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SLTOOLS

**Speech and language tools for early intervention for
teachers**

WP 2

Terrassa

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1. Speech and Language development in different ages

Childhood and school age

The development of speech and language varies according to the age of the child and occurs progressively. In this process, children learn cumulatively. This implies that they acquire knowledge that, little by little, they combine to give rise to language. This development occurs in four phases: prelinguistic, holophratic, combination and advanced.

Prelinguistic phase

At this stage, which occurs during the first year, the baby experiences different moments:

- 0-3 months. The baby is sensitive to noise, which manifests itself in the form of crying. Although he does not use words, he is able to communicate with sounds and gestures.
- 4-7 months. He is able to express moods and shows a predisposition to emit vocal sounds. Also, their attention span improves considerably.
- 8-12 months. The baby pronounces syllables with greater difficulty, with a clear intention to communicate. Also, he reacts when he hears the name. In this subphase, "proto-imperatives" come into play. With these, babies begin to point to objects as a sign that they want to.

To promote the linguistic comprehension of the baby, we can use short sentences, repeating them several times, with a slow pace. Thus, the baby's development will be more optimal.

Holophric phase (12-18 months)

This second phase of language development is led by holophrases. Babies begin to use isolated words as statements. For example, if a baby says "water", it is very likely that it indicates that it wants to drink water. However, these statements are subject to the context in which they are pronounced. If a baby points to an object at the same time as tells us its name, it will be an intention on his part to let us know that he knows that object.

Over time, these holophrases will become complete sentences. This is the first step that will ultimately constitute the child's complete language. From this period, language



development occurs more rapidly, giving way to the combination phase. Read on to find out what it is!

Combination phase

About the age of two, the combination sentence begins. At this stage, the child's vocabulary is broader, which allows him to join words to build sentences. Isolated words combine to construct sentences with subject and predicate; Verbs appear in speech. However, they omit minor words, such as determinants. Therefore, this phase is also called "telegraphic speech".

During this period, the intentions of the statement are manifested, especially between the ages of two and three. Thus, children begin to formulate questions or phrases with exclamative intention, among others.

Advanced phase

With the arrival of the advanced phase, children's speech remarkably resembles an adult person. It is a gradual process that culminates in the improvement of language. During this stage, the ability to understand prevails over the expressive one. That is, children are able to understand statements that they could not emit.

They also show special interest in the world around them. They ask constant questions about their surroundings in order to discover its name.

From 3 to 5 years old, the ability to hold complex conversations or tell stories is developed. There is a marked improvement in pronunciation and language comprehension.

From 5 to 7 years old the vocabulary continues to expand and grammatical skills are refined. Children can understand and produce complex texts.

It is important to bear in mind that each child develops at their own pace, but these are some general guidelines on speech and language development, but as teachers we must be very alert to possible symptoms of delayed speech and talk to families to see a specialist if necessary.



Grammatical development in early childhood occurs progressively and goes from the prelinguistic stage to the acquisition of more complex grammatical skills. During the early years, children begin to understand and produce parallels, then simple sentences and finally more elaborate grammatical structures. This process is influenced by factors such as the language environment, social interactions and the child's cognitive development. Children go through different stages, such as holophrase (use of a single word to express an idea), the use of telegrams (short sentences with keywords) and the production of more complex sentences with subjects, verbs and complements. Stimulating language through games, readings and conversations is essential to support this development.

Narrative skills in early childhood education are fundamental to language development and communication. During this stage, children begin to understand and tell stories sequentially, using appropriate vocabulary and simple grammatical structures. Fostering narrative skills involves activities such as reading stories, creating invented stories, using puppets to represent stories and symbolic play involving role telling. These activities help develop language comprehension, creativity, speaking and the ability to sequence events, skills that are crucial for future academic and social success.

School age

a) Advanced language skills: Advanced language skills development during school age can provide a number of significant benefits for students. In addition to improving both oral and written communication, mastery of multiple languages can enhance cognitive development. Increase mental flexibility, improve problem-solving skills, and promote appreciation of different cultures and perspectives. Language immersion programs, extracurricular language classes, and access to online educational resources can be valuable tools for encouraging language development. In addition, early exposure to different languages can facilitate learning and fluency in the future.

b) Development of literacy: The development of school-age literacy is crucial for children's academic and personal success. During this stage, students progress from letter and sound recognition to understanding complex texts and fluent written expression. Some key aspects of the development of school-age literacy include:

- Letter and sound recognition: Children learn to identify and associate letters with their corresponding sounds, which is essential for reading and writing.



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- Comprehension of words and vocabulary: Students expand their vocabulary and develop skills to understand the meaning of words within a context.
- Reading comprehension: As they progress through school, children develop skills to understand written texts, identify main ideas, infer meanings and make connections with their own experiences.
- Writing: Students learn to express their ideas in writing by starting with simple words and sentences and progressing towards writing more complex and structured texts.
- Reading fluency: As they practice reading regularly, children improve their speed and accuracy in decoding words, allowing them to read more fluently and comprehensively.

Fostering school-age literacy requires an integrated approach that includes reading, writing, speaking and reflecting on language activities in all curricular areas.

Adolescence

Language development in adolescence is a stage of consolidation and refinement of language skills acquired during childhood. During this stage, teenagers continue to expand their vocabulary, refine their grammar and develop more sophisticated communication skills. We can highlight as key aspects of language development expanded vocabulary, grammatical refinement, development of argumentative discourse, critical thinking, interpersonal communication skills as social relationships become more complex and the use of technology and social networks.

Social communication in adolescence is an important aspect in the socio-emotional and cognitive development of young people. During this stage, adolescents experience a series of physical, emotional and social changes that influence the way they interact with others. Some important aspects of social communication include:

- Development of social skills to listen, express opinions, negotiate conflicts, work in groups...
- Identity and self-expression: Young people use communication to explore and express their identity, interests, values and beliefs. This can manifest itself through the style of



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dress, the music they listen to, the social groups to which they belong and the activities in which they participate.

- Interpersonal relationships: They establish more intimate and meaningful relationships with their peers. Communication plays an important role in establishing and maintaining these relationships, as well as in developing skills to manage affection and emotions
- Use of technology and social networks: Online communication has become the main means of communication, they use platforms and messaging to communicate with friends and share information and express their opinions.

With this paradigm, parents and educators must support the development of social communication skills in adolescents by encouraging open conversations, modeling positive behaviors and teaching strategies to communicate effectively and respectfully.

2. Articulation of words in different positions

The articulation of words in different positions refers to a child's ability to correctly pronounce speech sounds in different contexts within a word. Examples:

- Start of the word: Some children may have difficulty correctly pronouncing sounds at the beginning of the word, they may say "cat" instead of "cat"
- Halfway through the word: Pronunciation of sounds halfway through words can also be challenging for some children, for example they may say "caste" instead of "dandruff".
- Word ending: The pronunciation of sounds at the end of words can also represent a difficulty-
- In long or complex words: As the words become longer or more complex, they can represent some difficulty.

It is important to bear in mind that some errors in articulation are normal at certain ages, but if they persist beyond they could be indicative of a speech or language disorder and the evaluation of a specialist would be recommended.

2.1 Joint overview

Articulation is the process by which speech organs, such as the tongue, lips, palate, and jaw, coordinate to produce sounds that form understandable words and sentences.

1. Speech sounds: Speech is composed of a variety of sounds that are produced by manipulating speech organs. These sounds are divided into consonants and vowels, and each occurs specifically.

2. Joint development: Children begin to learn to articulate sounds from an early age. The process of acquiring articulation begins with simple sounds and progresses towards more complex sounds.

3. Joint mistakes: It is common for children to make joint mistakes as they learn to speak. These errors may include omissions, substitutions, or distorting sounds. As children grow, they overcome these mistakes.

4. Joint disorders: Some children experience persistent difficulties in articulation, which may be due to speech and language disorders, such as phonological disorder or verbal dyspraxia. These disorders can affect a child's ability to communicate efficiently.

5. Evaluation and treatment: Articulation problems can be evaluated and treated by a speech and language pathologist. Treatment may include specific exercises to improve coordination of speech organs and the production of sounds clearly.



2.2 Consonant and vowel development

Consonant and vowel development is an integral part of speech development in children.

2.2.1. Consonant development

- Prelinguistic stage: Babies produce simple vocal sounds such as crying or babbling. They do not produce specific consonants.
- Appearance of consonants: Around six months, babies begin to produce consonants such as /p/, /b/, /m/ followed by sounds such as /t/, /d/, /k/ around 9-12 months.
- Variety of consonants: By 18 months, children may begin to produce a wider variety of consonants, although their pronunciation may not be entirely accurate.
- Refinement of the joint: Between the ages of 2 and 3, children begin to improve the accuracy of articulating consonants, although they still make common mistakes.

2.2.2. Vowel development:

- Prelinguistic stage: Babies emit vocal sounds from birth, but are not associated with specific words.
- Cooing and babbling: Between 2 and 4 months, babies begin to make noises, exploring different tones and vocal patterns.
- Vowel appearance: Around 6 months, babies begin to produce more specific vowel sounds.
- Development of vowel patterns: As they grow, children develop more complex vowel patterns and may combine vowels to form syllables and words.

2.3. Acquisition of speech sound

The acquisition of speech sound is a complex process that follows its course but varies according to the child.

- Listening and discrimination: From birth, babies are exposed to speech sounds in their environment. They begin to discriminate between different sounds and pay attention to those that are relevant to their native language.



- Production of early vocal sounds: During the first months sounds are a form of exploration and preparation for the production of more precise speech sounds.
- Production of consonants and vowels: As they grow, consonants appear, the former being the labial ones
- Development of consonant and vowel patterns: Children combine consonants and vowels to form words and these patterns become more complex over time as they acquire more vocabulary and refine their ability to produce sounds.
- Correction of pronunciation errors: Pronunciation errors are usually corrected naturally over time as the child is exposed to clear speech patterns and receives feedback. It is important not to speak to the child in a very infantilized way.
- Consolidation of speech sounds: With continuous practice and exposure to language, children consolidate their ability to produce speech sounds accurately and fluently. This process continues throughout childhood, refining pronunciation and acquiring new sounds.

2.4. Challenges and variations in articulation

Articulation is a fundamental aspect in communication, and there are several challenges and variations that can affect it:

- Disfluences: interruptions in the normal flow of speech such as stuttering or blockages.
- Accents or dialects: Variations in word pronunciation due to regional or cultural differences.
- Speech disorders: dysarthria or apraxia of speech can affect articulation and clarity of speech.
- Individual variations: Each person has a unique way of articulating words or this factor can influence their understanding and expression.
- Changes in health: injuries, illnesses or surgeries.
- Developmental variations: Children may experience variations in articulation as they learn to speak and develop motor speech skills.
- Emotional and cognitive factors: Stress, anxiety or lack of confidence can affect articulation and speech fluency.
- Environmental factors: Background noise, speech speed of the interlocutor or inattention

3. Research on the articulation tests available

3.1. Types of standardized assessment tests

In Catalonia, as in other[a1] Spanish-speaking regions, various articulation tests adapted to Catalan are used to assess speech in children. Some of the most common *standardized tests* are:

a) Evaluation test of articulation processes (PAPA): This test evaluates articulation in children. It allows you to identify error in the production of speech sounds and determine possible articulatory disorders. These tests are usually adapted to the age and level of development of the child and include tasks such as repetition of words or phrases, description of images, storytelling, comprehension of verbal instructions, activities to evaluate the processes of language articulation.

b) Catalan articulation test (CAT): Adapted to Catalan, this test evaluates the production of speech sounds in children and can help identify difficulties in articulation that require intervention.

c) Speech Processing Assessment Test (PAPP): Although this test does not focus exclusively on articulation, this test evaluates different aspects of speech processing in Catalan-speaking children, including auditory perception and sound production.

d) Phoneme evaluation test (PAF). Evaluation of dyslalia. For children from 5 to 10 years old. Dyslalia or disorders in the articulation of words are a very common problem in children between 5 and 8 years old. The difficulty of pronouncing the phoneme in particular derives, in the vast majority of cases, from a functional alteration in the organs involved in speech, especially in incorrect positions of the lips and tongue, in incorrect breathing, absence of vibration in the tongue, air leaks through the mouth, nose, teeth... These problems constitute an important issue at the same time that mispronunciation mechanisms are established. The pronunciation defect is automated and becomes part of the child's daily speech, also reflected in written language, which contributes to increasing academic difficulties. If at 3, 4 or 5 years old the children do not pronounce well it is normal since there is a dyslalia of evolution and that constitutes a phase or period of time due to a maturation issue of the organs involved in the joint. But in some cases these problems persist due to the presence of "lingual frenillo", air leaks, droopy teeth... If we find functional dyslalia, this test is very efficient, lasts approximately 30 minutes and provides a

formative evaluation subject to assessment guidelines to obtain a descriptive analysis of the aspects involved in the articulation of phonemes

These are some of the articulation tests used in Catalonia, adapted to Catalan, but there may be other specific tests depending on the evaluation needs of each individual and the clinical or educational context. It is essential that these tests are administered by qualified professionals in the field of speech therapy or speech and language therapy and that the results are properly interpreted in the context of a comprehensive evaluation.

3.2 Language evaluation

Language assessment is a decision-making process that requires cohesive actions by various professionals, due to its intrinsic difficulties and educational implications.

Evaluation is necessary to subsequently design the intervention. It has three intentions: The detection of the initial linguistic problem, the diagnostic assessment of it according to the context and the recommendations for the intervention.

The sources of information to be used for evaluation are:

- Family
- Standardized tests and non-standardized procedures
- Systematic observation in the school.

3.2.1. Evaluation of vocal alterations

Determining when a voice is pathological is not easy and a phoniatic study is necessary, which does not exclude aspects such as motor, breathing, phonation .. ç

3.2.2. Evaluation of joint alterations

It is essential to ensure the possible existence of organic malformations, CNS lesions or incoordination of the articulatory organs to establish differences between diglossia, dysarthria and dyslalia.

Articulatory difficulties can be ordered into five types of errors, not exclusive, insofar as a child can make one or more of them:

- Substitutions: Faced with the difficulty of articulating a certain sound, the child replaces it with another that is easier: dataline by mouse.
- Omission: It consists of the omission of the phoneme or syllable that cannot be pronounced: four by four.
- Insertion or addition: It consists of introducing into a word a sound that does not exist in it, which serves as a support: paddle instead of plate.
- Distortion: The child articulates a sound in a deformed way but without replacing it with a correct phoneme, so that the articulation is made approximately to the correct one without becoming so (French /r/).



- Inversion: The child changes the order of the sounds of a word during its articulation: tonic instead of news.

These errors must be observed from a triple perspective:

1. Directed language: The child is taught objects or drawings to narrate, name or describe.
2. Repeated language: The child must repeat phonemes, diptongs, syllables and word synphons in different positions.
3. Spontaneous language: You are invited to tell a story.

3.3. Evaluation of dysphemia

The frequency of dysphemic manifestations will lead us to contemplate the different degrees of severity, in the face of different patterns of dysphemic speech. Evaluating the frequency is relevant when assessing the results of a given intervention. It will be necessary to take into account the linguistic manifestations (phonological aspects, morphosyntax, phonetic ...), psychophysiological component (breathing, muscle tension...) and personal estimation.

3.4 . Assessment of language delay

- Determine the presence or absence of aphasia
- Determine the severity and type of delay
- Assess the different aspects of language.

For the evaluation, standardized tests, developmental scales and behavioral observation and non-standardized procedures are indicated.



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References

- Editions and Publications of the University of Barcelona. <http://www.publicacions.ub.edu>. Valuation of speaking in children of infant and primary education.
- <https://bebeinnova.com>
- University of Granada. <https://ugr.es>
- <https://editorialcepe.es>
- Red Cenit. The articulation of the habla: problems and what we can do. www.redcenit.com. Centro de desarrollo cognitivo