INTRODUCTION

This unit explores the fundamental concepts and practices related to auditory training, speech perception, and language development. It aims to provide readers with an in-depth understanding of how the auditory system processes sound, the importance of auditory training in enhancing speech perception, and the developmental stages of listening skills, particularly for individuals with hearing impairments. The material is designed to support educators, speech therapists, audiologists, and parents in recognizing the significance of early intervention in auditory training and language development.

The unit begins by explaining the physics of sound, providing insights into how sound waves are transmitted, processed, and presented by the human ear to the human brain. It then delves into the process of listening, including psycho acoustics, highlighting the differences between passive hearing and active listening. Further, it explores the role of auditory training in improving speech perception and language comprehension, particularly in individuals with hearing loss or auditory processing disorders.

The material also emphasizes the relevance of phonemic awareness, auditory discrimination, and comprehension in effective communication. It includes a special focus on the application of auditory training techniques for children with hearing loss, autism, and other challenges regarding communication. The unit concludes with practical recommendations for implementing auditory training programs, including the development of phonetically balanced speech perception tests and picture dictionaries to aid in language acquisition for children.

In addition to theoretical concepts, this unit introduces key research and methodologies, including Dr. Hina Noor's work on developing a pictureable word bank for young Muslim Urdu speakers and creating speech perception tests in Urdu. Through these resources, readers will gain valuable insights into the importance of cultural relevance in auditory and speech perception interventions, in addition to providing resources for further research.

By the end of this unit, readers will have a comprehensive understanding of the importance of auditory training and its application to improve speech and language skills, especially in children facing hearing, listening, and communication challenges. This material equips professionals and caregivers with the tools to support and monitor auditory and language development in children, ensuring effective communication in everyday settings.

OBJECTIVES

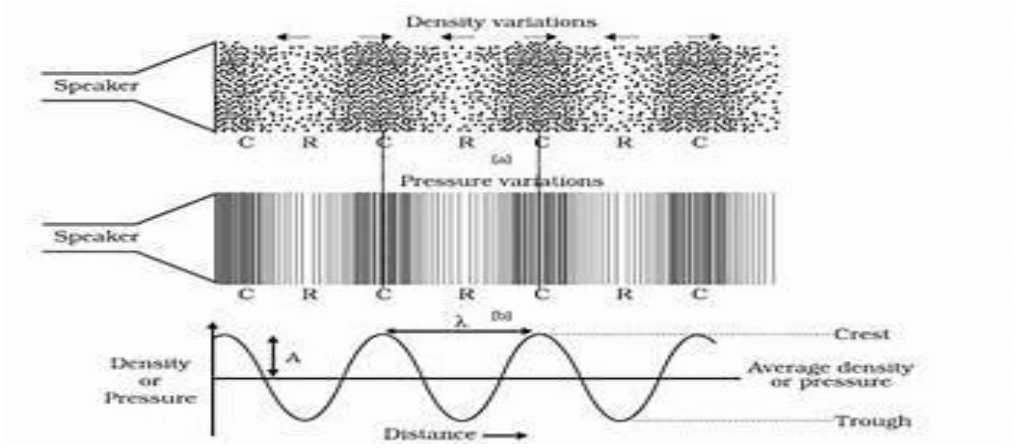
After reading the unit, you will be able to:

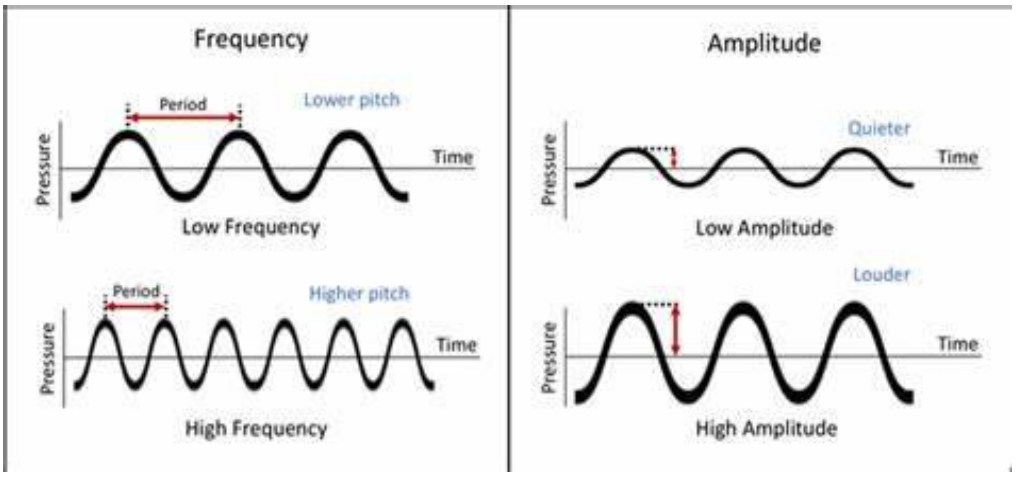
1. Understand the physics of sounds
2. Comprehend the listening process and development
3. Elaborate on the difference between general listening and the active listening process
4. Understand the importance of assessing the listening skills at an early age
5. Become aware of different auditory training programs and the steps of training
6. Know about the significance of auditory training for children with special needs

6.1 PHYSICS OF SOUNDS

Sound is a mechanical wave that originates from the vibration of particles in a medium such as air, water, or solids. Unlike electromagnetic waves, sound cannot travel through a vacuum because it requires a material medium to propagate. When an object vibrates, it disturbs the surrounding particles, causing them to oscillate. These oscillations travel through the medium as longitudinal waves, meaning the particles vibrate parallel to the direction of the wave's motion. This movement creates alternating regions of compression, where particles are close together, and rarefaction, where they are spread apart, as shown below in Figure 1.

Figure 6.1
Compression and rarefaction of sound waves



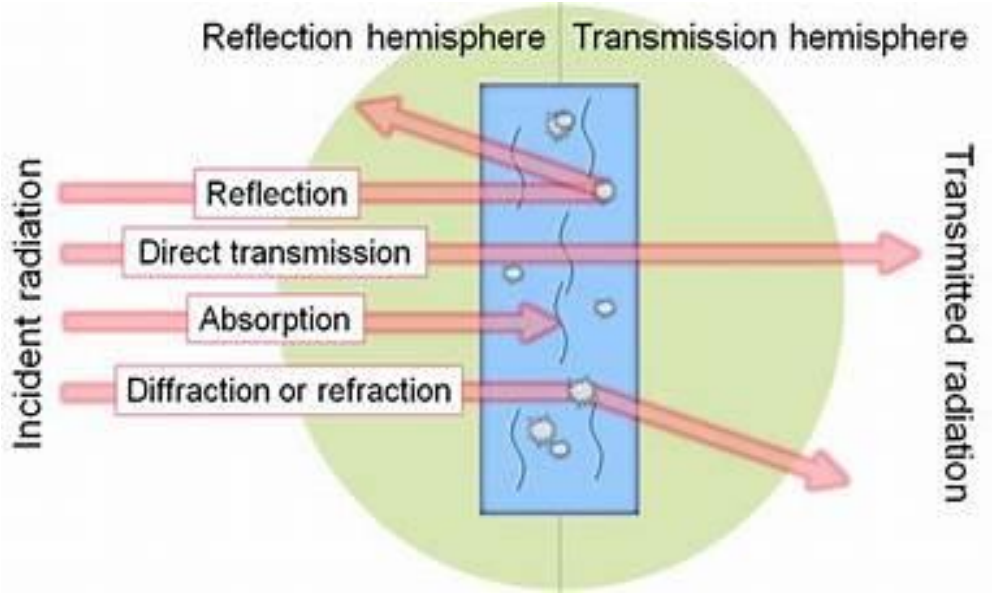


The behavior of sound waves is characterized by several key properties, as evident from the figures above. Frequency, measured in hertz (Hz), represents the number of vibrations or cycles per second and determines the pitch of the sound. Wavelength is the distance between two consecutive compressions or

refractions and is inversely related to frequency. Amplitude refers to the magnitude of particle displacement in the wave and is related to the loudness of the sound—the greater the amplitude, the louder the sound.

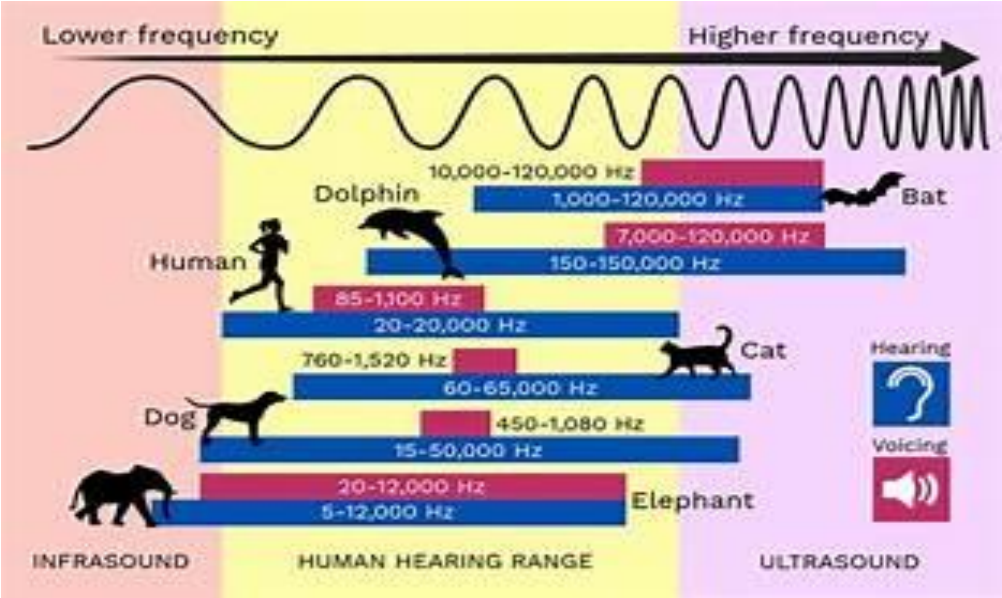
The speed of sound varies significantly with the medium through which it travels. In general, sound travels fastest in solids, slower in liquids, and slowest in gases due to differences in particle density and elasticity. For example, the speed of sound in air at room temperature is approximately 343 meters per second, while in water it is around 1,480 meters per second, and in steel it can reach about 5,960 meters per second. As sound waves move through different environments, they exhibit behaviors such as reflection, refraction, diffraction, and absorption. Reflection occurs when sound bounces off a surface, producing echoes. Refraction is the change in direction and speed when sound travels from one medium to another. Diffraction refers to the bending of sound waves around obstacles and through openings. Absorption involves the conversion of sound energy into heat, causing the sound to gradually diminish.

Figure 6.2
Reflection, Rarefaction, Transmission, and Absorption of Sound Waves



Humans perceive sound within a specific frequency range, typically between 20 Hz and 20,000 Hz. Sounds below this range are called infrasonic and can be produced by phenomena like earthquakes, while those above the range are ultrasonic and are used in applications such as medical imaging and dog whistles. Figure 3 below shows a comparison of the audible frequency range between humans and other living beings.

Figure 6.3
Frequency Range



In summary, the physics of sound involves the generation and propagation of mechanical waves through a medium, governed by principles of wave motion and influenced by the properties of the medium and the wave itself. Understanding these principles allows us to analyze everything from musical tones to advanced sonar and medical technologies.

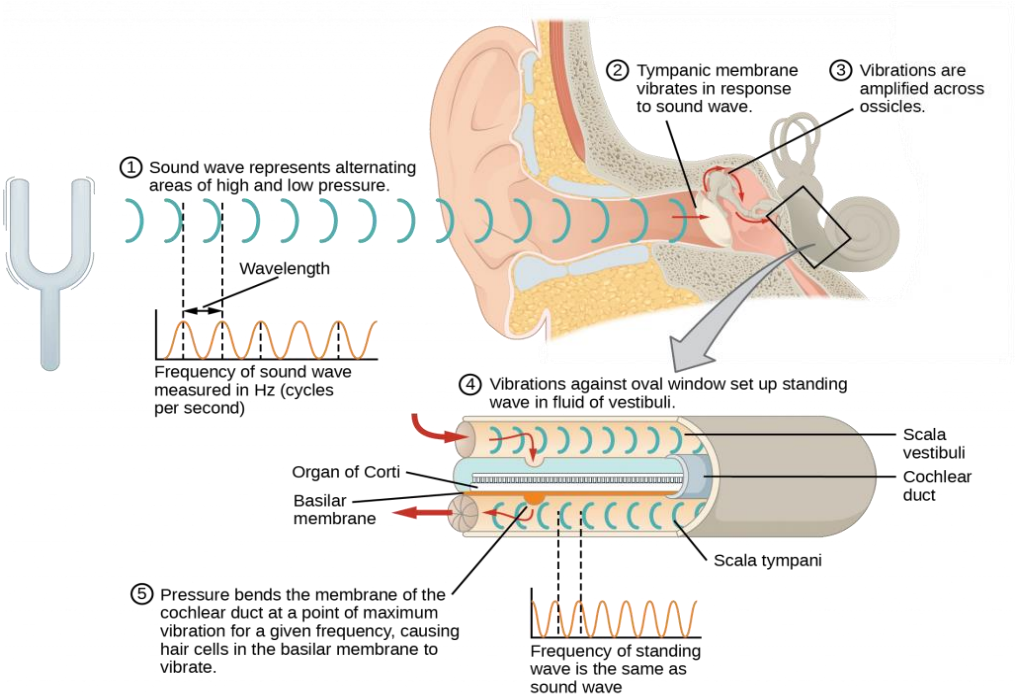
6.1.1 Relationship between the physics of sounds and listening skills

The physics of sound plays a foundational role in developing and refining listening skills, as it directly influences how we perceive, interpret, and respond to auditory information. Listening is more than just hearing; it is an active cognitive process that depends on the accurate reception and interpretation of sound waves. Understanding how sound behaves—its frequency, amplitude, speed, and interaction with the environment—can enhance one's ability to listen effectively and with greater awareness.

Sound, as a mechanical wave, carries information through vibrations in a medium such as air. These vibrations, which consist of compression and refraction, enter the ear and are processed by the auditory system. The clarity and detail of what we hear are determined by the physical properties of the sound. For example, higher frequency sounds correspond to higher-pitched tones, while lower frequencies produce deeper tones. Similarly, amplitude affects loudness; a strong amplitude means a louder sound. Skilled listeners—such as musicians, interpreters, or language learners—train themselves to distinguish fine variations in pitch, tone, rhythm, and volume, all of which are rooted in the physical characteristics of sound waves.

Figure 6.4

How do we hear?



Listening skills also depend on understanding how sound interacts with the environment. For instance, reverberation and echo can distort speech in large or poorly designed spaces. Knowing how sound reflects, diffracts, or gets absorbed by surfaces helps individuals adjust their listening strategies—such as positioning themselves to reduce background noise or focusing attention more selectively. In communication, especially in noisy or complex auditory environments, these skills are crucial. A person with strong listening skills can filter relevant sounds from background noise, detect emotional cues in voice modulation, and respond appropriately, all of which rely on subtle differences in sound waves.

Moreover, awareness of how sound travels and is affected by distance or barriers allows for better listening habits. For example, in group discussions or classrooms, sound may diminish or become muffled with distance, and attentive listeners may position themselves accordingly or seek clarification when acoustics interfere. Similarly, practicing active listening—such as maintaining eye contact, minimizing distractions, and paraphrasing what was heard—is enhanced when one understands how the physics of sound can influence perception.

In summary, the physics of sound underpins effective listening by shaping how we perceive auditory signals. The ability to interpret variations in frequency, amplitude, and wave behavior sharpens auditory discrimination and attentiveness, making listening not just a passive reception of sound but a skill deeply rooted in the scientific principles of sound transmission and perception.

Activity: See the video about anatomy and physiology of human ear. Write you comments about new knowledge which you obtained at the end of video. The suggested video link is as below:
https://video.search.yahoo.com/search/video;_ylt=AwrijlvTKytoJGoQH1mJzbkF?p=human+ear+anatomy+and+physiology&type=E210US91215G0&fr=mcafee&fr2=p%3As%2Cv%3Ai%2Cm%3Apivot#id=10&vid=a7f94bb043fcc409e9bf5937e78dd548&action=view

6.2 LISTENING SKILLS

Oxford Dictionary defines listening skills as the ability to pay attention to and effectively interpret what other people are saying. It refers to the ability to accurately receive, interpret, and respond to spoken or non-verbal messages. They are essential for effective communication and are often divided into active listening, which involves full attention and engagement with the speaker, and passive listening, where the listener may hear the message but does not actively engage with it. Strong listening skills are crucial in both personal and professional settings, enabling individuals to understand others clearly, respond appropriately, and foster positive relationships. Listening is a critical component of communication, and strong listening skills have several key benefits:

i. **Enhanced Communication**: Good listening enables individuals to understand the message being conveyed, reducing the risk of misunderstandings and confusion. By paying attention to not only the words but also tone, emotion, and body language, listeners can interpret the full meaning behind the message.

ii. **Problem-Solving and Decision-Making**: In conversations or meetings, listening carefully allows individuals to gather all necessary information before making decisions. Being a good listener helps in analyzing situations from various perspectives, leading to better decision-making.

iii. **Empathy and Relationships**: Active listening fosters empathy, as it requires putting aside one's own thoughts to fully understand and appreciate the speaker's point of view. This helps to build trust, improve relationships, and create an environment where people feel heard and valued.

iv. **Learning and Retention**: Listening is also essential for acquiring new information, whether in educational, professional, or personal contexts.

By actively engaging with the speaker and paying attention, listeners can retain and process the information more effectively, which is especially important in academic or training environments.

v. **Conflict Resolution**: In conflict situations, effective listening allows individuals to understand the concerns of others, identify common ground, and work toward resolving issues collaboratively. It prevents escalation by showing respect and acknowledging the other party's perspective.

6.2.1 Stages of the Listening Process

The listening process is typically broken down into several stages:

i. **Receiving**: The initial stage of listening involves physically **hearing** the sound, registering the words, and focusing on the speaker **(attending)**.

ii. **Understanding**: At this stage, the listener interprets the meaning of the message, making sense of the words based on context, prior knowledge, and experience.

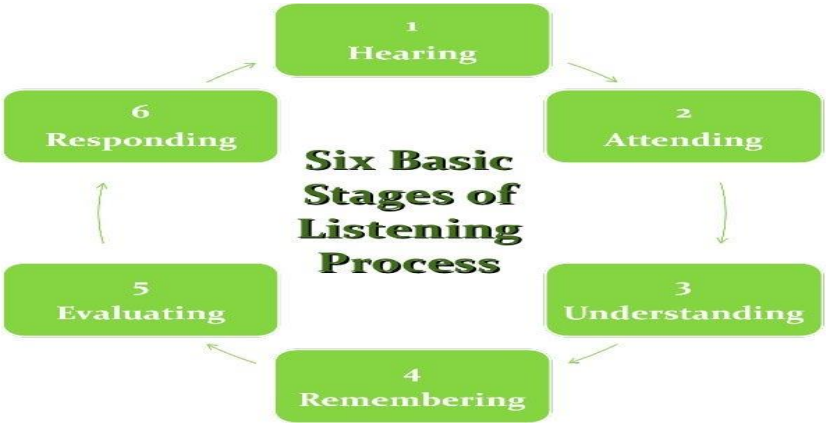
iii. **Remembering**: Retaining the information heard for later use is a crucial aspect of effective listening. This is where memory comes into play.

iv. **Evaluating**: At this stage, listeners critically assess the message, deciding if it is true, relevant, or useful. This is where critical thinking can enhance listening.

v. **Responding**: The final stage involves providing feedback—verbal or non-verbal—to show understanding, agreement, or ask for clarification. This can also include following up with further questions or comments.

vi. Figure 6.5

vii. Stages of the Listening Process



Listening skills are vital for effective communication and play a significant role in personal, academic, and professional success. As individuals grow, their listening abilities evolve from basic recognition of sounds to complex, critical, and empathetic listening. Developing strong listening skills not only

enhances relationships and learning but also facilitates problem-solving and conflict resolution. The ongoing development of these skills is essential for navigating the complexities of communication at all stages of life.

6.3 ACTIVE LISTENING SKILLS

Active listening skills refer to the ability to fully concentrate, understand, respond to, and remember what is being said in a conversation. Unlike passive listening, which involves simply hearing words without fully engaging, active listening is an intentional, focused process that promotes deeper understanding, empathy, and effective communication. It is essential in building trust, resolving conflicts, and improving interpersonal relationships in both personal and professional settings.

At its core, active listening involves giving undivided attention to the speaker, both verbally and non-verbally. This means maintaining eye contact, nodding occasionally, and using facial expressions that show attentiveness and interest. It also includes avoiding distractions—such as checking a phone or interrupting—and refraining from mentally preparing a response while the other person is still talking.

One of the key components of active listening is **understanding**, which goes beyond hearing the words and involves grasping the speaker's message, emotions, and intent. This often requires listening for tone, pacing, and body language in addition to verbal content. Active listeners also engage in **clarifying and confirming**, which may include asking open-ended questions, paraphrasing what was said, or summarizing key points to ensure accurate understanding. For example, saying, "So what you're saying is…" or "Do you mean that…" helps confirm the message and shows the speaker they are being taken seriously.

Another important aspect of active listening is **providing appropriate feedback**. This might be through verbal affirmations like "I see," "That makes sense," or "Tell me more," which encourage the speaker to continue sharing. Non-verbal feedback, such as nodding or leaning slightly forward, also signals engagement. When it's time to respond, active listeners do so thoughtfully, showing they have considered the speaker's words rather than simply reacting.

Active listening also involves **empathy**, the ability to put oneself in the speaker's shoes and respond with understanding and sensitivity. Empathetic listening allows the listener to connect with the speaker on a deeper emotional level, which is especially important in situations involving conflict, emotional expression, or support.

In summary, active listening is a deliberate and respectful process that includes full attention, interpretation of verbal and non-verbal cues,

clarification, feedback, and empathy. It strengthens communication by ensuring that messages are clearly understood and that speakers feel heard and valued. Developing active listening skills leads to better relationships, improved problem-solving, and more effective collaboration in all areas of life.

6.3.1 Characteristics of Active Listening

To discriminate active listening from general listening skills, it's important to understand that active listening is a more advanced, deliberate, and engaged form of listening, while listening skills is a broader term that includes all types of listening—both passive and active. Listening skill refers to the ability to hear and interpret sound, whereas active listening involves a conscious effort to fully understand, respond to, and retain what is being communicated.
Here are the **key characteristics of active listening** that set it apart:

1. Full Attention and Presence

Active listeners give their complete focus to the speaker. This means minimizing internal and external distractions, avoiding multitasking, and being mentally present. In contrast, basic listening might occur even while the listener is distracted or preoccupied.

2. Verbal and Non-Verbal Feedback

Active listeners use verbal responses like "I see," "Go on," or "That's interesting," to show they're engaged. Non-verbal cues such as nodding, eye contact, leaning forward, and appropriate facial expressions further demonstrate attentiveness. General listening may lack such interactive engagement.

3. Paraphrasing and Summarizing

A defining trait of active listening is paraphrasing—restating what the speaker said in your own words to confirm understanding. For example: "So you're saying that you felt ignored during the meeting?" This feedback loop ensures clarity, which is often absent in passive or casual listening.

4. Asking Clarifying Questions

Active listeners don't assume they understand everything immediately. They ask open-ended or clarifying questions like "What exactly did you mean by that?" or "Could you explain that further?" This promotes deeper understanding, while passive listeners may not seek clarification at all.

5. Withholding Judgment

Active listening involves suspending judgment, criticism, or rebuttals until the speaker has finished. The goal is to understand, not to evaluate or argue. In contrast, less active forms of listening may involve forming responses or judgments while the speaker is still talking.

6. Empathy and Emotional Awareness

Active listeners are attuned not only to the words but also to the speaker's emotions. They pick up on tone of voice, pace, and non-verbal signals to understand the speaker's emotional state. This emotional sensitivity is often missing in more mechanical or passive listening.

7. Thoughtful Response

Instead of reacting immediately or superficially, active listeners respond thoughtfully. They take time to reflect on what was said before replying, ensuring that their response is relevant and respectful. General listening may result in quicker, less considered replies.

8. Retention and Recall

Because active listeners engage more deeply, they tend to remember key points more accurately. They store and organize information better for future use. Passive or inattentive listeners are more likely to forget or misunderstand parts of the conversation.

Activity:
Prepare a checklist of active listening skills against the eight skill of active listening mentioned above. Assess at east 10 people around you to see the presence or absince of these skills.

Table 6.1
Key Differences in listening and active listening skills

Feature	General Listening Skill	Active Listening
Attention Level	May be divided or passive	Fully focused and intentional
Interaction	Minimal feedback	Engaged through verbal and non-verbal cues
Understanding	Surface-level or partial	Deep, confirmed through paraphrasing and questions
Judgment	May judge or interrupt	Non-judgmental, open-minded
Emotional Sensitivity	Often missed	Actively considered
Retention	Variable	Higher due to focused engagement
Response	Maybe reactive	Thoughtful and relevant

By understanding these characteristics, we can clearly see that active listening is a higher-order communication skill—it transforms listening from a passive activity into an interactive, empathetic, and strategic process that improves understanding, trust, and cooperation.

Figure 6.6
Active Listening Skills to Practice



6.4 DEVELOPMENTAL STAGES OF LISTENING SKILLS

The development of listening skills typically follows a progression from basic auditory recognition to more sophisticated, reflective, and active listening. These stages can be broken down as follows:

a) Early Childhood (0–6 years)

At this stage, children begin by recognizing sounds and basic words. Infants start with auditory discrimination—distinguishing between different sounds, voices, and environmental noises. As they grow, they begin to associate sounds with meanings and understand simple instructions. Significant Skills Developed at this stage include:

- Listening to familiar voices (e.g., parents, caregivers).
- Recognizing sounds associated with objects or activities (e.g., "dog" and barking).
- Beginning to follow simple verbal commands.

b) Childhood (7–12 years)

Children begin to develop more complex listening skills, such as understanding more detailed instructions and processing longer conversations. They also learn to identify emotional cues in speech, such as tone of voice or volume, which help them gauge the speaker's feelings and intentions. Significant Skills developed at this stage involve:

- Understanding and following multi-step instructions.
- Identifying and interpreting basic emotional cues in others' speech.
- Showing interest and responding with relevant questions or comments.

c) Adolescence (13–18 years)

During adolescence, listening skills become more refined as teens engage in deeper conversations and discussions. They learn to listen critically, evaluate arguments, and separate emotional reactions from the content of the message. Adolescents also begin to improve their ability to listen attentively in various social and academic settings, balancing their thoughts with the need to understand and respond appropriately. Significant Skill of the stage involves:

- Critical listening and evaluation of information.
- Increased ability to engage in active listening (not just hearing, but responding thoughtfully).
- Developing skills in managing distractions and staying focused during conversations.

d) Adulthood (18 years and beyond)

By adulthood, listening skills are typically fully developed. Adults are capable of listening with greater empathy, understanding, and reflective thinking. At this stage, individuals can engage in advanced active listening, which involves not just hearing and understanding but also interpreting underlying emotions, intentions, and potential implications of the message. Significant Skills of the stage involve:

- Active listening, where one pays attention, reflects, and responds thoughtfully.
- Reflective listening involves understanding the speaker's emotional state and message beyond the words.
- Listening with an open mind, considering various viewpoints without immediate judgment.

6.4.1 Assessment of the listening skill development of a child

Assessing the **listening skill development of a child** is essential for identifying any delays or deviations from typical developmental milestones. Listening skills are foundational for language acquisition, social interaction, learning, and emotional regulation. A structured assessment can help determine whether a child's listening abilities are age-appropriate or if

intervention may be needed. Here's how to assess a child's listening skill development, including what to observe, methods to use, and signs of potential deviation:

1. Observe Age-Appropriate Milestones

Children develop listening skills in predictable stages. Comparing a child's behavior to **developmental benchmarks** is the first step in assessment. Table 2 provides the hierarchy of skills that a teacher can use as a benchmark to assess the level of listening skills of a child.

Table 6.2
A Hierarchy of Auditory Skills Learned by Age 4 Years by Karen et. al. (2015)*

Age Acquired	Listening Skill	Expected Skill Development
0 – 3 months	● Auditory awareness ● Responds to sound by smiling, head turning, stilling, startling ● Responds to loud sounds ● Recognizes mother's/caregiver's voice	● Detection ● Discrimination
4 – 6 months	● Sound begins to have meaning ● Listens more acutely ● Starts to associate meaning to sound (e.g., responds to own name occasionally) ● Responds to changes in voice inflections ● Starts to localize the source of the voice with accuracy ● Listens to own voice	● Detection ● Prosodic identification ● Discrimination
7 9 months	● Localizes sound source with accuracy ● Discriminates suprasegmental aspects of duration, pitch, and intensity ● Has a longer attention span ● Associates meaning to words ● Discriminates vowel and syllable content	● Detection ● Segmental identification ● Discrimination
10 – 12 months	● Associates meaning to more words ● Monitors own voice and voices of others ● Localizes sound from a distance ● Discriminates speaker's voice from	● Visual Integration: Sound/Object ● Figure-ground discrimination

	competing stimuli	

13 – 15 months	● Identifies more words ● Processes simple language ● Auditory memory of one item at the end of a phrase/sentence ● Discriminates between familiar phrases ● Follows one-step directions that are familiar	● Visual Integration: Sound/Object ● Discrimination ● Memory

16 – 18 months	● Discriminates between more phrases ● Identifies and associates more words related to objects (e.g., body parts, food) ● Imitates words heard	● Integration ● Discrimination ● Memory

19 – 24 months	● Auditory memory of 2 items ● Discriminates songs ● Discriminates descriptive phrases ● Follows a two-step direction (e.g., Get your ball and throw it) ● Identifies by category	● Integration ● Discrimination ● Memory

25 – 30 months	● Auditory memory of 2 items in different linguistic contexts ● Listens to familiar songs (recorded) ● Comprehends longer utterances ● Listens from a distance	● Integration ● Memory ● Figure-ground discrimination

31 – 36 months	● Continues to expand auditory memory – 3 items with different linguistic features ● Sequences 2 pieces of information in order ● Listens to stories (recorded) ● Follows 2-3 directions	● Integration ● Memory

37 – 42 months	● Auditory memory increases to 5 items ● Sequences 3 or more pieces of information in order ● Retells a short story ● Follows 3 directions ● Processes complex sentence structures	● Integration ● Memory

43 – 48 months	● Processes longer and more complex language structures (e.g., Can you find something that lives in a tree, has feathers, and a yellow crest?) ● Follows more difficult directions (e.g., Put the thick blue square behind the empty jug.) ● Retells longer stories in detail – 5 or more sentences ● Tracks an 8-word sentence	● Emerging Closure ● Emerging Visual Integration: Sound/Letter

*Typically hearing, typically developing children. Information excerpted from Cochlear Limited (2005). *Listen, learn and talk: Another cochlear innovation*. Compiled from the listening section of the *Integrated Scales of Development*, based on a variety of sources. It was further revised to included expected skill development by age. 2015© Karen L. Anderson & Lynne H. Price, *Steps to Assessment,* http://successforkidswithhearingloss.com

2. Use Structured Listening Assessments

Professionals (teachers, speech-language pathologists, psychologists) may use standardized tools to assess listening development, such as:

i. **Auditory Skills Checklist (ASC)**: Tracks progression in auditory attention, discrimination, memory, and comprehension.

ii. **Test of Auditory Processing Skills (TAPS)**: Measures various aspects of auditory processing.

iii. **Listening Skills Inventory (LSI)**: Used by educators to assess children's listening behaviors in a classroom setting.

These tests help evaluate both the **quality of listening** (e.g., attention, comprehension) and **auditory processing skills**.

The Urdu Speech Perception Test (USPT) is a specialized assessment tool developed to evaluate speech perception abilities in Urdu-speaking children, particularly those with hearing impairments. The full word list of the USPT is available and can be obtained from the authors, Hina Noor and Manzoor H. Arif (2018). Contact at email hina.noor@aiou.edu.pk to obtain the test. The work is published with the title "Development and Validation of Phonetically Balanced Speech Perception Test in Urdu Language." The test comprises four key sections:

1) **Detection**: Assessing the ability to detect low and high-frequency isolated phonemes.

2) **Discrimination**:

- **Gross Discrimination**: Evaluating differences in stress, intonation, and duration.
- **Fine Discrimination**: Identifying minimal perceptual differences, such as variations in a single consonant.

3) **Identification**: Recognizing and identifying spoken words.
4) **Comprehension**: Understanding the meaning of spoken language.

3. Conduct Informal Observation Activities

Parents and teachers can use everyday situations to observe listening behavior. For example:

i. **Instruction-Following Tasks**: Give the child a series of instructions and observe their ability to complete them.
ii. **Story Retelling**: Read a short story and ask the child to retell it to assess recall and comprehension.
iii. **Question and Response**: Engage the child in conversation and ask questions to test their understanding of context and content.
iv. **Group Participation**: Observe how the child listens in group settings, such as story time or classroom discussions.

4. Assess Specific Listening Behaviors

Monitor for specific behaviors that indicate healthy or problematic listening development:

Healthy Listening Behaviors	Potential Signs of Deviation
Responds when name is called	Ignores verbal cues or name being called repeatedly
Follows verbal instructions accurately	Difficulty following simple instructions
Maintains eye contact and attention during conversations	Easily distracted or disengaged during listening tasks
Asks questions to clarify understanding	Rarely asks questions or shows confusion without seeking help.
Participates in discussions or storytelling	Avoids verbal interaction or appears withdrawn

5. Involve Multiple Perspectives

Gather input from:

i. **Parents**: Home behavior and response to verbal interaction.
ii. **Teachers**: Classroom listening and academic performance as reported by other teachers.
iii. **Speech-Language Pathologists**: In-depth auditory and language assessments.

Multiple viewpoints help create a more accurate picture of the child's listening skills across settings.

6. Rule Out Hearing Loss or Medical Issues

If a child shows signs of listening difficulty, it is important to rule out **hearing impairment** through:

i. **Hearing screenings or audiometry tests**.

ii. **ENT evaluations** for ear infections or auditory dysfunction.

Hearing issues can often mimic or contribute to listening skill delays.

7. Monitor Over Time

Listening skills can vary due to mood, environment, or temporary conditions. Ongoing observation over weeks or months helps determine whether issues are persistent and require intervention.

When to Seek Professional Help

> **Activity:** Assess the children between 3-5 years of age studying in a school nearby you. Find out the child with reg flags to show any delay in listening skill development

Teachers should guide the parents to consult a speech-language pathologist, audiologist, or developmental pediatrician if a child:

- Consistently fails to respond to sounds or voices.
- Struggles to follow instructions appropriate for their age.
- Shows delayed speech or language development.
- Has difficulty participating in conversations or group activities.
- Has behavioral issues related to inattentiveness or misunderstanding.

Assessing a child's listening skill development involves comparing behavior to developmental milestones, using structured assessments and informal observations, and involving both professionals and caregivers. Timely identification of deviations allows for early support, which is crucial for a child's language development, academic success, and social-emotional growth.

6.5 AUDITORY TRAINING

Auditory training is a structured and systematic approach aimed at improving an individual's ability to hear, recognize, and understand sounds, particularly speech. It is commonly used for people with hearing impairments, including children with congenital hearing loss or adults who have recently received hearing aids or cochlear implants. The primary goal of auditory training is to retrain the brain to process sounds more effectively, enhancing a person's communication skills and ability to interact in real-life listening situations.

The training involves exercises that progress from basic sound detection to more advanced auditory comprehension. Initially, the listener may work on detecting whether a sound is present or not. Then, they move on to discriminating between different sounds (such as distinguishing between

similar consonants like /b/ and /p/), identifying words or phrases, and finally understanding full sentences. These exercises may be done in quiet environments at first and then gradually in the presence of background noise to simulate real-world challenges. The training can be conducted through face-to-face sessions with a therapist, or via software, apps, and computer programs designed for self-paced learning.

6.5.1 Steps of Auditory Training

For children, especially those with profound or moderate hearing loss, auditory training is a crucial part of rehabilitation. It supports the development of language by helping the child associate sounds with meanings, a process that typically occurs naturally in children with normal hearing. Training may begin with helping the child recognize environmental sounds, followed by speech sounds, and gradually move toward understanding spoken language in sentences and stories. This is particularly important for children with cochlear implants or hearing aids, as their brains need to adapt to processing new auditory input. The training is often integrated with speech therapy to enhance both comprehension and spoken language development.

Dr. Hina Noor, in her 2017 thesis titled **"Development and Validation of Model of Aural Rehabilitation of Profound Hearing Impaired Children in Punjab,"** outlines a comprehensive framework for auditory training tailored to children with profound hearing loss. This model emphasizes a **multidisciplinary approach** that integrates auditory training with speech therapy, special education, and parental involvement. The training is structured into several key stages to ensure effective auditory rehabilitation:

Step 1: Sound Awareness and Detection: The initial phase focuses on helping children become aware of the presence of sound. This involves activities that encourage children to recognize and respond to various environmental sounds, laying the foundation for further detection and identification of vowels. Afterwards consonant sounds identification in isolation is targeted. Teachers may focus on the most frequently occurring sounds at initial stages of development.

Step 2: Sound Discrimination: Once sound awareness is established, the next step is to teach children to distinguish between different sounds. This includes differentiating between various pitches, volumes, and durations of sounds, which is crucial for understanding speech nuances. Afterwards, discriminating between vowels in isolation and in words can be targeted. Discriminating between the voiced consonants is an easy task compared to voiceless consonants. Minimal pairs are the best source of practicing sound discrimination as they differ only in one feature, e.g. cat/bat, bath/hath.

Step 3: Auditory Identification: At this stage, children learn to identify and label sounds. They are trained to associate specific sounds with their sources, such as recognizing the sound of a bell or a dog barking, enhancing their auditory vocabulary. After environmental stimuli, speech stimuli are used to relate training to the surroundings of the child. Use the most spoken language around the child for training purposes. Mono, bi, and tri-syllabic word identification needs rigorous practice.

Step 4: Auditory Comprehension: The final phase involves developing the ability to understand and process spoken language. Children are taught to comprehend words, phrases, and sentences, facilitating effective communication. Teaching at this skill level involves making a child understand the difference between words spoken and the intent/underlying message behind them.

Dr. Noor's model of Aural Rehabilitation also emphasized the importance of **individualized education plans (IEPs)** that cater to the unique needs of each child. Regular monitoring and assessment are integral to tracking progress and making necessary adjustments to the training program. Furthermore, the involvement of parents and caregivers is emphasized to reinforce learning and provide consistent support at home. This structured approach aims to optimize the auditory rehabilitation process, ensuring that children with profound

Activity:
Prepare a list of Urdu words which you consider important for auditory training of children with special needs

hearing loss achieve their full communicative potential.

6.5.2 Auditory training programs: beneficial for whom

Auditory training is beneficial for various groups. Children with sensorineural hearing loss, especially those using hearing aids or cochlear implants, need it to develop normal speech and language. Adults who have lost hearing later in life also benefit as they adapt to hearing aids or implants, learning to understand speech again after a period of reduced auditory input. In addition, individuals with Auditory Processing Disorder (APD)—a condition where the brain has difficulty processing auditory information despite normal hearing—also benefit from targeted auditory training. It can also help anyone who struggles with understanding speech in noisy environments, such as classrooms or busy workplaces.
Auditory training can also be highly beneficial for children on the autism spectrum, particularly those who exhibit auditory processing difficulties or hypersensitivity to sound. Many autistic children may either overreact to

sounds (hyperacusis) or fail to respond appropriately (hyposensitivity), which can interfere with communication, attention, and learning. Auditory training for autistic children often focuses on improving tolerance to everyday sounds, enhancing auditory attention, and supporting language comprehension. Techniques may include desensitization to sensory input, interactive listening games, and use of structured auditory integration programs, such as Auditory Integration Training (AIT) or Therapeutic Listening®. These programs aim to regulate the child's auditory system and promote better integration of auditory information with cognitive and social functioning. When tailored to the child's sensory profile and developmental level, auditory training can help autistic children become more responsive, communicative, and socially engaged.

Several auditory training programs have been developed to suit different age groups and hearing needs. These include computer-based programs such as Angel Sound and LACE (Listening and Communication Enhancement), which provide interactive exercises for speech recognition. Other tools like SoundScape and the DAILY program (Developmental Approach to Language Learning for Young Children) are designed for children and emphasize early listening skills integrated with language development. These programs vary in complexity and content but share a common goal of enhancing speech perception and communication through structured auditory tasks.

The benefits of auditory training are both immediate and long-term. It helps improve the listener's ability to recognize speech clearly, especially in noisy or distracting environments. It enhances memory for auditory information, reduces listening effort and fatigue, and boosts confidence in communication. For children, it leads to improved language development and academic success. For adults, it aids in social reintegration and reduces the frustration often associated with hearing loss. Overall, auditory training is a vital component of auditory rehabilitation that significantly improves the quality of life for individuals with hearing challenges.

Self-Assessment Question

1. Can you explain how sound waves travel and how they are perceived by the human ear?
2. How do the properties of sound, like frequency and amplitude, affect hearing?
3. How does the ear convert sound into electrical signals for the brain to interpret?
4. What are the key differences between listening and hearing?
5. How would you describe the stages of development of listening skills in children?
6. What are some strategies to enhance active listening skills?
7. What is the primary goal of auditory training, and how does it benefit individuals with hearing impairments?
8. How does auditory training differ for children with hearing loss versus adults?

9. Why is auditory training essential for autistic children with sensory processing challenges?
10. What are the key stages of auditory training as outlined by Dr. Hina Noor in her thesis?
11. How does auditory training start with sound awareness and progress toward auditory comprehension?
12. Why is individualized auditory training important for children with hearing impairments?
13. What are the most frequently occurring consonant and vowel phonemes in the Urdu language?
14. How do these phonemes influence auditory training for children learning Urdu?
15. Why is it important to include common phonemes in speech perception tests like the Urdu Speech Perception Test (USPT)?
16. How does the Urdu Speech Perception Test (USPT) assess the ability to understand speech in Urdu?
17. Why are phonetically balanced word lists significant in speech perception tests for children with hearing impairments?
18. How does auditory training relate to the effectiveness of speech perception tests?
19. How does auditory training address the needs of children with auditory processing disorder (APD)?
20. What role does auditory training play in helping autistic children improve their auditory processing and speech recognition?
21. Can auditory training benefit individuals who are sensitive to sounds, such as those with hyperacusis?
22. How do you plan to integrate these concepts into real-world applications, such as therapy or teaching?
23. What additional resources or research might you need to deepen your understanding of auditory training and speech perception in specific populations?

Suggested Readings

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Unit 7

VOICE AND RESONANCE DISORDERS

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INTRODUCTION

Humans are blessed with many identities, and vocal identity is one. Vocal identity reflects phonation with its unique paraphernalia of frequency, pitch, resonance, and intonation, etc. Sound when generated through the vocal cords is called phonation. This phonation serves as the raw material, which is modified through the articulators and resonators, etc. to make it meaningful. These phonatory qualities may be experienced by the listeners as clear, harsh, soft, and musical, etc. This phonation is due to the vibratory movements of specialized structures in our larynx called vocal cords. A number of factors can actually hamper the frequency of these vocal cords, thus affecting the voice. Generally speaking, a periodic vibration of the vocal cords is perceived as a musical note, while a non-periodic and arrhythmic vibration of the vocal cords will be perceived as hoarse, harsh, and unpleasant.

Resonance disorders, on the other hand, relate to three resonators, i.e. oral cavity, the nasal cavity, and the pharynx, which act like resonating chambers. This resonance provides a life by adding quality to the voice, which otherwise would have been dull. At times, resonating chambers may be marred with some congenital factors (clefts and craniofacial issues during development) and may also be acquired at any time of life, e.g., growths, polyps, deflected nasal septum, and adenoids, etc. It is vital that the pleasance and intelligibility of voice may be restored by timely intervention.

After reading the previous units about the anatomy and physiology of speech organs, it is hoped that the reader can relate to the new information on phonatory disorders. The unit is designed to develop an understanding of common voice conditions, their etiologies, and effects. Further, it is hoped that the unit will make the readers able to identify voice disorders and make referrals.

OBJECTIVES

The following are the key objectives of the unit. It is hoped that the students will be able to

- Understand the fundamentals of sound, e.g., amplitude, frequency, pitch, and duration, etc.
- Identify the larynx as a voice box generating phonation for speech.
- Describe the physiology of phonation and identify the key roles of the vocal cords.
- Demonstrate an understanding of resonating chambers in the craniofacial structures and their respective functions.
- Can brief about common voice and resonance disorders observed during class routines.
- Understand the general procedure to diagnose the voice disorder
- Manage the challenges of voice disorders by developing understanding, expectation, environmental support, and providing reassurance to respective audiences.

7.1 DEFINING VOICE

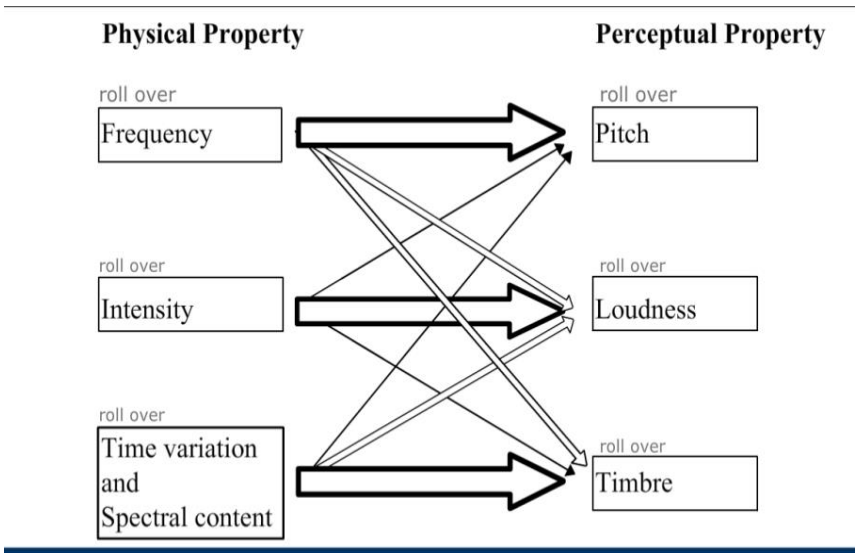
Among many forms of energy, sound is one. Sound is created by the to-and-fro movement of a vibrating body that creates a sinusoidal wave pattern in the neighboring environment. With its unique fundamentals including its vibratory cycles, amplitude, and duration, sound creates different impressions on the listeners. These characteristics of the sound are physical in nature and hence measurable. For example, the vibratory cycles are determined as frequency, amplitude as loudness, and duration as an unit of time. As a principle of physics, sound travels at a varied speed in solids, liquids, and gases. Since sound needs a medium to travel hence it travels fastest in solids, followed by liquids and gases. One important aspect of the sound is its impression on the subject. The subjective characteristics on the part of the listener include sound perception in the following ranges.

- Pleasant to unpleasant,
- shrill to grave,
- soft to loud,
- Clear to muffled, etc.

These subjective impressions are more scientifically mentioned as hoarseness, harshness, pitch, nasality, audibility, and musical, etc. These perceptual characteristics of voice vary from person to person, e.g., a voice may carry a different impression for listeners. In Figure 1 presented below, a relationship between the physical and perceptual qualities has been matched for a better understanding.

Figure 7.1

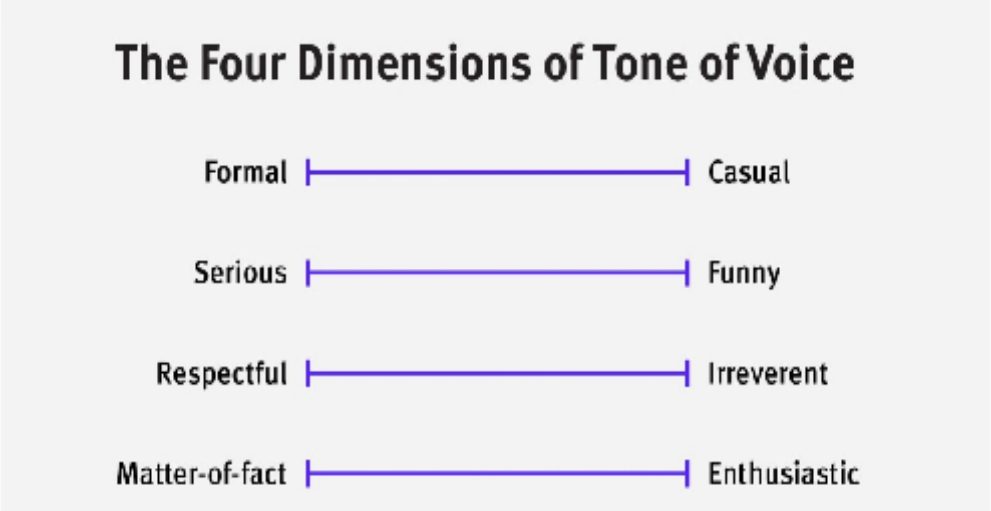
Physical and perceptual properties of voice



A voice can carry multiple messages when used. Depending upon the speaker and perception of the listeners, a human voice carries information to varying extents. Referring to the repertoire range in humans, one can be formal, serious, and respectful while using different tone patterns. Figure 2 depicts voice ranges (in terms of tone) carrying different intents and purposes.

Figure 7.2

Dimensions of the tone of the human voice



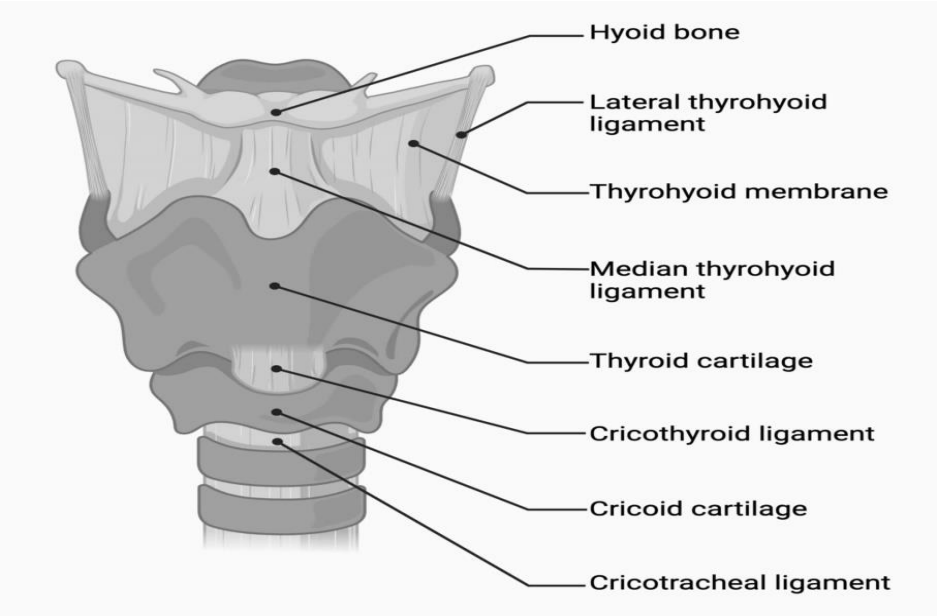
In light of the above discussion, it becomes evident that human voice is a personality attribute and voice competency carries significant importance in educational, social, and professional arenas. A teacher can benefit from these facts and apply them in the regular class instructions to groom students for the most effective use of voice. These pragmatic behaviors can be learnt for effective communication.

7.2 CAUSES AND TYPES OF VOICE DISORDERS

Voice is a multifaceted and dynamic process. Though it looks simple yet the intricacies involved need deeper understanding. Numerous etiologies can be linked to it; however, the most common include some congenital conditions, developmental and acquired factors that may lead to voice disorders. In order to understand, let's discuss the larynx (Adam’s apple), which is the primary source of voice production. Many factors related to laryngeal structure and physiology affect the voice production. In the later section, other causes will be highlighted that relate to resonating chambers and their respective roles in voice production.

Figure 7.3

Ligaments and cartilages of the Larynx



Larynx, shown in Figure 3, is a dedicated structure for the production of voice called phonation. The phonation process is credited to the unique structure of the larynx. Equipped with cartilages, muscles, and ligaments, the physiological output results in creating a buzzing sound. This buzz or phonation is later transformed into speech by articulators and resonators. The unique structures of the larynx are responsible for phonation and regulate the frequency and amplitude of voice. Another significant contribution of the larynx is to prevent food from entering the vocal tract that may lead to aspiration, pneumonia, or death at times.

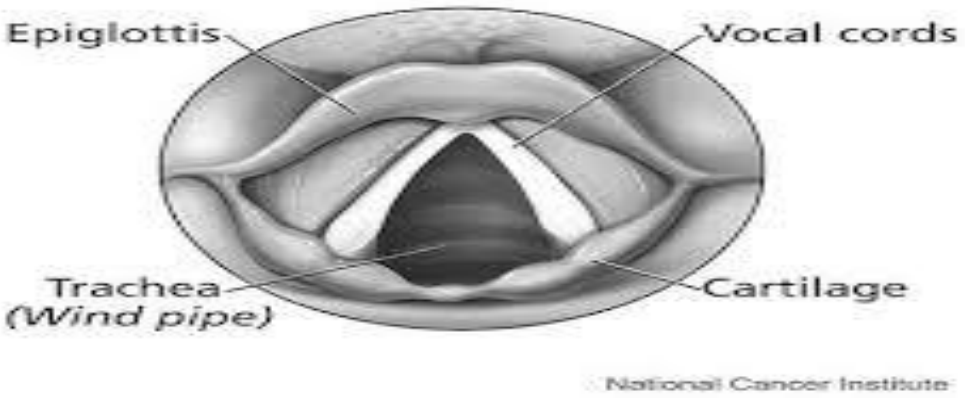
Larynx or laryngeal structures are situated in the interior neck region at the level of C3 to C6 cervical vertebrae. The unique skeleton comprises paired and unpaired cartilages and ligaments, as shown in the diagram above. The unpaired cartilages include thyroid, cricoid, and epiglottis, while the paired cartilages include arytenoid, corniculate, and cuneiform cartilages. With the increase in age, the larynx grows in size and as a result it descends from C2-C3 to C3-C6 vertebrae. This transformation can be witnessed as a change in the phonatory abilities of a newborn and an adult. For teachers, it is worthwhile to know that by puberty, a transformation of voice is expected, especially in male students. The male larynx grows much bigger than the female and a significant change in voice is noticed. The shrillness of the voice is changed to heaviness during this transformation and carries the distinct features of a male voice. In the beginning, the transformation is witnessed as a diplophonic (two different voices). At times, the young male may find it

difficult to cope with this changeover in voice and may stick to feminine, high-pitched voice which the teacher should notice and make a referral.

Vocal folds in the inner margin of the larynx are capable of adducting and abducting. These are two bands of soft tissues that respond by vibration to the air pressure released from the lungs. While breathing, vocal cords are in an abducted position; however, their position changes to adduction as one attempts to phonate. The glottis is the gap between the two vocal cords that can be broadened or narrowed to allow the air stream to pass through them. In simpler terms glottis is increased during respiration and narrowed during phonation. Figure 4 shows the structure of the vocal cords present inside the laryngeal cavity.

Figure 7.4

Structure of the vocal cords

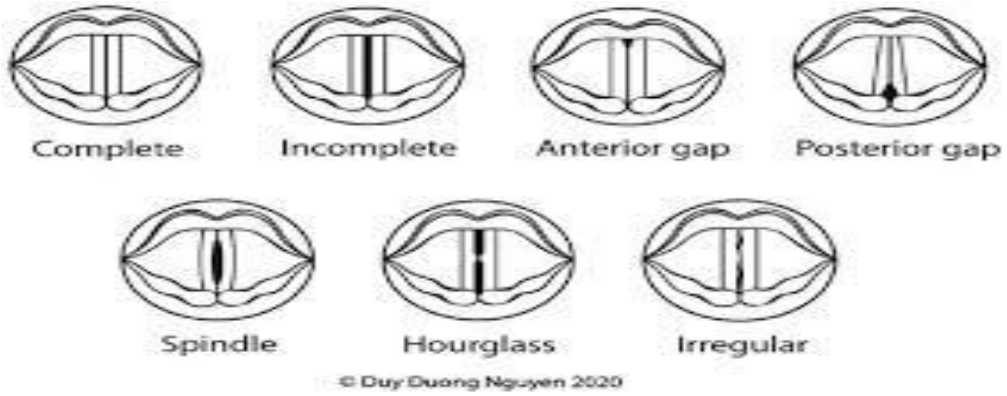


Speech is an active process, meaning that one has to make an effort to speak. The vocal cords have to be brought to the midline, thereby narrowing the glottis. This increased subglottic pressure makes the vocal cords vibrate and thus phonation occurs. The phonation and quality of phonation will depend upon the subglottic pressure and quality of adduction at the margins of the vocal cords. The structure, strength, mobility, and alignment of vocal cords will determine the approximation of the vocal cords necessary to generate the quality of voice and loudness levels.

Many localized conditions like tumors, cysts and nodules, etc. can affect the vocal cord movements by changing their shape and size, thus compromising the quality of adduction required. For example, in order to produce a loud voice, the speaker has to hold the vocal cords in the closed phase, which results in increased subglottic pressure, and thus, higher volume is achieved. Similarly, poorer adduction due to localized lesions will result in a weaker, breathy, and low voice. Figure 5 is indicative of different patterns of vocal fold closure that can affect the quality of voice.

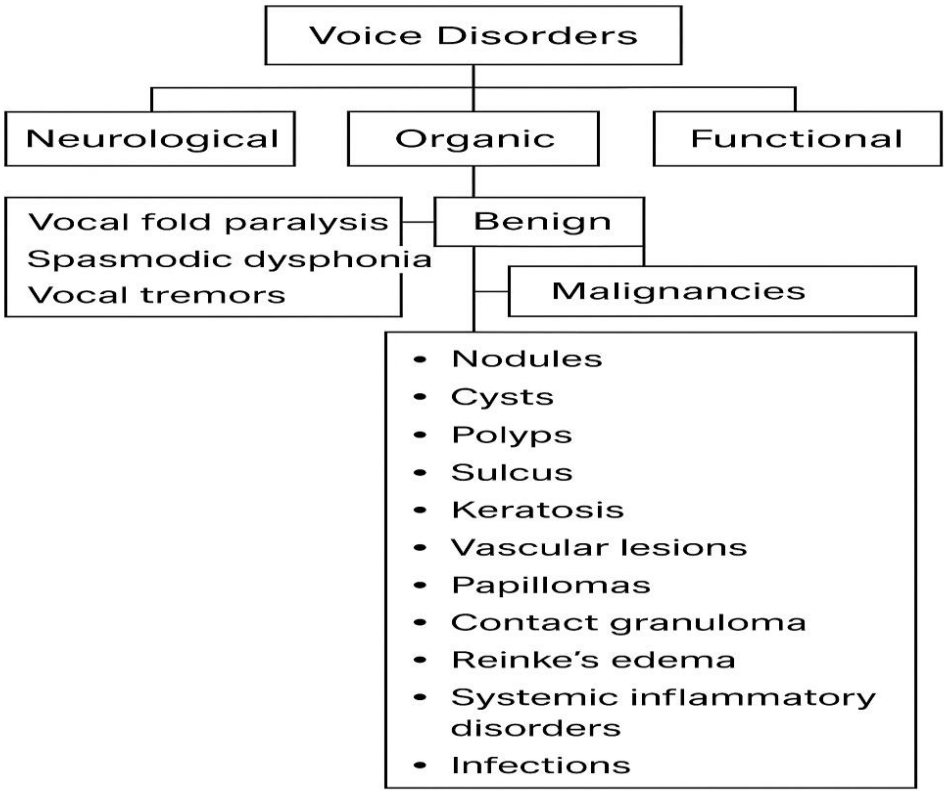
Figure 7.5

Different patterns of vocal fold closure



7.2.1 Types of voice disorders linked to the Larynx

As mentioned above, a number of factors can affect the vocal fold competencies. These may include neurological, organic, or functional factors or a combination of them. The table below is indicative of etiologies that can affect the physiology of the vocal cords.



May it is a neurological or organic cause, the result is compromised mobility and strength of muscles. This may be a result of an insufficient cartilage movement because of muscular weakness or paralysis of the muscles involved.

As mentioned above, the organic or localized factors may exhibit themselves as outgrowths that arise from the epithelial layer. At times they appear as broad or narrow-based nodules or cysts, pedunculated as in the case of polyps, etc. The resultant impression of voice is affected due to the extra vibratory body. Remember, localized conditions like nodules, cysts, polyps, etc., are manageable, while the neurological factors do not respond well to voice therapy. Functional disorders cannot be attributed to any pathological or neurological condition; however, the psychological and learning factors come into play and are usually reversible.

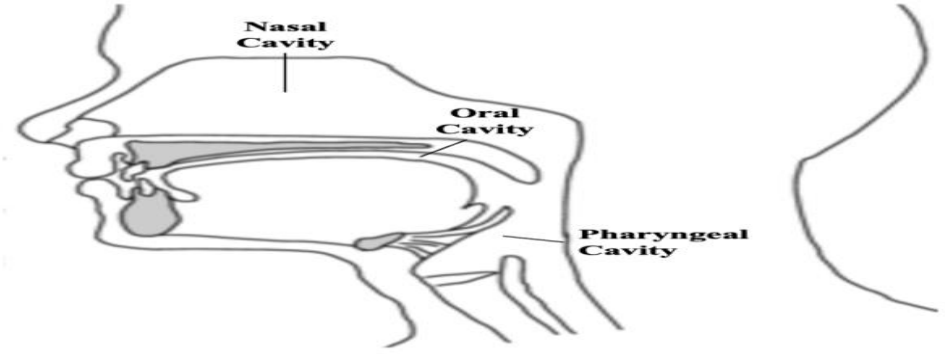
7.2.2 Voice disorders linked to resonance

Resonance is a phenomenon in which an external force or a vibratory system forces another system around it to vibrate with greater amplitude at a specified frequency. Just imagine a flute that behaves in a unique way to the primary buzz created by the mouthpiece. The tubular structure with openings creates different wavelengths as it passes through the flute. Not only that the sound modified, but it also adds amplitude and quality to it. The same is the case in the human phonatory system. The pharynx, oral and nasal cavities act like a tubular structure and put their respective share of resonance to the glottal sound, which was merely a buzz. At times, these structures suffer from some anatomical or pathological conditions that affect their respective resonating properties, resulting in a different perception of voice.

The resonatory system comprises of oral, pharyngeal, and nasal cavities as shown in Figure 6. The phonation of the vocal cord is further processed in terms of loudness and quality as it passes through these chambers. While most of the speech sounds are produced through the oral cavity, a few take the route of the nasal passage, thus meeting the needs of nasalized consonants.

Figure 7.6

Resonatory system



Any anatomical, structural, or physiological functions of these structures may affect resonance and hence be perceived as different. Just imagine producing |m| or |n| consultant with a blocked nose (as in the case of flu). The words like moon and nose will sound as bood and dose, respectively. Not only this, at times, vowels, which primarily are oral sounds, are produced through the nose and thus adding to the nasal perception. Nasal twang, nasality are some common verbs linked to such conditions. Nasality or twang, if considerable, distorts the speech to the extent that it may become unintelligible altogether. It would be worthwhile if teachers were aware of the causes that may lead to resonance disorders. In case of hyper nasality, the common etiological factors include cleft palate, submucous fistula, bifid uvula, hearing impairment, and mental retardation, etc. In case of hypo nasality, however, the most common cause is a deflected nasal septum, which is an abnormal growth of nasal cartilage that divides the nose into two nostrils; other common causes may include growths, including nasal polyps and adenoids, etc.

7.3 DIAGNOSING A VOICE DISORDER



Diagnosing voice disorders in children, especially those with special needs, necessitates a comprehensive and collaborative approach. Teachers, as primary observers in the classroom, are pivotal in identifying early signs of vocal difficulties.

They should be vigilant for symptoms such as persistent hoarseness, vocal strain, breathiness, or reluctance to speak, which may indicate underlying voice disorders. Early detection by educators can lead to timely referrals to speech-language pathologists (SLPs), facilitating prompt intervention and support. Voice disorders, as mentioned in the above section above can be categorized as presented in Table 1 below.

Table 7.1
Categories of different types of voice disorders

Organic	**Structural**	**Neurogenic**
	Alteration of Vocal fold tissues, like edema, vocal nodules, or changes due to aging, etc.	Vocal tremor, spasmodic dysphonia, Vocal fold paralysis
Functional	**Physical/ Psychological**	
	Vocal fatigue, muscle tension, or psychogenic factors, including aphonia, diplophonia, etc.	

The diagnostic process typically begins with a thorough case history, encompassing medical, developmental, and social backgrounds, to understand potential contributing factors. Following this, SLPs conduct auditory-perceptual assessments to evaluate vocal quality, pitch, loudness, and resonance. Objective measures, such as acoustic analysis and laryngeal imaging, may also be employed to assess the physical aspects of vocal function. Collaboration with otolaryngologists (ENT specialists) is often essential to rule out structural abnormalities and ensure a holistic evaluation.

Early recognition of voice disorder symptoms is essential for proper treatment. A teacher may notice some or many of these common signs indicating a voice disorder:

- Persistent hoarseness lasting more than 2-3 weeks
- Breathiness or weakness in the voice
- Strain or effort when speaking
- Changes in pitch or volume control
- Chronic throat clearing or coughing
- Voice fatigue, especially late in the day.

If a teacher suspects any kind of voice disorder, he/she must refer the child to a medical or allied health professional for proper diagnosis and treatment because the voice disorder may affect the child badly as described below:

- **Academic challenges**: Children may struggle to speak up in class or participate in activities that require vocal projection, like reading aloud or giving presentations.
- **Social difficulties**: Voice disorders can lead to frustration during conversations with peers, especially if their voice is hard to hear or understand.

- **Emotional impact**: Children may feel self-conscious about the sound of their voice, which can affect their confidence in social and academic settings.

Figure 7.7

Information about voice disorders in school age children



Once a diagnosis is established, an individualized treatment plan is developed, focusing on techniques to alleviate strain, enhance vocal strength, and promote healthy vocal habits. This plan may include vocal exercises, behavioral modifications, and, in some cases, medical interventions. Teachers play a

crucial role in the implementation of these strategies within the classroom setting, ensuring consistency and reinforcing therapeutic goals.

For children eligible for special education services, the development of an Individualized Education Program (IEP) is essential. The IEP team, which includes educators, parents, and healthcare providers, collaborates to set specific, measurable goals related to the child's communication needs. Accommodations and modifications are also outlined to support the child's participation and success in the educational environment.

In summary, diagnosing and managing voice disorders in children with special needs requires a coordinated effort among teachers, SLPs, ENT specialists, and families. By fostering open communication and a team-based approach, educators can significantly contribute to the identification, treatment, and support of children with voice disorders, enhancing their ability to communicate effectively and participate fully in their educational experiences.

7.4 TREATMENT

A speech language pathologist is a professional who can work on voice disorders along with a team of professionals. While during it the therapist may adopt direct or indirect approaches. During the direct approach, the therapist may directly monitor, manipulate, and focus on the voice production mechanism. In order to modify vocal behavior, the professional may directly get involved in phonation, respiration, and other musculoskeletal functions to establish a healthy voice. On the other hand, indirect approaches may include cognitive, behavioral, psychological, and environmental changes, etc. This may also include patient education and counselling.

The primary concern in front of every therapist is to identify behaviors that are leading to voice problems, e.g., unhealthy vocal hygiene and habits like shouting, coughing, and throat clearing etc. Once determined, the effort begins to control or reduce such traumatic behaviors and promote vocal hygiene. More scientifically, however, we may refer to physiologic and systematic voice therapies. Physiologic treatments directly modify the physiology of the vocal mechanism, however symptomatic voice options are aimed at modifying deviant vocal symptoms or perceptual voice elements using a variety of techniquee for example accent method, Conversation training therapy (CTT), Expiratory muscle strength training (EMST), Stretch and flow phonation (Casper Stone flow phonation), Vocal Function Exercises (VFE) etc.

The best part a teacher can play in a successful treatment plan is to make an early observation. If, for example, a teacher comes across a voice which is atypical in terms of age and gender, etc., or witnesses a change in voice, for instance, hoarseness, harshness, breathiness, and nasalization, etc., the teacher should take a note of it. Take the child into confidence and seek any information in this regard. Discuss with the family and caregivers, and if the

problem persists for more than a week or two, refer them to further assessment. The role of a teacher is pivotal as it can ascertain earlier intervention.

A cleft lip or palate is usually noticed on the day a child is born. Besides speech, nutrition and cosmetic issues are the primary concerns of the families and are addressed at an earlier age. However, palatal fistulas, a bifid uvula, or a weaker soft palate may go unnoticed till a later time. A trained teacher may take notice if a student speaks with a hyper-/hypo nasal voice. Again, referral is the key.

The recommendations below can make a difference while attending to a child in the classroom with vocal issues.

Possible support that can be rendered by a teacher

- Listen to the child and give attention.
- Do not make him/her feel embarrassed by calling attention to others.
- Provide reassurance, telling him/her about the possible help.
- Encourage him/ her to feel for any difference in their vocal behaviors.
- Look for the warning signs as the child speaks. Persistent throat clearing, pain in the neck while talking, and vocal fatigue.
- Many voice disorders are acute and may settle with a slight adjustment of the environment. Educate the parents to look for any irritants or allergens at home
- Promote oral hygiene and healthy habits.
- Children of a young age enjoy yelling and screaming. This may traumatize their vocal cords and affect their voice. Educate them to use a voice that is calm and more logical.
- Background noises such as fans and air conditioners, etc. may increase the demand to be louder. Such noises should be reduced to facilitate easier communication and lower vocal stress.
- Carpets, curtains, and blankets may carry allergens. These should be discouraged and alternatives be adopted for a healthier environment.
- Pets may also carry allergens that can affect the respiratory tract. A caution is advised.
- Vocal warm-ups may help at the beginning of the day.
- One of the best strategies for students who are loud and abuse their voice is to have voice rest. Vocal rest with plenty of hydration soothes the laryngeal mechanism and eliminates stress and fatigue.
- Diet has a definite role in vocal hygiene. Following is a list of foods that one should embrace or avoid for a better voice.

Table 7.2

Dietary guidelines to prevent/treat voice disorders

Foods to Embrace	Foods to Avoid

Foods to Embrace	Foods to Avoid
Water – Essential for hydration; keeps the vocal cords lubricated.	**Spicy Foods** – Can cause may damage the vocal cor
Herbal Teas – Soothing, hydrating, and often anti-inflammatory.	**Dairy Products** – May production, which can affe
Fresh Fruits and Vegetables – High in water content and vitamins that support mucous membrane health.	**Caffeine** – Can dehydrate out the vocal cords.
Honey – Helps soothe the throat and can coat the vocal cords gently.	**Alcohol** – Dehydrates and cords, impairing voice qua
Ginger – Known for its anti-inflammatory properties, beneficial for throat health.	**Processed Snacks** – Hig lead to dehydration.
Leafy Greens – Rich in vitamins that support overall health, including vocal health.	**Acidic Foods** – Like to fruits, may trigger reflux t cords.

In conclusion, Voice disorders can affect children and teens in many ways, from difficulty speaking in class to struggling with social interactions. By recognizing the signs early and seeking professional help, teachers and parents can ensure their child receives the necessary support to improve their vocal health and prevent future challenges. With the right intervention and care, most voice disorders can be successfully treated, allowing children to regain control over their voice and communicate effectively in all areas of life.

Self Assessment Question

1. What is a sound? Identify the physical and perceptual characteristics of sound.
2. The larynx is also called as voice box. Why is it named so? Explain its structure.
3. Identify resonating chambers and discuss their respective roles in articulation.
4. Explain the structure and function of the vocal cords in producing speech.
5. Elaborate on some common etiologies linked to voice disorders.
6. Explain the varied types of voice disorders commonly found in children with special needs.

7. What is a general procedure to diagnose a voice disorder?
8. What are the early signs of voice disorder in children? Explain the teacher's role in diagnosing the voice disorder in school-age children.
9. How can a teacher assist in the well-being of students with voice disorders?
10. What are some Do's and Don'ts for vocal hygiene?

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UNIT 8

NONVERBAL COMMUNICATION

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INTRODUCTION

Non-verbal communication involves sending and receiving messages without spoken or written language. This includes body language, gestures, facial expressions, eye contact, posture, tone of voice (paralinguistics), proxemics (use of physical space), and haptics (touch). These non-verbal elements function alongside verbal communication or independently to express emotions, clarify meaning, and convey social cues (Mehrabian, 2022; Cherry, 2024).

According to the American Speech-Language-Hearing Association (ASHA), non-verbal communication is especially critical for individuals with speech or language impairments, as it offers alternative ways to express needs, feelings, and ideas. For some, it serves as their primary mode of communication, particularly in cases of autism, cerebral palsy, or after strokes (ASHA, 2023). Research highlights that non-verbal cues often carry more emotional weight than spoken words.

For instance, facial expressions universally express emotions like joy, anger, sadness, and fear, often more accurately than words can describe (Ekman, 2019). A study by Zaki and Williams (2021) emphasizes that non-verbal responsiveness, such as nodding, leaning forward, or smiling, enhances trust and understanding in interpersonal interactions. Non-verbal communication also plays a regulatory role in conversation.

Eye contact, for example, signals attention, turn-taking, or disagreement. Proxemics, the use of space, varies across cultures but consistently conveys comfort levels and relational closeness (Hall, 2020). Meanwhile, gestures can replace words entirely (e.g., waving instead of saying "hello") or complement verbal speech to enhance clarity (Goldin-Meadow, 2020).

Importantly, non-verbal communication is culturally shaped. While certain expressions are universal, others, like hand gestures or personal space preferences, differ by region and can lead to misinterpretation if not understood in context (Kendon, 2021).

In conclusion, non-verbal communication is a foundational part of human interaction. It adds depth and clarity to verbal messages, facilitates emotional expression, and is especially vital for individuals with speech or language challenges. Understanding and interpreting non-verbal signals can significantly enhance communication effectiveness across all settings.

OBJECTIVES

1. To understand the key forms and functions of non-verbal communication and how they complement or replace verbal messages.
2. To recognize the role of cultural context in interpreting and using non-verbal communication effectively in diverse settings.
3. To explore the linguistic, cultural, and functional aspects of sign language, including its role in Deaf identity and communication.
4. To understand the structure, regional variation, and societal integration of British Sign Language (BSL) and the challenges faced in its broader adoption**.**
5. To understand the linguistic features, cultural significance, and historical development of Pakistani Sign Language (PSL).
6. To identify the applications, advancements, and ongoing challenges facing PSL in education, media, and public services in Pakistan.

8.1 SIGNIFICANCE OF NON-VERBAL COMMUNICATION SKILLS

Non-verbal communication is a cornerstone of human interaction, significantly shaping how we express emotions, interpret messages, and connect with others. Research consistently finds that a substantial portion of communication, estimated to be over 65% is non-verbal (Burgoon et al., 2021). This highlights its crucial role in conveying meaning beyond words, whether consciously or unconsciously. Non-verbal signals often provide context to verbal communication, reinforce messages, and reveal emotional states more accurately than speech (Mehrabian, 2022). Facial expressions are among the most universal forms of non-verbal communication, capable of expressing fundamental human emotions like joy, sadness, anger, and fear across all cultures (Ekman, 2019). Gestures, such as waving, pointing, or signaling "thumbs up," either substitute for verbal language or emphasize it. Posture similarly reveals a person's emotional state or level of engagement. An open, upright stance often signals attentiveness, while slouching can indicate disinterest or fatigue (Knapp et al., 2022).

Figure 8.1

Nonverbal communication



Eye contact is another vital element, serving as a social signal for attention, trust, and sincerity. It regulates conversational flow and reflects emotional connection (Zaki & Williams, 2021). Likewise, tone of voice, considered a paralinguistic cue, can alter the meaning of a statement. For example, a sarcastic tone may contradict the literal words spoken, underscoring the emotional nuance provided by vocal delivery (Cherry, 2024). Proxemics, or the use of personal space, varies across cultures but consistently communicates comfort levels and relationship boundaries (Hall, 2020). Haptics, or communication through touch, can express empathy, affection,

authority, or even aggression, depending on the context and cultural background (Andersen, 2020).

While many forms of non-verbal communication are biologically rooted and universally understood, their interpretation is often culture-specific. A gesture considered polite in one culture may be offensive in another (Kendon, 2021). Therefore, understanding and adapting to cultural variations in non-verbal cues is essential in diverse settings, especially in global communication and multicultural environments.

In sum, non-verbal communication is not merely a supplement to speech but a primary means of expressing emotions, intentions, and interpersonal attitudes. Mastering these skills enhances empathy, reduces misunderstandings, and builds stronger social and professional relationships.

8.1.1 Daily Importance and Challenges of Non-Verbal Communication

Non-verbal communication is deeply embedded in everyday interactions and plays a fundamental role in shaping how we connect with others. Non-verbal cues such as facial expressions, gestures, posture, and tone of voice help interpret emotional states, reveal hidden thoughts, and provide real-time feedback during conversations (Knapp et al., 2022). For instance, a simple head nod communicates agreement or attentiveness, while folded arms may signal defensiveness or discomfort. These cues allow individuals to respond empathetically, even when no words are spoken (Burgoon et al., 2021).

In **professional settings**, non-verbal skills are key to effective leadership and collaboration. Leaders who maintain appropriate eye contact, use open posture, and exhibit calm vocal tones are perceived as more trustworthy and competent (Goman, 2021). In the workplace, subtle cues like body orientation or facial expressions can indicate openness or tension, influencing teamwork and client interactions. A well-timed smile or nod, for example, can encourage participation and build rapport (Guerrero & Floyd, 2020).

Within **educational contexts**, non-verbal communication is equally vital. Teachers use gestures, facial expressions, and visual aids to enhance comprehension, especially when language barriers exist or when teaching students with special educational needs (Hattie & Zierer, 2019). For students with autism or hearing impairments, clear non-verbal signals—such as consistent gestures or visual cues—can significantly aid understanding and classroom engagement (Seal & Franzone, 2018).

However, **challenges persist**. Non-verbal communication is not universally interpreted; cultural norms heavily influence how gestures, space, and touch are perceived. For example, eye contact is seen as respectful in Western

cultures but can be considered rude in some Asian or Indigenous communities (Matsumoto & Hwang, 2019). Furthermore, individuals with neurological or physical disabilities may struggle to interpret or produce non-verbal cues, limiting their participation in communication. Autism spectrum disorder, for instance, often affects the ability to recognize facial expressions or body language (APA, 2022).

Given these complexities, developing awareness of non-verbal communication styles—and being sensitive to cultural and individual differences—is critical. Training in this area can improve inclusivity and reduce miscommunication in both social and professional settings (Poyatos, 2020). Ultimately, while non-verbal communication is powerful, it must be used mindfully to bridge gaps, not widen them.

8.2 SIGN LANGUAGE: OVERVIEW, HISTORY, AND BRITISH SIGN LANGUAGE

8.2.1 Overview of Sign Language

Sign language is a **visual-manual mode of communication** primarily used by individuals who are deaf or hard of hearing. It involves the use of **hand gestures, facial expressions, body posture, and movement** to convey meaning. Unlike spoken languages, which rely on auditory channels and linear sequencing, sign languages function in a **three-dimensional spatial format**, allowing users to express multiple elements simultaneously (Sandler & Lillo-Martin, 2019).

Sign languages are **not universal**; each region or country often has its own distinct sign language. For instance, American Sign Language (ASL), British Sign Language (BSL), and Pakistani Sign Language (PSL) are all different languages with unique grammatical rules and vocabulary. Sign language allows for the **representation of abstract concepts, emotions, grammatical structures, and linguistic nuances** in a visually rich and expressive manner (Emmorey, 2020). It serves not only as a communication tool but also as a cornerstone of Deaf culture and identity (Napier et al., 2021). Additionally, modern sign languages have been incorporated into digital media, education, and healthcare services, enabling better **accessibility and inclusion** for the deaf community. Video relay services, sign language interpreters, and mobile sign language dictionaries are just some of the innovations that have improved communication for sign language users (Kusters et al., 2021).

8.2.2 History and Evolution of Sign Language

The origins of sign language trace back to **ancient civilizations**. Gestures and visual signs were commonly used in **ancient Greece and Rome**, particularly by people with speech impairments. There are also historical records of **monastic communities in the Middle Ages** using gestures to maintain vows

of silence while still communicating essential information (Armstrong et al., 2018).

The **modern development** of sign languages began in the **18th century**, largely due to the efforts of pioneers in deaf education. **Charles-Michel de Lepee** a French priest, played a pivotal role by founding the first free school for the deaf in Paris. He worked with deaf individuals to develop a systematic method of manual communication, often regarded as the precursor to **French Sign Language (LSF)**. His work laid the foundation for the development of other sign languages, influencing educators and linguists across Europe and beyond (Lane, 2020).

In the 19th and 20th centuries, deaf education systems emerged in various countries, leading to the formation of **regional sign languages**. Over time, linguists recognized that sign languages are **fully developed natural languages** with their own syntax, morphology, and phonology—debunking earlier misconceptions that they were merely simplified or mimetic forms of spoken language (Sutton-Spence & Woll, 2019). Today, sign languages are seen as legitimate, complete languages worthy of study and protection. Despite advancements, many sign languages still face challenges in terms of **legal recognition, interpreter availability, and educational support**, particularly in developing nations (World Federation of the Deaf, 2023).

8.2.3 British Sign Language (BSL)

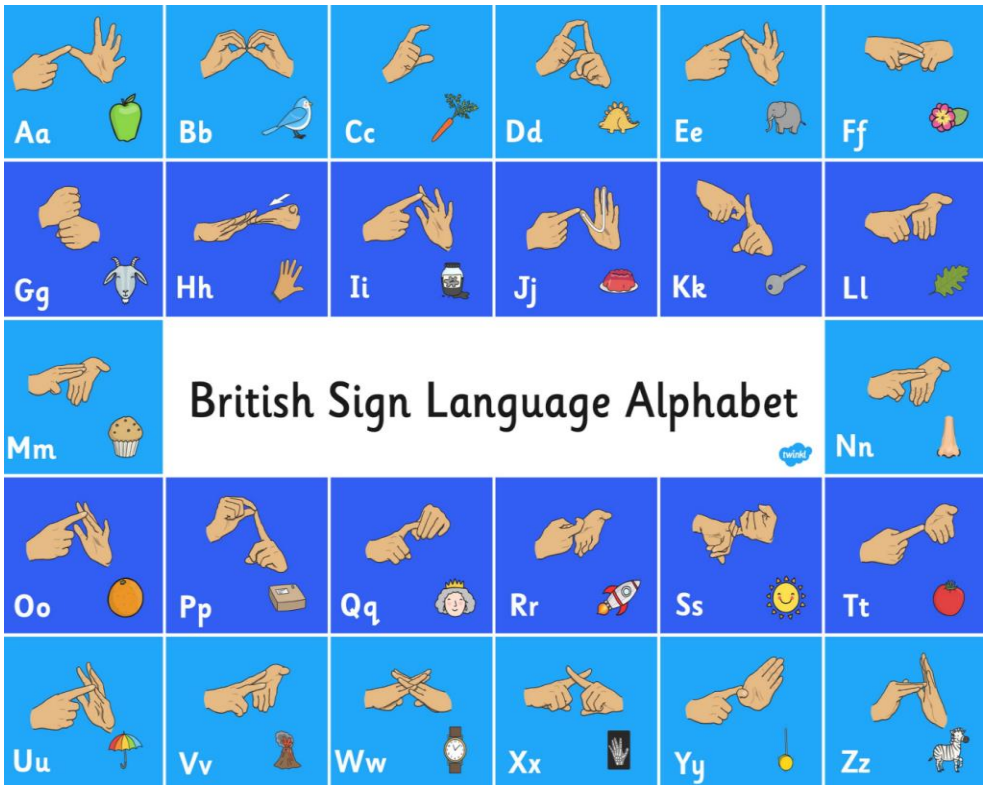
British Sign Language (BSL) is the primary sign language used by the **Deaf community in the United Kingdom**. It is a **language in its own right**, entirely separate from spoken and written English, with its own **syntax, grammatical rules, and lexicon** (Cormier et al., 2020). Unlike ASL, which uses a one-handed alphabet, BSL uses a **two-handed manual alphabet** to spell out words and names when necessary. One of the most distinguishing features of BSL is the use of **non-manual markers**—such as facial expressions, head movements, and body posture—to convey grammatical information. For instance, raising the eyebrows can indicate a yes/no question, while leaning forward may suggest emphasis or anticipation (Woll & Sutton-Spence, 2021).

BSL also exhibits **regional variation**, with different signs used in different parts of the UK. These **dialects** reflect local cultures and histories, much like spoken language dialects. Despite these differences, BSL remains a cohesive language with a standard framework (Stamp et al., 2019). BSL received **official recognition as a minority language in the UK in 2003**, a major step toward the inclusion of Deaf individuals in public life. Its recognition paved the way for the integration of BSL into **education, public services, television programming, and legal systems**. Public broadcasters like the BBC now

include BSL interpreters in select programs, and legal mandates ensure interpreter availability in healthcare and courtroom settings (UK Government, 2022). The use of BSL is essential in **educational settings**, especially for Deaf children who require a strong first language foundation. Teaching in BSL supports cognitive development, literacy skills, and social integration (Herman & Roy, 2018). BSL is also used in **bilingual Deaf education models**, where both BSL and English are taught, promoting equal access to learning.

Figure 8.2
Sign language images for alphabets in British Sign Language (BSL)

With the rise of digital tools, **BSL is now taught through apps, online**



dictionaries, and video platforms, increasing public awareness and encouraging hearing individuals to learn the language (British Deaf Association, 2023). However, challenges remain, including a **shortage of qualified BSL interpreters** and inconsistent funding for sign language services across regions.

8.3 PAKISTANI SIGN LANGUAGE (PSL)

Pakistani Sign Language (PSL) is a **visual-gestural language** developed and used by the Deaf and hard-of-hearing community in Pakistan. Like other natural sign languages, PSL is **not a manual representation of spoken Urdu**

or English, but a **distinct language with its own structure, grammar, and vocabulary** (Mahmood & Rauf, 2020). PSL reflects the **cultural, linguistic, and religious context of Pakistani society**, integrating signs for concepts unique to South Asian culture, such as local foods, festivals, and clothing. The language is actively used across **Pakistan's provinces**, with regional influences evident in signs and expressions. Despite these variations, PSL maintains a **core standardized lexicon**, which supports **mutual understanding among Deaf individuals from different regions** (FESF, 2023). PSL is also becoming increasingly important for **inclusive education, legal rights, and digital communication access**.

Though not yet officially recognized as a national language in Pakistan, PSL is widely acknowledged by educators, NGOs, and government institutions as **the primary mode of communication for the Deaf population**, estimated to be over **1 million individuals** (World Federation of the Deaf, 2023).

Figure 8.3
Pakistani Sign Language for Urdu Alphabets



8.3.1 History and Development of PSL

The **development of PSL** began in earnest after **Pakistan's independence in 1947**, but more structured efforts emerged in the **1950s and 1960s** when **schools for the Deaf were established** in cities like Lahore, Karachi, and Islamabad. Early Deaf education relied heavily on oral methods, but over time, the limitations of this approach led to increased advocacy for **sign language-based education**. A key milestone in the evolution of PSL was the **standardization movement** that took root in the 1990s and 2000s. Organizations such as the **National Institute of Special Education (NISE)** and **Family Educational Services Foundation (FESF)** played a pivotal role in documenting, unifying, and **disseminating standardized PSL signs** (FESF, 2023). These efforts culminated in the creation of **a PSL dictionary**, which now includes more than **5,000 standardized signs**, and the launch of **digital platforms and mobile apps** for PSL learning.

Additionally, **FESF's Deaf Reach Program** introduced **online learning platforms and e-dictionaries**, making PSL more accessible to students, parents, teachers, and healthcare workers. These platforms include **videos demonstrating signs**, making them highly useful for practical learning (Deaf Reach, 2022). Despite these efforts, **PSL is not yet integrated into mainstream education** or public broadcasting at scale. Furthermore, **interpreters remain scarce**, and few are formally certified. This creates communication barriers in **legal settings, hospitals, and employment sectors**, often resulting in the exclusion of Deaf individuals from public life (Mahmood & Shah, 2019).

8.3.2 Key Features, Applications, and Challenges

A. Key Linguistic Features of PSL

Pakistani Sign Language possesses several unique features that distinguish it from other sign languages:

- **One-handed Manual Alphabet**: PSL uses a one-handed fingerspelling system, making it practical for signing in various physical contexts.
- **Over 5,000 Standardized Signs**: Developed by organizations like FESF and NISE, the lexicon includes terms related to **family, education, religion, technology, and politics**.
- **Culturally Relevant Signs**: PSL includes localized signs for concepts specific to Pakistan, such as "Eid," "mosque," "shalwar kameez," and "chai" (tea).

- **Grammar and Syntax**: PSL follows a **topic-comment structure** and makes extensive use of **facial expressions, body movement, and spatial organization** to convey meaning.
- **Non-Manual Features**: Just like other natural sign languages, PSL relies on facial expressions and head tilts to mark questions, emotions, and negation.

B. **Applications and Use**

PSL is used in several key domains in Pakistan:

- **Education**: PSL is taught in **special schools**, often with **bilingual approaches** that include sign language and written Urdu. Deaf Reach Schools operate in multiple cities and integrate PSL-based instruction.
- **Public Awareness**: PSL has been used in **campaigns related to health, elections, and COVID-19 safety**, though these remain limited in reach.
- **Digital Tools**: Mobile apps and video-based dictionaries enable **parents and teachers** to learn basic PSL signs. FESF's PSL website is widely used by students and institutions.
- **Media and Accessibility**: Though rare, some local television stations offer **PSL interpretation** during special broadcasts. However, **systematic interpreter presence** is still lacking in most public sectors.

C. **Challenges**

Despite progress, PSL faces several ongoing challenges:

- **Lack of Legal Recognition**: PSL is not legally recognized as a national or official language, which limits its integration into public services.
- **Shortage of Interpreters**: Trained PSL interpreters are in short supply, especially outside major cities, creating accessibility gaps.
- **Low Public Awareness**: Most of the hearing population lacks awareness or understanding of PSL, leading to social exclusion and communication barriers.
- **Regional Variations**: Though efforts have been made to standardize PSL, **regional differences** in signs can sometimes confuse users from different areas.

To make PSL more effective and accessible, **government policy and societal awareness must improve**. Legal recognition, interpreter training programs, and public education campaigns would help mainstream PSL and promote the rights of the Deaf community in Pakistan.

8.4 ALTERNATIVE AND AUGMENTATIVE COMMUNICATION (AAC)

Alternative and Augmentative Communication (AAC) refers to methods and systems that assist individuals who are unable to rely on natural speech for communication. These tools support or entirely replace spoken or written language to help users express their thoughts, needs, and emotions. AAC is essential for people with complex communication needs due to physical, cognitive, or sensory disabilities such as **autism spectrum disorder (ASD), cerebral palsy, intellectual disabilities, aphasia following stroke, or developmental delays** (Beukelman & Light, 2020).

AAC is divided into two broad categories: **unaided** and **aided** systems.

- **Unaided AAC** does not require external tools and includes **body-based methods** such as **gestures, facial expressions, manual sign languages, and body language**.
- **Aided AAC** requires tools ranging from **low-tech solutions** (e.g., picture boards or communication books) to **high-tech devices** (e.g., speech-generating devices or text-to-speech software) (Light & McNaughton, 2012).

AAC is not a last resort but a **critical component of communication for many individuals across the lifespan**. It enhances the user's **quality of life**, supports **educational access**, and encourages **active participation** in everyday activities (ASHA, 2023).

8.4.1 Types of AAC and Devices by Disability

AAC technologies vary depending on the nature of the individual's disability and communication needs. The following breakdown categorizes AAC devices and methods by specific disability types:

1. Intellectual and Developmental Disabilities (e.g., Autism, Down Syndrome)

- **Picture Exchange Communication System (PECS):** A low-tech AAC system where individuals exchange pictures to communicate. Widely used for individuals with autism, PECS supports early communication by promoting functional speech or alternative communication pathways (Bondy & Frost, 2001).

Figure 8.4

Picture Exchange Communication Method



- **Symbol-based Communication Boards:** Use icons or photos to help users form sentences or indicate needs. Often used in educational settings with children who have limited verbal output.

Figure 8.5
Symbol-based Communication Boards



2. Hearing Impairments

- **Hearing Aids and Cochlear Implants:** Though not traditionally categorized under AAC, these devices support auditory access and can be integrated with **speech-reading** and **captioning tools**.

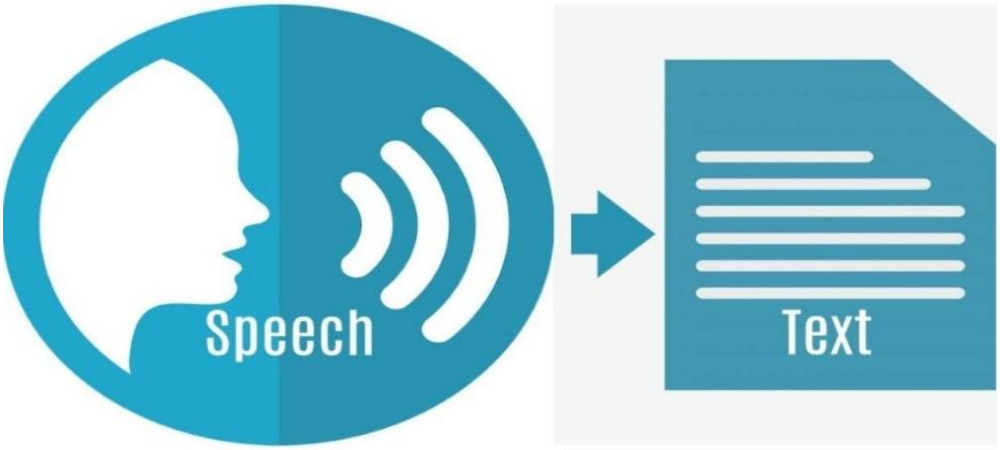
Figure 8.6
Cochlear Implants



- **Speech-to-Text and Text-to-Speech (TTS) Apps:** Tools like Ava or Google Live Transcribe convert spoken language into text, providing real-time communication for users who are Deaf or hard of hearing (Kusters et al., 2017).

Figure 8.7

Speech-to-Text and Text-to-Speech (TTS) Apps



3. Physical Disabilities (e.g., Cerebral Palsy, ALS)

- **Eye-Tracking Devices:** Allow users to control a computer or AAC device using eye movements. Ideal for individuals with limited motor control.

Figure 8.8

Eye-Tracking Devices



- **Switch-Activated Devices:** Operated by simple body movements like head turns, finger touches, or breath control (sip-and-puff switches). Common for users with motor neuron diseases such as ALS.

Figure 8.9

Switch-Activated Devices



4. Visual Impairments

- **Braille Notetakers:** Portable electronic devices that use a Braille keyboard and voice feedback for reading and writing.

Figure 8.10

Braille Notetakers



- **Screen Readers and Audio-Assisted Tech:** Tools like JAWS or NVDA convert on-screen text into speech or Braille output, allowing visually impaired users to access digital content (Kelly & Smith, 2011).

Figure 8.11

Screen Readers and Audio-Assisted Tech



These technologies demonstrate that AAC is **not a one-size-fits-all solution**. Instead, it must be customized to suit the individual's **cognitive, physical, sensory, and linguistic profiles**.

8.4.2 Benefits, Challenges, and Recommendations

A. **Benefits of AAC**

AAC systems provide profound benefits that extend beyond mere communication:

- **Improved Autonomy:** AAC enables individuals to make choices, express preferences, and assert control over their lives, contributing to **personal dignity and independence**.
- **Educational Inclusion:** AAC facilitates access to curriculum content and enables students with communication challenges to participate in **class discussions, assessments, and collaborative activities** (Light & Drager, 2007).
- **Social Integration:** AAC helps users maintain relationships with family, peers, and community members. It can **reduce isolation** and improve **emotional well-being**.

According to the American Speech-Language-Hearing Association (2023), early introduction of AAC often leads to **better language development and increased spoken output**, especially in children with speech delays.

B. Challenges in AAC Implementation

Despite its advantages, several barriers impede the effective use of AAC:

- **Cost and Accessibility:** High-tech devices, particularly those with eye-tracking or dynamic display features, can cost thousands of dollars. In low- and middle-income countries, this makes AAC inaccessible to many (Blackstone et al., 2012).
- **Training Requirements:** Successful AAC use requires training not only for users but also for caregivers, educators, and clinicians. A lack of trained personnel can severely limit its effectiveness.
- **Individual Adaptation:** AAC systems must be tailored to an individual's abilities, preferences, and developmental stage. This requires **ongoing assessment and updates**, which may not be feasible in under-resourced settings.
- **Stigma and Attitudinal Barriers:** In some communities, users of AAC may face social stigma or be perceived as less intelligent, which can discourage consistent usage.

C. Recommendations For AAC

To overcome these challenges, the following steps are recommended:

- **Policy and Funding Support** to subsidize AAC devices and services.
- **Training Programs** for families, educators, and health professionals to promote understanding and skilled use.
- **Localized AAC Development**, incorporating culturally relevant content and languages.
- **Awareness Campaigns** to reduce stigma and promote acceptance of AAC users.

8.5 TECHNOLOGY FOR COMMUNICATION

Communication technology refers to the array of tools, platforms, and devices designed to facilitate communication, especially for individuals who experience barriers to conventional spoken or written language. These technologies are crucial in enabling participation in daily life, education, employment, and social relationships for people with disabilities (Alper & Raharinirina, 2006). Communication technologies can be simple or highly sophisticated and are often tailored to match the unique cognitive, physical, or sensory needs of the user.

For individuals with disabilities, particularly those who are non-verbal, have visual or hearing impairments, or experience mobility challenges, communication technologies provide **alternative channels for interaction**.

They foster **independence**, **enhance learning opportunities**, and **improve quality of life** by removing communication barriers (Cook & Polgar, 2014). As digital connectivity expands, the integration of assistive communication technologies into mainstream systems has become more prominent, allowing greater access and social inclusion. These technologies not only support direct person-to-person communication but also facilitate broader participation in virtual environments, social media, and digital content creation—domains that are increasingly vital in modern society.

8.5.1 Types and Examples of Communication Technologies

Modern communication technologies encompass a diverse range of tools designed for individuals with different types of disabilities. The following are some commonly used and impactful technologies:

1. Text-to-Speech (TTS) Technology

TTS software converts written text into spoken words, allowing users with speech impairments or literacy challenges to vocalize their thoughts. Widely used in education and professional settings, tools like **NaturalReader**, **Voice Dream Reader**, and **Apple's Speak Selection** feature enable real-time speech output from typed input (Goldman, 2012). TTS benefits users with **autism spectrum disorders**, **cerebral palsy**, **ALS**, and other conditions that affect speech production. By providing voice output, it supports expressive communication and participation in social interactions.

2. Speech-to-Text (STT) Technology

STT tools transcribe spoken language into written text. Applications such as **Dragon NaturallySpeaking**, **Google Voice Typing**, and **Microsoft Dictate** help users with physical or motor impairments who cannot type or write manually (Wendt & Lloyd, 2011). STT also supports users with dyslexia or learning disabilities by reducing writing load and improving access to written content.

3. Video Relay Services (VRS)

VRS enables **deaf or hard-of-hearing** individuals to communicate with hearing people via a **sign language interpreter** who appears on screen through a video call. Services like **Sorenson VRS** and **Purple Communications** allow users to use **sign language** and receive responses in spoken language, enhancing independence in phone conversations and customer service interactions (Brueggeman, 2008).

4. Screen Readers

For people with visual impairments, screen readers convert digital text into audio or Braille. Software such as **JAWS (Job Access with Speech)**, **NVDA (Non Visual Desktop Access)**, and **Apple Voice Over** read content from websites, documents, and applications aloud (Kelly & Smith, 2011). These tools enable access to digital learning materials, employment-related content, and recreational reading.

5. Eye-Tracking Systems

Eye-tracking technology allows individuals to operate a device using **eye movements**, particularly beneficial for users with conditions like **locked-in syndrome**, **spinal cord injuries**, or **advanced ALS**. Systems such as **Tobii Dynavox** and **PCEye** track gaze direction to select letters, words, or icons on a screen. This enables communication, internet browsing, and environmental control using only eye movement (Majaranta & Räihä, 2002).

These technologies illustrate how communication barriers can be minimized or eliminated with appropriate tools, empowering individuals with complex needs to express themselves fully.

8.5.2 Impact, Challenges, and Future Directions

The integration of communication technologies into the lives of individuals with disabilities has had profound implications:

- **Social Participation:** Users gain access to social media, email, and video conferencing, which support relationships with friends and family (Light & McNaughton, 2012).
- **Educational Inclusion:** Students with communication needs can access digital learning platforms, participate in group discussions, and complete assignments independently.
- **Workplace Accessibility:** Assistive technologies level the playing field in professional environments, enabling individuals to carry out tasks that would otherwise be inaccessible.

Despite their benefits, communication technologies face several obstacles:

- **Cost and Availability:** High-tech devices, particularly those with advanced features like eye-tracking, can be prohibitively expensive. Funding sources and insurance coverage vary by region.
- **Training and Support:** Effective use of technology often requires training for users, families, educators, and caregivers. A lack of training can result in underutilization.

- **Technological Compatibility:** Assistive tools must be compatible with mainstream hardware and software systems. Inconsistencies or outdated designs can hinder integration.
- **Cultural and Language Barriers:** Tools may not always be localized for specific languages or cultural contexts, making them less effective for diverse populations (WHO, 2011).

The future of communication technology lies in **AI integration**, **wearable assistive devices**, and **greater customization**. Developers are increasingly working on voice assistants that adapt to user speech patterns, predictive text systems tailored to user vocabulary, and multimodal platforms that combine touch, gaze, and voice.

Furthermore, ongoing advocacy by organizations like **Ability Net**, **the World Health Organization (WHO)**, and **the American Speech-Language-Hearing Association (ASHA)** aims to increase global access, reduce stigma, and expand innovation in the assistive technology sector.

Self Assessment Questions

1- Explain the significance of non-verbal communication in conveying emotional states and regulating interpersonal interactions, using examples from the text.
2- Discuss how cultural differences can impact the interpretation of non-verbal cues, and why this is important in global or multicultural communication.
3- Describe the evolution of sign languages from ancient times to the modern era, highlighting major milestones in their recognition and development.
4- Discuss the unique features of British Sign Language (BSL) and the impact of its official recognition on education, media, and public services in the UK.
5- Discuss the history and evolution of Pakistani Sign Language (PSL), including key milestones and contributions by organizations.
6- Explain the key features, applications, and challenges of PSL, and evaluate its current role in promoting accessibility and inclusion for the Deaf community in Pakistan.
7- What does proxemics refer to in non-verbal communication?
8- Why is non-verbal communication especially important for individuals with speech or language impairments?
9- Name two universal forms of non-verbal communication mentioned in the text.
10- What makes sign languages different from spoken languages in terms of structure and modality?

11- Name one historical figure who contributed to the development of modern sign language.
12- What is a key visual feature used in BSL to convey grammatical information?
13- What is the fingerspelling system used in PSL?
14- Name one organization that contributed to the standardization of PSL.
15- List two culturally specific concepts represented in PSL

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UNIT 9

COMMUNICATION AND SPECIAL NEEDS

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INTRODUCTION

Effective communication is the bridge that connects understanding, empathy, and expression. For children with special needs, this connection is even more vital. Whether you're a parent, teacher, or caregiver, learning how to communicate effectively with these children can make a world of difference in their development and well-being.

Communication isn't one-size-fits-all, especially for children with special needs. Let's explore the various types:

- Verbal Communication: Using spoken language.
- Non-verbal Communication: Body language, gestures, and facial expressions.
- Augmentative and Alternative Communication (AAC): Tools like picture boards, speech-generating devices, and sign language.

At its core, communication is about connection. It's how we express our needs, share our thoughts, and build relationships. For children with special needs, effective communication isn't just a tool—it's a lifeline. It helps them navigate the world, understand others, and feel understood themselves. Effective communication is vital in special needs education. By employing the right strategies, educators can foster an inclusive environment that promotes learning and social interaction.

OBJECTIVES

This unit will be focused on developing

1. The concept of communication in special needs children
2. Comprehension of the communication models in reference to special needs
3. Understanding of how hearing impairment affects effective communication
4. Identification of communication barriers in children with physical needs
5. Identification of the challenges and barriers faced by individuals with learning disabilities in communication.
6. Exploration of communication challenges in children with neurodiversity.
7. Relationship of communication challenges with emotional disorders.

9.1 COMMUNICATION AND HEARING IMPAIRMENT

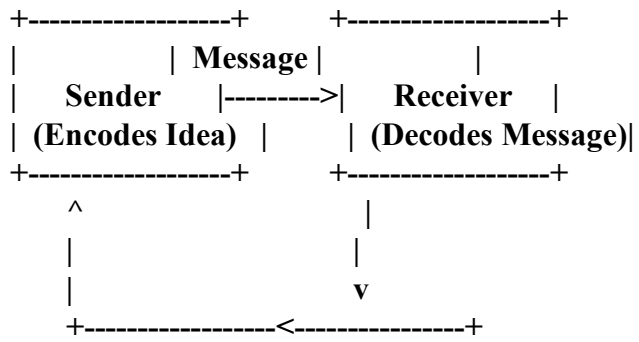
Communication is the process of sharing information, ideas, thoughts, feelings, or messages between individuals or groups through a mutually shared system of codes, symbols, signs, or behaviours. It can occur verbally (spoken or written words), nonverbally (body language, facial expressions, gestures), or through alternative means (technology, visual aids, sign language). The communication by any means or mode is considered to be effective if it brings the desired change in the receiver or the environment. Understanding, learning, problem solving, developing and maintaining relationships, or performing some action are all dependent on effective communication. In case of failure to effective communication, the barriers are identified at all the levels across the entire model of communication, including the following elements:

1. **Sender** – The person initiating the message.
2. **Message** – The information being conveyed.
3. **Channel** – The medium used (speech, text, gestures, etc.).
4. **Receiver** – The person interpreting the message.
5. **Feedback** – The response indicating understanding (or misunderstanding).
6. **Context** – The environment or situation influencing the exchange.

Effective communication becomes challenging for individuals with special needs due to cognitive, sensory, or social differences.

Fig 1

Schramm's Interactive Communication Model



Disabilities break the flow of communication across the communication model. At the level of Sender/Receiver, the encoding & decoding barriers occur because of speech disabilities in children with cerebral palsy, cognitive disabilities, visual and hearing impairment, learning disabilities, and neurodiverse children. In these cases, the message component of the communication loop needs adaptation, e.g., braille use or the use of sign language for transmission of the message. The channel of communication, which is auditory and visual, will also change, e.g., for hearing impairments, visual channels like text, sign language are used. Children with visual impairments will need auditory/tactile channels, audio descriptions, Braille, etc. Children with motor disabilities may need eye-tracking

devices or adaptive keyboards for digital communication. Noise (Barriers in Communication) is physical noise, i.e., **b**ackground sounds interfering with hearing aids, psychological noise, including anxiety or stress affecting comprehension, and technical noise, particularly poor-quality assistive devices (e.g., lagging speech synthesizers). The receiver becomes sender here, and hence the feedback will be non-traditional, i.e., non-verbal e.g. A person with non-verbal autism might respond through gestures or AAC instead of speech.

We can conclude by saying that Schramm's model highlights that communication is a shared, dynamic process, but disabilities can introduce unique challenges. By adapting encoding, channels, and feedback methods, we can create more inclusive and effective communication for people with disabilities.

9.1.1 Communication And Hearing Impairment

Communication is a vital aspect of human interaction, and hearing plays a crucial part in this process. Children with hearing impairment (HIC) communicate either non-verbally or verbally. The verbal communication involves oral and written communication, whereas non-verbal communication in HIC primarily involves sign language, use of manual alphabets, miming, and lipreading. These two modalities and parents' attitude towards hearing impairment serve as the basis of cognitive development of a growing child and his personality, which are essential for speech, language, and communication development.

However, hearing impairment can significantly impact an individual's ability to communicate verbally and effectively, affecting their quality of life, social interactions, and overall well-being (World Health Organization, 2020). According to the WHO, 380 million people worldwide live with hearing loss, with this number expected to rise to over 800 million by 2050 (WHO,2020). Research has shown that hearing impairment can lead to communication difficulties, social isolation, and decreased quality of life (Kramer et al.,2017; Mick et al.,2014). Effective communication strategies and interventions are essential to support individuals with hearing impairment and promote their participation in society (Heffernan et al.,2016).

Hearing impairment can affect communication in various ways, including:

9.1.1.1. Difficulty understanding speech

Individuals with hearing impairment may struggle to understand speech, especially in noisy environments or when speech is rapid (Kramer et. al., 2017). Hearing impairment is one of the primary causes of speech understanding difficulties. The type and degree of hearing loss affect the communication rehabilitation. Conductive and sensorineural hearing loss can be of various degrees affecting the discriminative comprehension of sounds, causing poor frequency resolution to the extent that causes difficulty

distinguishing similar sounds. There will be reduced dynamic range and the child can't process volume variations well.

A. Linguistic Factors

Limited vocabulary due to reduced auditory input is a big barrier to communication in HIC. Developing abstract concepts and expansion of vocabulary is a big challenge. The grammatical structures will not be learned, hence making it hard to understand and to be understood. Challenged phonological awareness causes erroneous speech with compromised intelligibility.

B. Environmental Factors

The level of background noise in classrooms or in a verbal environment averaging 60dB, which is problematic even with hearing aids to understand and process the speech. A distance of more than 3 feet from the speaker reduces speech clarity. Poor acoustics, echo, and reverberation in rooms make it hard to hear and process speech.

9.1.1.2. Specific Speech Perception Challenges

Speech Element	Why It's Difficult	Example Problems
Consonants	High-frequency sounds hardest to hear	Mixing up "cat"/"bat"
Word endings	Often quiet/unstressed	Missing plural '-s or past tense '-ed'
Rapid speech	Can't process fast transitions	Missing words in quick sentences
Speaker differences	Voice pitch/variation affects recognition	Struggling with new teachers' voices

1. Communication breakdowns

Hearing impairment can lead to communication breakdowns, resulting in feelings of frustration, isolation, and loneliness (Heffernan et al.,2016).

2. Social withdrawal:

Individuals with hearing impairment may withdraw from social interactions due to difficulties with communication, leading to social isolation and decreased quality of life (Mick et al., 2014). Difficulty understanding peers in noisy environments (classrooms, playgrounds), limited access to spoken conversations, e.g., missed jokes, instructions, or social cues, and reliance on lip-reading that is ineffective in group settings become major causes of social withdrawal and create an attitude of mistrust among children.

9.1.1 Effective Communication Strategies for Individuals with Hearing Impairment

1. Assistive listening devices

Assistive listening devices such as hearing aids and cochlear implants can improve communication outcomes for individuals with hearing impairment (Kim et al., 2018). It is pertinent to give an appropriate assistive device to the child as per his degree, type, and age of the child. Cochlear implantation gives the best result through the auditory-verbal approach when implanted before the age of 3 years. It signifies the importance of early detection of hearing impairment for complete inclusion of children in main mainstream.

2. Communication training

There are various communication approaches used for the child with hearing impairment, like cued speech, sign language, verbal communication, total communication, and Auditory Verbal Approach (AVA). The selection of the approach should be a joint decision of the family and professionals involved. Communication training programs can help individuals with hearing impairment develop strategies to improve communication and reduce communication breakdowns (Heffernan et al., 2016).

3. Face-to-face communication

Face-to-face communication can help individuals with hearing impairment lip-read and use visual cues to improve understanding (WHO, 2020). Hearing-impaired children rely heavily on visual and tactile cues for face-to-face communication. Unlike traditional spoken interactions, effective communication requires adaptations in language modality, attention strategies, and environmental setup.

The impairment of hearing and speech leads to certain specificities and difficulties in the development of these children, which require adequate methods and procedures in the process of rehabilitation and education, great support and encouragement from the family, the preschool institution, and the environment.

At preschool age, the task of kindergarten is to enable children to continue adopting the language they have started adopting in the family, and it will be best adopted through interactions with other fluent speakers - adults and children. In deaf and hard-of-hearing children of preschool age, through playing and various spontaneous and directed activities, it is necessary to develop all the functions of verbal and non-verbal communication. Which form of communication the deaf and hard-of-hearing children will use and develop depends, to a large degree, on whether they come from a family of deaf parents or of hearing ones. Seeing that the population of children with hearing impairments is very heterogeneous, in order to meet the needs of all the children regarding communication and education, it is necessary that there are different alternatives in their upbringing and education.

9.2 COMMUNICATION AND PHYSICAL DISABILITY

Effective communication is a fundamental aspect of human interaction, enabling individuals to express their thoughts, needs, and wants (Hux & Samson, 2017).
However, for individuals with physical disabilities, communication can be a significant challenge (World Health Organization, 2011).
Physical disabilities can impact an individual's ability to communicate effectively, whether through speech, writing, or other forms of expression (Beukelman & Mirenda, 2013).
This can lead to frustration, isolation, and decreased quality of life (Yorkston et al., 2010).

9.2.1 Physical disabilities can impact communication

1. Speech impairments

The neuromotor discoordination and programming difficulty will cause disorder in articulating words or sounds, such as dysarthria or apraxia.

2. Limited mobility or dexterity

Difficulty speaking, writing, or using gestures due to physical limitations.

3. Cognitive impairment

Difficulty understanding or processing information, which can impact communication.

9.2.2 Effective communication strategies for individuals with physical disabilities

1. Augmentative and Alternative Communication (AAC):

Using devices or systems such as Communication boards, Speech-Generating devices (SGDs), Eye-Tracking Devices, and Switch-Based Devices to support or replace natural speech.

2. Assistive technology:

Utilizing devices or software to enhance communication, such as text-to-speech systems or speech-generating devices (Lancioni et al., 2013).

3. Environmental modifications:

Modifying the environment to support communication, such as reducing background noise or providing visual aids (World Health Organization, 2011).

9.3 COMMUNICATION AND LEARNING DISABILITY

People with learning disabilities frequently struggle with communication, which hinders their capacity to express themselves and comprehend others. Depending on the definition and sample, estimates of the percentage of people with learning disabilities who have communication problems range from 50%

to 90%. These challenges can affect many facets of life, including forming connections, voicing one's thoughts, and getting the help one needs.

9.3.1 Individuals with Learning Disabilities Face Significant Challenges in Communication

1. Verbal Communication

Difficulty with articulation, vocabulary, or understanding complex language (Mencap, n.d.; RNIB, n.d.).

2. Non-Verbal Communication

Difficulty interpreting facial expressions, body language, or tone of voice.

3. Information Processing

Difficulty processing and retaining information, leading to confusion or misunderstandings (CDC, 2020).

4. Social Interactions

Difficulty initiating or maintaining conversations, understanding social norms, and developing relationships.

9.3.2 Strategies for Effective Communication in Individuals with Learning Disabilities

A customized strategy that takes into consideration each person's particular requirements and preferences is necessary for effective communication with people who have learning difficulties.

1. Avoid jargon or complex vocabulary that might be hard to understand. Use simple, clear language and short sentences.
2. Use facial expressions, gestures, and body language to convey empathy and understanding. Be aware of cultural differences in non-verbal communication.
3. Go at the person's pace and follow their communication lead. Be patient and allow time for processing and responding.
4. Develop a comprehensive document outlining the individual's communication style, preferences, and needs.
5. Allow individuals to express themselves without interruptions. Practice active listening by maintaining eye contact and nodding to show understanding.

9.4 COMMUNICATION AND AUTISM SPECTRUM DISORDER (ASD)

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by challenges in social interaction, communication, and repetitive behaviors. Although autism can be diagnosed at any age, it is described as a “developmental disorder” because symptoms often appear in the first two years of life (UNICEF, 2015). One of the main characteristics of

ASD is communication challenges, which affect a person's capacity for self-expression, interpersonal understanding, and meaningful engagement. Around 78 million people worldwide live with autism spectrum disorder (ASD), which affects about 1% of the world's population (Baio J., 2008). However, because of things like diagnostic procedures, awareness, and healthcare accessibility, stated prevalence differs greatly between nations and regions.

9.4.1 Individuals With Autism Spectrum Disorder (Asd) Face Various Challenges

1. Social Challenges

Difficulty initiating or maintaining conversations, trouble understanding social cues, facial expressions, and body language. Struggling to develop and maintain relationships.

2. Communication Challenges

Verbal communication difficulties, such as delayed language development or difficulty with tone and nuance.

Nonverbal communication challenges, such as interpreting facial expressions and body language Difficulty with initiating or maintaining conversations.

3. Behavioral Challenges

Repetitive behaviors or movements, such as hand flapping or rocking

Sensory sensitivities or difficulties with sensory integration

Difficulty with changes in routine or transitions.

9.4.2 Low-Technology Communication Strategies

Low-technology communication strategies play a vital role in supporting language development in children with autism spectrum disorder (ASD) (Baxter et. al., 2012). One such strategy is the use of visual supports, including picture exchange systems (PECS). PECS allows children to communicate their needs, desires, and preferences by exchanging pictures or symbols with a communication partner, promoting language acquisition through concrete visual representations (Charlop-Christy, et al., 2002).

9.4.3 High-Technology Communication Strategies

High-technology communication strategies offer innovative solutions to support language development in children with autism spectrum disorder (ASD). One prominent example is the

use of speech-generating devices (SGDs) or dedicated communication apps on tablets or smartphones (Gevarter et al., 2020). These devices allow children

9.5 COMMUNICATION AND ADHD

Attention Deficit Hyperactivity Disorder (ADHD) is a neuro-developmental disorder that affects both children and adults, characterized by symptoms of inattention, hyperactivity, and impulsivity. Communication skills can be severely impacted by ADHD, making it difficult to explain oneself, listen well, and participate in discussions. It can be challenging for people with ADHD to process and react to information like neurotypical people because they may have attention, impulse control, and hyperactivity issues. These issues can show themselves in a number of ways, such as trouble focusing, talking over other people, and forgetting specifics from earlier conversations.

1. Raising awareness

Educating people about the communication challenges associated with in ADHD. In that case, we will have to develop an attitude of acceptance of the difficulties and needs of a child with ADHD.

2. Developing tailored approaches:

Creating personalized communication strategies to support individuals with ADHD.

3. Improving communication skills:

Enhancing the communication skills of individuals with ADHD through targeted interventions.

4. Supporting caregivers and professionals:

Providing resources and guidance for caregivers, educators, and professionals working with individuals with ADHD.

9.5.1 How ADHD Affects Communication in Children

Children with ADHD may experience difficulties with communication in several ways:

1. Inattention:

Children with ADHD might have trouble paying attention to speakers, leading to missed information or misunderstandings (DuPaul & Weyandt, 2006).

2. Impulsivity:

Impulsive behavior can cause children to interrupt others, blur out answers, or have difficulty waiting for their turn to speak (Barkley, 2013).

3. Working Memory Challenges:

Children with ADHD might struggle with retaining information, following complex instructions, or remembering details (Martinussen et al., 2013).

4. Social Cues:

Difficulty interpreting social cues, such as facial expressions or tone of voice, can lead to misunderstandings or inappropriate responses (Uekermann et al., 2010).

9.5.2 Impact on Social Interactions

The communication challenges associated with ADHD can significantly impact social interactions. Children might:

1. Struggle to make friends:

Difficulty with turn-taking, listening, and responding appropriately can make it hard to form and maintain friendships (Mrug et al., 2012).

2. Experience social rejection:

Impulsive behavior or interrupting others can lead to social rejection or teasing from peers (Hoza et al., 2005).

3. Have difficulty with teamwork:

Challenges with communication can affect the ability to work effectively in group settings or team projects (Langberg et al., 2011).

9.5.3 Strategies for Improving Communication

Despite these challenges, several strategies can help improve communication in children with ADHD:

1. Structured Communication:
Using clear, concise language and providing structured communication can help children with ADHD understand and follow instructions (Pfiffner et al., 2013).

2. Active Listening:
Teaching children active listening skills, such as maintaining eye contact and repeating back what they heard, can improve comprehension (Sibley et al., 2016).

3. Visual Aids:
Utilizing visual aids like charts, pictures, or schedules can support communication and help children remember important information (Langberg et al., 2013).

4. Positive Reinforcement:
Encouraging and rewarding positive communication behaviors can motivate children to improve their skills (Fabiano et al., 2010).

9.6 COMMUNICATION AND INTELLECTUAL DISABILITY

The relationship between communication and intellectual disability is significant, as individuals with intellectual disabilities often experience difficulties with communication, which can impact their quality of life. Studies have shown that approximately 57.9% of adults with intellectual disabilities experience communication difficulties, with 23.5% having severe difficulties (Smith et al., 2020).

These challenges can lead to social exclusion, reduced opportunities for social connections, and decreased participation in fulfilling activities.

9.6.1 How Intellectual Disabilities Affect Communication

Individuals with intellectual disabilities may struggle with various aspects of communication, including receptive language, expressive language, and pragmatic language.
Receptive language difficulties can affect their ability to understand spoken, written, or sign language, while expressive language challenges can impact their ability to convey messages or use language effectively (García et al., 2020). Pragmatic language difficulties can also affect their ability to use language in social contexts, leading to misunderstandings or social awkwardness.
Furthermore, communication challenges can lead to frustration, anxiety, and behavioral problems, highlighting the need for effective communication support strategies.

9.6.2 Strategies for Improving Communication

Several strategies can help improve communication for individuals with intellectual disabilities, including augmentative and alternative communication (AAC) methods, such as pictograms or communication devices. Providing tailored communication support and training for professionals can also enhance communication skills and overall quality of life (Smith et al., 2020).
with ASD to generate spoken language by selecting symbols or typing text, providing them with a voice to express their thoughts, needs, and emotions.

9.7 COMMUNICATION AND EMOTIONAL CHALLENGES

Emotional challenges, such as anxiety, fear, or anger, can significantly impede effective communication. These challenges can create barriers to open and honest expression, making it difficult to convey thoughts and feelings accurately and understand others' perspectives (Richmond & McCroskey, 1995). When individuals experience strong emotions, it can impact their ability to communicate effectively, leading to misunderstandings and conflict.

9.6.1 Consequences of Emotional Challenges in Communication

The consequences of emotional challenges in communication can be far-reaching, including:

1. Reduced Productivity:

Emotional challenges can lead to decreased productivity and efficiency (Goleman, 1995).

2. Increased Stress:

Emotional challenges can increase stress levels, negatively impacting mental and physical health (Kabat-Zinn, 2003).

3. Poor Decision-Making:

Emotional challenges can impair decision-making abilities, leading to poor choices (Lerner & Tetlock, 1999).

9.6.2 Overcoming Emotional Challenges

To overcome emotional challenges in communication, individuals can develop strategies such as:

1. Emotional Regulation:

Recognizing and managing emotions to communicate more effectively (Gross & Thompson, 2007).

2. Empathy:

Understanding and acknowledging others' perspectives and emotions (Batson et al., 2002).

3. Active Listening:

Paying attention to others, asking clarifying questions, and restating what we've understood (Bodie, 2011).

Self Assessment Questions

1. Discuss the significance of the concept of communication in special needs children
2. Explain your understanding of the communication models in reference to children with special needs and their communication challenges.
3. Explain how hearing impairment affects the communication skills of the children. What kind of assistive technology and procedures can be adopted to help these children?
4. Identify the communication barriers in children with physical needs. List down the most commonly used strategies for developing communication skills in these children.
5. How can you identify the challenges and barriers faced by individuals with learning disabilities related to communication skill building?
6. Explain the varied types of communication challenges in children with neurodiversity. Provide examples where necessary.
7. Do you consider the diagnosis of communication challenges of children with emotional disorders to be directly linked with the causes of emotional disorders?
8. How can the intervention plan help these children to overcome their emotional and communication challenges simultaneously?.

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