

An Introduction to Understanding Communication, Speech, Language, and Swallowing in Children

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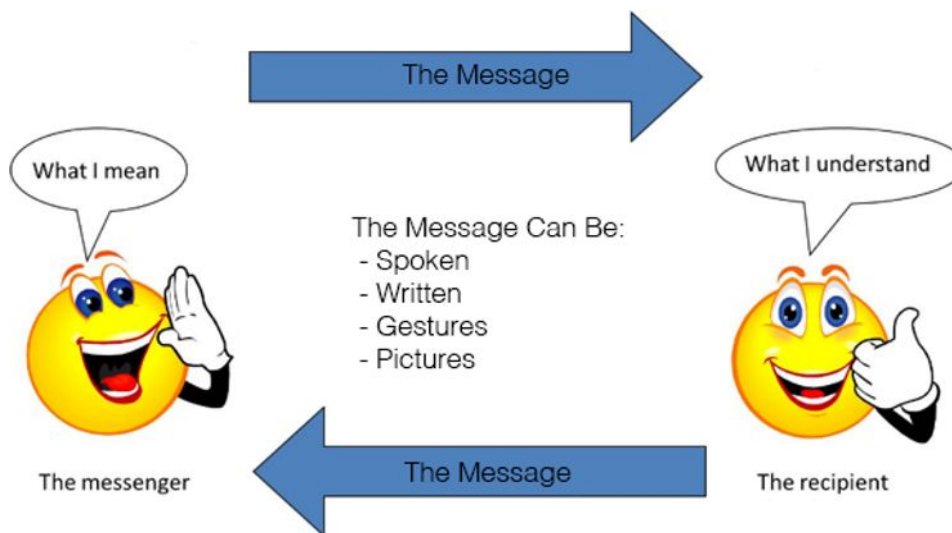
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Foreword

This book is for speech trainers, special educators, caregivers and parents who are supporting children with speech and language difficulties. It is designed to provide a basic understanding of communication, speech, expressive language, receptive language, and swallowing. This book also offers specific tips and strategies that can be used daily at home, in school, and in the community.

What is Communication?

Communication is passing information from one person to another. One person sends a message and the other person receives that message, understands the meaning, and responds. Communication can be verbal (words, sounds/vocalizations), nonverbal (gestures, writing, pictures), or a combination of the two (e.g waving while saying hello). Children communicate in various ways and for various reasons depending on their abilities.



Babies communicate without using words. A newborn baby will cry to communicate that they are hungry or uncomfortable. As babies become more aware of the people around them, they begin to smile and move their arms and legs to communicate. Babies then begin to use vocalizations (sounds such as cooing, babbling, and laughing) to express a message.

Toddlers (ages 1-3) continue to communicate using gestures, sounds, facial expressions, and body movements. Around 1-year of age, toddlers begin to combine sounds to form specific words. As the child develops, these single words gradually grow to 2- and 3-word combinations before eventually becoming full sentences.

However, some children may not develop their communication skills in the same way that other children do. Delayed or disordered communication skills are common in children with autism spectrum disorder (ASD), Down syndrome, cerebral palsy, and hearing loss. They are often late saying their first words and have difficulty producing and understanding sounds and words correctly. Their language skills may develop much slower than other children so eye contact, smiling, gestures, and vocalizations should all be considered as acceptable forms of communication.

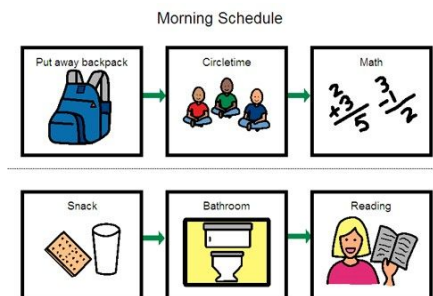
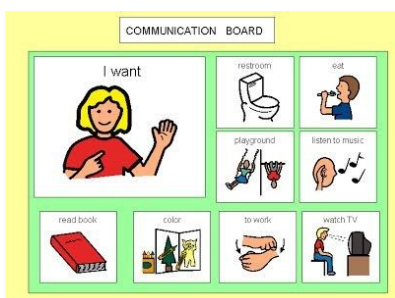
Visual Communication

Some children are great communicators but have limited speech or speech that is hard to understand. Those children should be encouraged to improve their communication skills by using techniques that don't rely on speaking. These techniques are known as visual communication tools and include gestures, drawing, writing, and pictures.

Visual communication tools are used to help the children understand a message or instruction and express a thought or idea. These tools should be simple, easy to follow and specific to the child's daily routine. A visual communication tool should ultimately help to reduce the child's frustration and anxiety around communicating and help the child to become a more confident and independent communicator.

Tips for Developing Visual Communication Aids

- Use basic pictures or symbols
- Provide choices for the child to choose from
 - E.g. "Do you want water or milk?"
- Use it to help provide structure for a daily routine
 - E.g. have a schedule with pictures on the wall of the classroom to show the students what is happening next
- Teach the children how the tool works and the rules they need to follow
- Make the tool portable and easy for the child to use in different environments
 - E.g. at home and at school
- Make the tool personalized and motivating for the child to use



What is Speech?

Speech is the process of combining different sounds into words. Babies start making vocalizations (e.g. crying and laughing) and then slowly start producing specific sounds (e.g. bababa). Those sounds are eventually combined together to form words (e.g. mama, dada, dog).

How is Speech Produced?

Speech is made by air traveling from the lungs, through the vocal cords, and out of the mouth. The muscles of the face, tongue, lips, and jaw help to shape the air into different sounds.

Breathing – The “Energy” for Speech

- Breathing provides the power for speech
- Air comes up from the lungs and is pushed through the vocal cords and out the mouth
- The child must have good upper body position and strong enough muscle control for breathing to support speech

Voice – The “Sound” for Speech

- The vocal cords are two very small muscles in the neck
- When air passes between the vocal cords, they vibrate
- Some sounds in speech are voiced (the vocal cords are vibrating)
 - Put your hand on your neck and try holding the sound “ah” as in apple. You should feel a vibration
- Some sounds in speech are unvoiced (the vocal cords are open and do not vibrate)
 - Put your hand on your neck and try holding the sound “sh” as in sheeep. You should not feel any vibration

Articulation – The “Production” of specific speech sounds

- Once air enters the mouth the sound is shaped using different muscles.
- The muscles of the mouth used to shape sounds include:
 - Jaw: opens and closes
 - E.g. try “ah” as in auto (open jaw) vs. “e” as in me (closed jaw)
 - Tongue: moves up and down, side to side and back to front
 - E.g. try “L” as in love (tongue forward) vs. “K” as in cat (tongue back)
 - Lips: can be round or straight
 - E.g. try “oh no” (lips round) vs. “see” (lips stretched and straight)
 - Palate: can move up and down to help the air stay in the mouth or go out the nose
 - E.g. try “s” as in see (air travels through the mouth) vs. “mmm” as in mom (air travels through the nose)

The Brain – The “Control Centre”

- The muscles needed for breathing, voicing, and articulation are all controlled by the brain
- The brain sends messages to every muscle in the body
- If the brain is not developing properly, it will have difficulty sending messages to specific parts of the body
- This difficulty may result in speech developing slower than other children or not at all

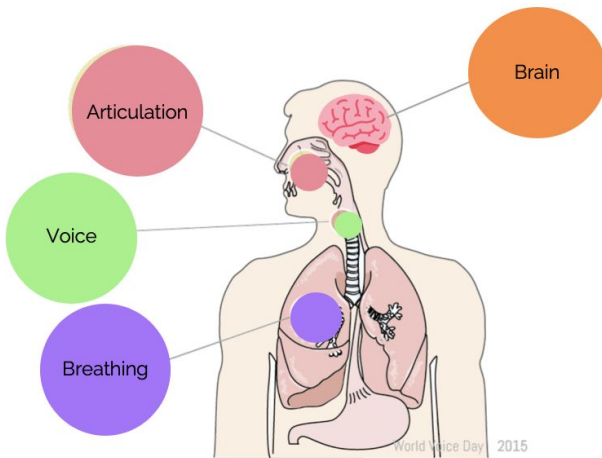
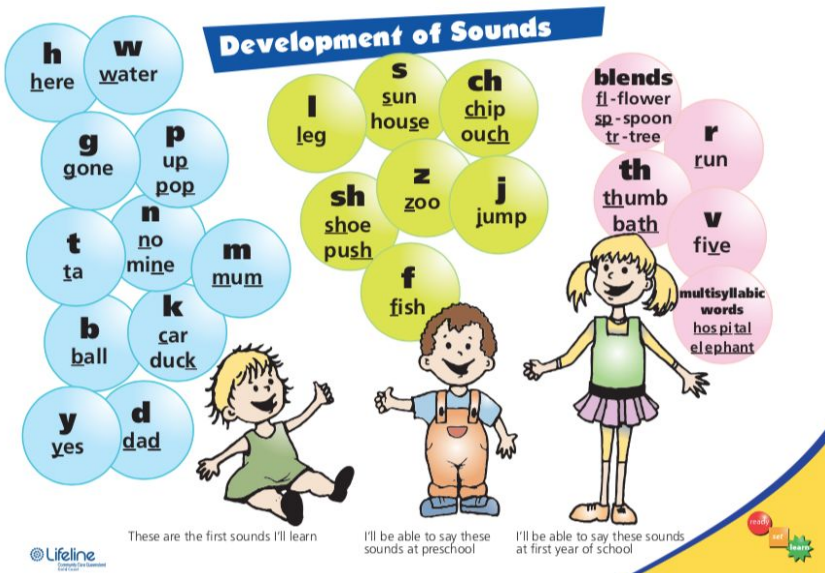


Image source: world-voice-day.org

How do Sounds Develop?

- Speech sounds develop in a specific order at different ages so it is important to understand the development of sounds in the child’s language
 - E.g. in English a child will make the sound “m” as in mom before “k” as in cat
 - Eg. in English a 2 year old child might say “tah” for car but would not be expected to say the word “**car**” properly until about 6 years old
- Speech sound production requires the development of the tongue, lip and jaw muscles. These muscles must have adequate strength and movement to produce the sounds properly.

The image below shows the order that English speech sounds develop.



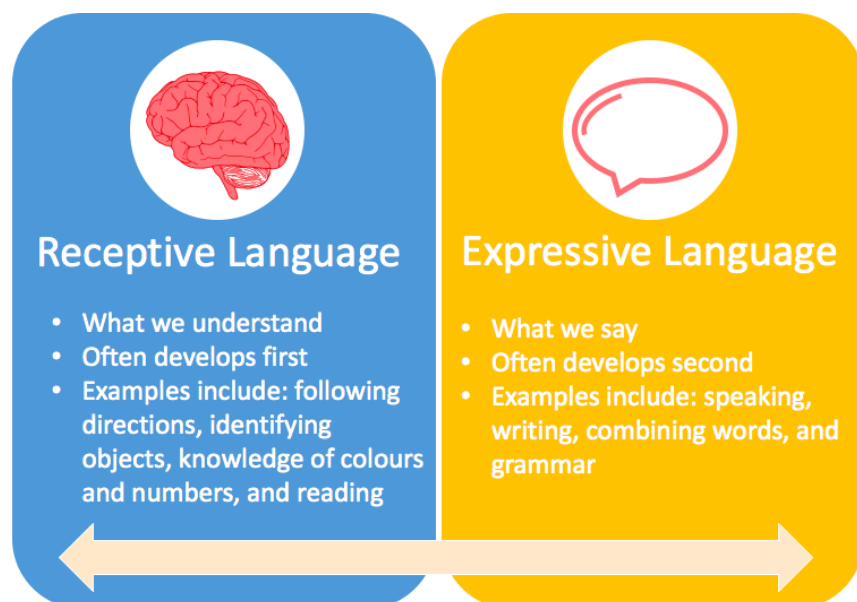
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What are Some Signs that Speech May Not Develop Properly?

- Born with hearing loss or experience frequent ear infections
 - Limited babbling or vocalizations as an infant
 - Limited speech sound development or development of sounds stop
- Born with autism, down syndrome or cerebral palsy
- Born with physical impairments like cleft palate
- Weak muscle control demonstrated by difficulty:
 - Sucking or swallowing
 - Opening, closing or moving the jaw
 - Sticking out tongue or moving it side to side or up and down
 - Rounding or stretching lips wide
 - Sitting upright by themselves
 - Keeping their head in an upright position
 - Running out of breath while speaking

What is Language?

Language is the process of following specific rules to combine words into phrases and sentences so that the message makes sense and is understood by others. Children learn the rules of their language by listening to and interacting with people in their community. The more that children are exposed to books, conversations, stories and songs the better chance they will have for developing strong language skills. Language consists of two parts: expressive language (speaking) and receptive language (understanding).



What is Expressive Language?

Expressive language involves communicating a person's wants, needs, feelings and ideas through speech (vocalizations, words and sentences), gestures (pointing, waving, hugs and hand holding), facial expressions (smiling, frowning, looking away), writing and drawing.

Expressive Language Milestones:

8-12 Months:

- Produces different sounds for different situations (e.g. happy, hungry)
- Gestures independently (clapping, thumbs up, blowing kisses, waving, etc.)
- Babbling changes into meaningful words
- Starts using 3-5 words at 12 months of age

18 Months:

- Is able to use 10-20 words

24 Months:

- Is able to use 100-150 words
- Uses 2-4 word combinations to request and identify items (e.g. “want milk” or “I see cow”)

30 Months:

- Is able to use at least 350 words
- Uses action words (e.g. run, jump, sleep, eat, drink)

3 Years:

- Creates sentences of 5-8 words (e.g. “I am eating rice for lunch”)
- Talks about events that have happened in the past (e.g. “Last week...”)

4 Years:

- Tells stories with a beginning, middle, and end
- Speech is clear and easy to understand
- Communicates easily with familiar adults and other children

What is Receptive Language?

Receptive language is what a child is able to understand. This includes the child’s ability to follow directions (e.g. “Go line up for lunch”), respond to their name, and understand basic concepts (e.g. size, shape, and colour).

Receptive language is different than listening. When a child does not do something that they are asked to do, it isn’t always because they aren’t listening, it may be that the child just doesn’t understand the message.

Receptive Language Milestones:12 Months:

- Responds to their name by turning to look at the speaker
- Knows at least one body part (e.g. head, nose, eyes, ears, or mouth)
- Follows simple, 1-step directions
 - Examples: “Come here”, “Don’t touch”, “Give me”, “No”
- Understands routines and what they mean
 - Examples: bedtime, bathtime, mealtime
- Recognizes people and objects and looks for them when asked
 - Examples: “Where’s dada?”, “Where’s your ball?”

18 Months:

- Understands the meaning of in/out and on/off
- Can point to 2 body parts when asked (e.g. head, nose, eyes, ears, or mouth)
- Follows 1-step directions
 - Example: "Get the _____"

24 Months:

- Follows 2-step directions
 - Example: "Get the ball and put it in the bin."

30 Months:

- Understands the concepts of size (big/small) and quantity (a little/a lot)
- Understands simple, short stories

3 Years:

- Understands simple "Who", "What", and "Where" questions
 - Examples: "Who has your shoe?", "What colour is that?", "Where is your hat?"

4 Years:

- Follows 3+ step directions
 - Example: "Get a piece of paper, draw a flower, and give it to the teacher."

Tips and Strategies for Speech and Language Development

- Label things in the child's environment
 - Help the children develop new vocabulary by:
 - Naming objects that the child is interested in
 - Describing the child's actions using words (e.g. if the child is jumping, say "Jump")
 - Adding words to the child's gestures (e.g. if a child points to a cow, say "Cow")
 - It is not necessary to have the child repeat the word every time that you say it
- Face to Face
 - Getting down to the child's level often encourages positive interactions. Interactions are doing activities together.
 - It allows the child to see your facial expressions and learn what they mean
 - This allows the child to see the movement of your, lips, tongue and jaw while you speak to them

- Show an interest in what the child is doing through play
 - Wait for the child to choose an activity and then follow their lead by either playing with them or beside them (E.g. If a child rolls a ball to you, roll it back to them)
 - This helps to start a back-and-forth interaction with the child
 - Describe what you are doing and comment on the actions while playing to help build the child's vocabulary
- Take turns
 - Encourage back-and-forth interactions
 - Interactions include gestures, sounds, words or actions
 - Look at the child when you are expecting a response to help them understand that it is their turn. Be patient and give the child time to respond
- Modelling the correct production
 - A child learns new sounds and words by listening to others talk
 - If a child says a word incorrectly, praise the attempt and then say the word correctly. Don't expect the child to repeat the word correctly right away
 - E.g. child says "dod" for dog, model the response "yes that is a dog"
 - E.g. child says "There is my *brother*" model the response "yes, there is your *sister*"
- Comment
 - Comment on what the child is doing and seeing
 - Examples: "Wow, what a fast car!", "I see a cow, moo", "That's a big temple"
 - Use familiar words and gradually add new words
 - Example: "I see a brown cow, moo"
- Match + 1
 - Repeat what the child says and add a sound or a word
 - Examples: If the child says _____, we say _____:
 - Ba → Ball
 - Dog → Big dog
 - Milk → Want milk
 - Give me → Give me ball
- The four S's
 - *Say Less*: use short, simple sentences when talking to the child
 - *Stress*: important words to make them stand out
 - *Slow*: slow down your rate of speech
 - *Show*: by pointing, gestures, or pictures
- Repeat, Repeat, Repeat
 - A child needs to hear a word multiple times before learning it
 - Try and repeat the word in different contexts
 - Example: "That's a big tower", "These shoes are too big for me", "You ate a big meal"

- The idea is that the child will understand the meaning of the word by hearing it being used over and over in different ways.

Some children may have a lot of difficulty talking, but are still able to learn and understand the meaning of new words. Just because a child is not repeating or using the word, does not mean that they don't understand it.

Goal Setting

Setting goals is a very important part of the therapy process. Goals should build on strengths that the child already has and improve their areas of weakness. Goals should focus on helping the child to become a better communicator and increase their participation in everyday activities. A good goal should include:

- WHAT skill the child is working on
- WHY the skill is important to the child
- HOW to improve the skill by using specific activities

Eg. (WHAT) Improve breath support. (WHY) so the child can increase speaking volume (HOW) by taking a big breath and blowing feathers across the table.

Always set goals that are appropriate for the child's age, cognitive level and level of communication. Goals that are too difficult for the child will lead to frustration and goals that are too easy will lead to boredom. Both could result in a lack of motivation and negative behaviours.

Therapy goals should be SMART:

- S-** Specific (what exactly is the task?)
- M-** Measurable (how will you measure progress?)
- A-** Achievable (Is the task achievable?)
- R-** Realistic (Is the task realistic?)
- T-** Timely (how long will it take to complete?)

- SMART goal examples:
 - In a 2 month period, the child will use eye contact with a gesture to request something from parents or teachers, 80% of the time.
 - In a 4 month period, the child will combine 2 words (description word + object, e.g "blue ball") when describing objects in his immediate environment when provided with a verbal cue with 80% accuracy.
 - In 6 months, the child will follow simple directions (stop, come here, give me) with a visual cue (i.e. picture) 80% of the time.

Role of the Speech Trainer

1. *Identify* children who are not meeting specific milestones. The milestones can include development in the areas of communication, expressive and receptive language, and speech sound production.
2. Provide *education* to family members and caregivers about the child's strengths and weaknesses.
3. *Teach* the family and caregivers to use specific strategies and do specific activities that will help the child to become a better communicator
4. *Support* the child's ability to learn in the classroom and at home by using the strategies, and activities regularly.

Tips and Strategies for Supporting Learning

Make the Environment Reliable

- Create a consistent daily schedule or routine so that the child knows what to expect
- Use a visual schedule to help the child learn and remember the routine
- Provide clear rules about what to do and what not to do
- Be consistent when reinforcing those rules
- Use a visual schedule so that the child understands and remembers the rules
- Let the child know when an activity is going to end a new activity is going to start.
 - E.g. provide a countdown of the minutes a child has left before they have to stop the activity
 - "You have 5 more minutes to play, then we have to go to class"

Make Changes to the Environment

- Remove or reduce visual & auditory distractions
 - E.g. facing the child away from the distractions (e.g. window, other students)
- Sit the child close to the teacher, parent or caregiver
- Be aware of the child's sensitivity to light and/ or noise

Modify the Activity

- If an activity is too hard a child might become frustrated and if an activity is too easy a child might become bored. To help this:
 - Adapt the level of difficulty of the activity to the child's ability
 - Give instructions more than once and in different ways
 - Make activities interesting for the child
 - Know when to stop the activity and move onto something else
 - Give the child a break when needed
 - Allow the child opportunities to move and stretch when needed
 - Give the child time to complete an activity

Create Positive Learning Opportunities

- Give the child time to process instructions and questions. A good strategy is to count to 5 in your head before repeating yourself.
- Rephrase instructions and use simple language
- Speak slowly and clearly
- Focus on positive reinforcement and celebrate the child's successes (e.g. "Great job, I love how you are listening")
- Build trust with the child and create a safe environment
- Be a good role model
- Be a good listener

Swallowing

How do we Swallow?

Swallowing is the process of moving food and liquid from the mouth, down the throat, and into the stomach. There are four stages of swallowing, and a problem can occur at any of these stages.

Stage 1: The food or liquid is placed in the mouth, chewed, and mixed with saliva.

Stage 2: The tongue moves the food and liquid towards the back of the mouth and throat.

Stage 3: The food and liquid travel down the throat and into the esophagus, which is a long tube that connects the mouth and stomach. The epiglottis is a flap that closes over top of the airway (trachea) to protect it from food and liquid particles getting into the lungs.

Stage 4: The esophagus then squeezes and pulls food and liquid down into the stomach.

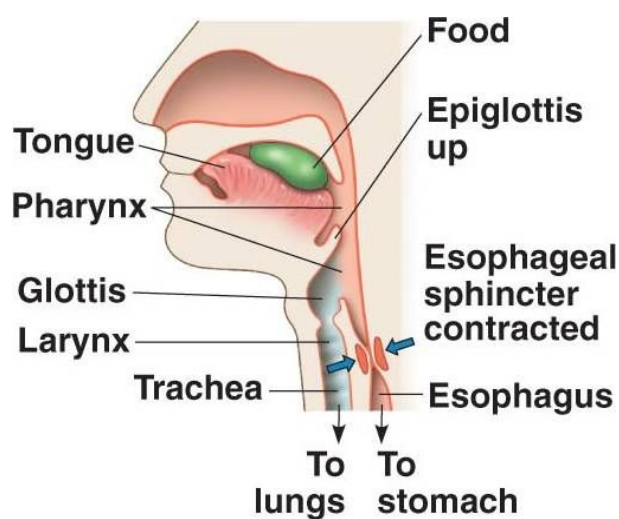


Image Source: Anatomy and Physiology Online <https://anatomyutm.wordpress.com>

What Causes Swallowing Difficulties?

- Conditions that affect the muscles of the face and neck such as stroke, cancer, tumours, brain injury, meningitis and cerebral palsy
- Poor dental health, tooth, or gum pain
- Abnormal development of the structures of the mouth such as cleft palate or very large tongue size
- Premature birth or low birthweight
- Oral sensitivities to specific tastes or textures (can be common in children with autism spectrum disorder)

What are Signs of a Swallowing Problem?

- Food or liquid falling out of mouth while chewing or drinking
- Difficulty managing saliva in the mouth
- Slow or effortful chewing
- Difficulty moving the food towards the back of the mouth
- Coughing or choking during or after eating/drinking
- Noisy or wet vocal quality during or after eating/drinking
- Breathing difficulties while eating/drinking
- Avoiding specific types, tastes, or textures of food/liquid
- Frequent respiratory illnesses (e.g. lung infections/ pneumonia)
- Vomiting after eating

What are some possible health conditions caused by swallowing difficulties?

- Pneumonia
- Malnutrition
- Dehydration
- Poor weight gain

If an infant or child is experiencing swallowing difficulties, safe swallowing techniques should be put into place in order to:

- Support proper nutrition and hydration
- Reduce the risk of choking on food or liquid

What are Safe Swallowing Techniques?

1. *Posture and positioning*: make sure the child is sitting upright when eating. Posture should be supported if needed.
 - The risk of choking is increased when eating/drinking while lying down
2. *Specialized utensils*: if the child has difficulty picking up the food and bringing it to their mouth, special utensils might help them to eat without assistance
 - E.g. small heavy spoon or a spoon with a large handle
3. *Feeding strategies*:
 - Give small amounts of food or liquid at a time
 - Feed slowly
 - Allow the child to swallow once or twice before giving another mouthful of food/liquid
 - Provide soft, moist food that is easier and safer to chew & swallow than hard crunchy food
 - Only feed the child when alert and awake
 - Sit directly in front of the child to feed them
 - Frequent small meals are best for children who get tired while eating
4. *Sensory stimulation techniques*:
 - If the child has difficulty seeing then it's best to explain what you are going to do before you do it
 - E.g. "Open your mouth, here comes the spoon"
 - If sensory issues are a concern gently touch the child's lips, chin, or cheeks before feeding them
 - If the child does not like a certain taste or texture do not force feed the food to them
 - Try a variety of tastes and textures until you find the one that the child can manage the easiest



Summary

A child's education starts at home. Parents are the first teachers and play an important role in the development of expressive language, receptive language, speech, and communication. Children typically learn these skills by watching, listening and interacting with those around them.

For children who are not developing communication skills according to the expected milestones, it is important to provide them with extra support. Reading books, looking at pictures, playing together, and singing songs are some of the ways to help support a child's speech and language development.

Remember, communication isn't just about talking. Children can communicate in a variety of different ways (e.g. making faces, using words, pictures and gestures) so speech trainers, parents and caregivers should be open to interacting with children in different ways. Understanding how the child is communicating and why the child is communicating is the first step to supporting their speech, language, and communication development. Try different strategies, be consistent with practice, be patient, and focus on the positive moments.



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