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Lexicon and deafness

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1. INTRODUCTION

Deaf children have more difficulties with spoken communication than sign language, because sign language uses signs, which are the natural means of communication for deaf individuals.

A deaf child, who communicates through sign language, goes through the same acquisition stages of a non-deaf child.

Often times and for several reasons, a deaf child is not taught a sign language but is however forced to learn a spoken one, by lip reading or using signed exact Italian.

It is interesting to note that a large number of children are in the same linguistic situation regardless of the fact that they know a sign language or of the method of language education used (oral, bimodal or bilingual): it is frequent that deaf people in different situations make the same kind of non-standard production.

There are two of the most common traits in deaf children:

- They lack exposure to linguistic input of good quality and quantity.
- It is impossible for them to detect segmental and suprasegmental phonological information (intonation, phonetic properties...).

Deaf children present a genetic predisposition to easily assimilate a language; therefore it is important to understand how such non standard verbal communication is acquired.

These abnormal productions are useful to demonstrate the generative theories on language which affirm that the language acquisition is possible thanks to an innate biological mechanism (LAD, Language Acquisition Device, Chomsky 1964; Pinker 1984, 1994 et al.) and a linguistic input, enough to fix the parameters and give the lexical elements of a certain language (following the theory of principles and parameters proposed by Chomsky in 1981).

The mechanism of linguistic acquisition can work if linguistic data is given to the child within a critical period, such data must also have a quality value.

Several hypotheses show the importance of prosodic information as a fundamental evidence for the segmentation of phonic flow in words and sentences. Semantic information uses principles of innate categorization to assign tags to the objects, and pragmatic information which allows the child to associate a name to the object.

All the researches on difficulties of deaf children in the linguistic field (Volpato, 2011; Volpato, Bertone, 2012; et al.) agree that the oral and written productions of these children presents some common characteristics:

- The deaf prefer using short simple sentences, rather than elaborated syntactic structures;
- they have a hard time understanding the grammar of relative and subordinate sentences;
- they often omit or use replacements for functional elements, such as articles, prepositions, pronouns and conjunctions;
- they have problems comprehending texts that contain passives, pronouns and relatives;
- their vocabulary is poor in comprehension and in production;
- they tend to be lexically rigid, lacking the ability of handling all the different meanings of the same word.

This research focuses mainly on the last two points: it analyzes the reason why these situations occur and offers different ways to improve the conditions listed above.

2. STEPS OF LANGUAGE ACQUISITION

Language acquisition is organized in regular steps on which both literature and practical experiences agree.

But we have to say that:

- rhythm is different in every child;
- phonology, morphology syntax, semantics and pragmatics are strictly related so the acquisition in one of these areas is bounded to the others;
- we have to put the child's oral progression in a general context of his sensory motor, relational, cognitive and affective advancement.

2.1 First step- from birth to the 7th-8th month

During this period it is possible to distinguish some particular oral behavior:

2.1.1 crying and screaming

At the beginning those behaviors are reflected as a manifestation of the physiological change and the weeping expresses a feeling of embarrassment.

During the first week crying is the only verbal manifestation that is possible to notice, it is a sign of suffering and it is not possible to establish a connection between the tears what is triggering them.

In time weeping takes on a specific signal for different needs (hunger, warmth...) (Cianchetti, Sannio, Fancello, 1997).

2.1.2 Vocalizations

Around the second month we can clearly distinguish modulated emissions like a tweet (cooing sound) and sounds similar to vowels, that form the first phase of the vocalization. The cooing sound is different from the weeping because the tongue assumes a position that permits the sound's modulation, and it is connected to a decrease in crying and an increase of the auditory perception. The modulated emissions, that have the purpose of involving the interlocutor in an exchange of vocalizations, must be considered as a relational phenomena, but not a language.

Several studies agree on the importance of oral exchange between mother and child to determine the birth and the quantity of modulated sounds. In this period the productions seem to be accidental and contain a huge variety of sounds; some of them are not in relation with a language.

The second phase is identified by babbling; after the third month, babies make several vocalizations to express welfare or discomfort, more expressive, and different in intensity and quality. At the fifth month the baby knows how to vocalize and does it with ability. In this period the increasing number of productions are strictly related to the elements of a certain language, so they are influenced by what the baby hears and imitates. Even if the vocalization is innate it is intensified by the environment.

2.1.3 Babbling

Babbling is not a real production of morphemes but it is an easy interaction by using the same sound and it can become a funny oral game to do alone or with others.

The baby hears his voice and it seems that it can control its efforts: this is the phase of phonemic selection, which is highly influenced by adults. Closer to the sixth month it is easy to notice also some intentional mumblings addressed to the people around it: at this stage, the baby does not know the meaning and semantic function of its sounds but its expressions are not casual and they seem to be intentional.

Babbling is the last step of the phase in which it uses its phonemic heritage without intention or awareness of speaking.

2.2 Second step- from the 8th - 9th month to the 18th -24th month

2.2.1 Sounds imitation

The imitative behavior appears around the 8th – 9th month, even if there are some imitative forms in the months before, but they are rudimentary. Environmental stimulations support the oral behaviors that happen spontaneously.

2.2.2 Intentional morphemes

Around the 8th – 10th month, the first morphemes appear, they are different from the babbling because they have a meaning. The baby finds a connection between sounds and objects and it understands that some oral expressions can be used to point at or even achieve something. Sometimes it happens that the same morpheme has several uses. In time, the baby's behavior becomes more intentional and a signal of his personal will.

2.2.3 Echolalia

It starts around the 8th – 9th month with the repetition of the first morphemes and it goes on for a long time. In this period, the morpheme has the function of a stimulus, it pushes the baby to make the repetition, with a circular process as a feedback. So the echolalia is seen as a preparatory exercise. The echolalia continues to the next step, in which words start to appear.

2.2.4 Holophrase

Around the first year the child acquires new words and uses them conscious of their semantic value and to express complex situations. Soon it uses these words in a different intonation, they are said in isolation instead of full phrases, to nominate an object or a person; to indicate an action, to make a statement, to ask a question

or make an exclamation. Although in a formal language a sentence with only one word does not exist, there is a common accord that there are cases in which a single word can express the same meaning of a complete sentence. In this case, we use the term holophrase. Its meaning is determined by the word but also by the entire context and the intonation that suggest the meaning and complete the lack of words. In this way, the word "mom" can stand for "I want my mom" or, if it is said crying, it could express meaning: "mom, help me! I'm feeling bad". So the child uses the same word for different actions and/or situations. With time gradually it will become more precise.

When the baby pronounces its first words its capabilities of articulation are limited but they will continue their development allowing a complex communication and the enrichment of its vocabulary.

Lexical acquisition is a complex process that pawns the child for all his life on the linguistic, cognitive and interactional level.

Between the first year and the sixteenth month, the child has a limited vocabulary, also because it expresses its actions mostly by pointing. In this phase it is possible to note a great variability and a large discrepancy between what it says and what it understands. Comprehension is higher than production and there is not a direct proportion between words produced and understood. The first vocabulary of the child is formed by a proper name, familiar object and an animal's call. Predicates and functional elements are absent. Between the sixteenth and the nineteenth month, the number of verbs and adjectives that appear in the child's vocabulary increases. Between the nineteenth month and the second year the vocabulary increases a lot more with great differences between individuals. Considering the previous step, there is an increasing use of adjectives, verbs, functional elements, different nominal categories, but, what is important to notice is that sentences start to appear.

2.3 Third step- from 18th to the 6th year

Till the half of the second year the child produces simple sentences of two elements, that are shortened phrases used by adults (“via babbo”, “dai papa”).

These kind of sentences adopt a “telegraphic style” because they present an analogy with telegrams, in which some words are canceled because they are considered not essential to the comprehension of the message. The omitted elements belong to the functional category. Into the functional category we have the auxiliary and copulative verbs, articles, pronouns, prepositions, conjunctions and adverbs. The words used in telegraphic sentences belong to the lexical category: nouns, verbs and adjectives.

Omission and interrupted sentences are typical of the first construction. They have the purpose of transmitting a certain message and it is demonstrated by the systematic regularity of the order of words and by the context in which they are pronounced.

It is possible to identify semantic relations in telegraphic sentences like identification, denial, location, possession, question, agent-location and action-object.

During the period between the eighteenth month and the second year, the sentences are more complex and long and are not formed by groups of words with a linear sequence; they are sentences with a grammatical organization: these enunciations show a grammatical structure with functional elements. In this period, there is an “enlargement” of the sentence, before it was formed by two elements: subject and verb, but now the introduction of complements conduces to different structures with different complexities.

The next step in the construction of simple sentences is the combination of more elementary sentences. In this process, the complexity is given by the number of elements to coordinate but also by the correct connection between the elements of the sentence that are crucial for the logic aspects (conjunctions, pronouns).

Difficulties are also bound to the verbal forms and to their agreement. At the beginning, these difficulties can cause the omission of functional elements that should make a connection between words. Some sentences can be conjunct with a coordination or with a subordination, the easier sentences are the ones coordinated with the use of the conjunction “and”.

The syntax evolution is slow and different; the differences between children's productions are related to social, phonologic, semantic and pragmatic factors.

The child gradually passes from a telegraphic style to a use of an adult-like sentences. These kind of sentences are complete, complex and based on grammar rules.

It is possible to identify four different stages between the nineteenth and the thirty-eighth month:

- *pre-syntactic phase*; 19-26 month, the sentences are single words in succession; in this phase there is a large number of telegraphic sentences, that express a great variety of semantic relations even if there isn't a verb. We can see that few simple nuclear sentences in which there is an omission of the arguments of verbs and free morphemes (articles, clitic pronoun and preposition). But there is an agreement between nouns and adjectives.
- *Primitive syntactic phase*; 20-29 months, it is characterized by a decrease of single words sequences and by a gradual increase of simple nuclear enunciations, complex incomplete sentences start to appear (es. Bambino prende cucchiaio mangia minestra); in these kind of sentence there is a frequent exclusion of conjunctions and free morphemes, like articles and prepositions, even if there is a gradual increase of these elements.
- *Completion of nuclear sentence*, 24-33 month, in this phase there are several changes of the quantitative and qualitative point of view: there is a disappearance of that structure that we have called “single words sequences” and we can observe that there is a sensitive decrease of

enunciations without verbs; there are nuclear sentences but with free morphemes and nuclear expansions. Complex sentences increase and are different by typology: coordinates and subordinates. A great number of complex sentences are produced in complete form (ex. “il bambino prende il cucchiaino e mangia”).

- *Rules consolidation and generalization, 27-38 months*; it is possible to see a consolidation and a generalization of the rules in complex combinatorial sentences because the complex sentences become complete from the morphologic point of view, there are also the presence of functional words, temporal and causal conjunctions as “dopo”, “allora”, “invece”, “anche”, “però” used in coordinate and subordinate sentences. There is also the appearance of subordinate sentences (ex. “Ho visto Gianni che correva”). The majority of 5-6 years old children has acquired all the fundamental elements of language: they know how to structure sentences in the correct way, relative, possessive and interrogative sentences also; all of this, using the grammatical and syntactic rules in the correct way. Obviously they’ll continue to enrich their vocabulary, learn the grammatical and syntactic rules, develop the pragmatic function and strengthen the language as a thought instrument.

3. LANGUAGE ACQUISITION IN THE DEAF CHILD

Who is deaf or loses his hearing in the early years of his life can’t acquire the language and for this reason becomes “sordomuto”. This term is in use in the Italian normative system¹ and it is not representative of the deaf people and it creates a lot of misunderstandings and it confuses the cause with the effect. As De Santis (2010)

1 See law 26 maggio 1970 n. 381

says, it suggests a word impairment, a defective functioning of the vocal apparatus that, if there aren't any other pathologies, it is in top shape. This term indicates a person who can't speak because of deafness. It isn't true, indeed the deaf person can speak after a proper language training. Taking into account the clinic-rehabilitative approach, the deaf not reeducated to the oral language can be considered mute, but in a socio-cultural perspective, every mute becomes a speaker when he has the instruments to put out a message, whatever language modality used. So it is the language faculty, and not its modality, that aid deaf people to the point where they can communicate and exit to the condition of being mute (Caselli, Maragna, Volterra 2006: 19; Favia 2003: 13-15).

This specification is important because it recognizes that the language faculty is independent to the vocal apparatus in other words: "it's not the spoken language that is natural to people, but the faculty to constitute a language" (Sassure 1968: 19-20).

The language faculty is that faculty that allows every child to acquire a language but it has to be immersed in that language. To be immersed means it must hear and communicate with the environment surrounding it in a certain language.

It is obvious that the acoustic ability is fundamental to learn a language. The deficit of the acoustic channel obstructs the deaf child from the process of language acquisition on the comprehension and production aspects: the deaf can not hear spoken language and can not reproduce the environment's sounds; the child can not have the acoustic feedback on its own productions and it can not communicate with people around it. In this way, its language faculty can not develop.

The language faculty, even if it is a biologic predisposition of the human race, has the necessity of a linguistic environment to develop and this must happen in a precise moment called "critical period".

There are several studies that confirm this affirmation, these studies were made on particular cases where a difficult social condition has not permitted a language acquisition in the correct way and time. It is the condition of the "wolf-children",

children that for different circumstances such as reclusion, marginalization, abandonment, are compelled to live in isolation (Sacks 1991).

The first “wolf-child” is Victor, he firstly was considered deaf because he didn’t speak and in that period the deaf people were the only people that didn’t speak. Gradually, it was discovered that he was not deaf but he never actually heard anybody speak.

There is another similar case: Genie, she was imprisoned by her father and she lived isolated from the world. When found, she was in an absent condition of language.

These cases show that children without an exposition to a language in the critic period can develop different abilities but their language remains imperfect. In particular, the morpho-syntactic aspects of a certain language are completely damaged.

The difference between the wolf-children and deaf children is that the second ones do not live in isolation and they can have their language faculty developed through another channel: in substitution of the acoustic channel, they can use the visual channel; in substitution of oral sounds and words, they use signs to communicate; the acoustic-oral modality has been substituted by the manual-visual modality.

The language faculty of deaf people has found a way to develop spontaneously in a different manner. This does not mean that a deaf child can not learn a spoken language; but it requires an explicit and systematic training.

The term “sordomuto” should be changed and substituted with “sordo” and specifying if we are talking about a pre-linguistic deaf (deaf before language acquisition) or a post-linguistic deaf (deaf after language acquisition); these terms represent the condition of deaf people (Caselli, Maragna, Volterra 2006: 19-23).

3.1 Sign language acquisition

The results, here reported, are on acquisition of the American Sign Language (ASL).

The themes studied are on the precocity of use of the sign in the communication of deaf children and on the advantage of the sign language exposition on the communicative and cognitive processes.

It was noticed that in the first phase of language development, first signs of deaf children appear earlier than the first words of hearing children. A research made by Orlansky, Bonvillian and Novak (1983) on 11 deaf children has shown that the first sign appears at the age of 8 months and at the age of 13 months the baby knows about 10 signs. Hearing children in this period of time produce two words. There is a precocity in the sign production: they produce signs when the steps traditionally considered fundamental for the birth of the language are not yet reached. Meier explains the precocity observed in the first phases of language development immersed in a sign language with different times of biological maturity of the articulatory system instead of the oral one (Meier, 2006).

It is important to notice that the signs produced belong to the same semantic classes orally produced by hearing children and are connected to the evolving process of the infant's language: the communicative interactions with adults, the environment where the child grows, the development of cognitive capabilities.

Caselli hypothesizes the effect of continuity and the relationships between motor and verbal systems. This interpretation is based on the requirement that it is necessary to use the same terms and the same parameters to see a reliable comparison between the language development of the babies that are acquiring an oral language and the language development of the babies that are acquiring a sign language. During her research she has observed the linguistic and communicative development of two babies; the first was exposed to the oral Italian and the second was exposed to the ASL; these two babies were observed monthly from the age of 9 months till the age of 20 months. At the beginning both communicated through deictic gestures, using the context around them.

Around the first year, the deaf child produced the first signs while the hearing child produced the first representative gestures. It is possible to make a relation between the signs and the representative gestures, considering the usage context and the

levels of de-contextualization at the moment of the production of these signals. In time these signals become symbols, so signs for the deaf child and the representative gestures become words for the hearing child. At the age of 18 months the two children produced statements formed by two elements.

So the research data underlines an analogy regarding the communicative and linguistic development; these two children follow the same development process, gain the same phases, they have comparable ages, independently on the modality their language uses (Caselli, 1985).

In hearing children, as we said before, after the holophrastic period there is the combinatorial one, where there is a combination of two or more elements that form the sentences. There is also a similar process for children who are acquiring a sign language. The ability of producing sentences is in straight connection with the lexical repertoire and not with the chronological age. The acquirement of rules that form a sign language is a gradual linguistic process, strictly bound to the maturity of the motor system of the child, as the same of a hearing child.

In the first phases of the language acquisition, it is possible to see some interesting analogies:

- The deaf child produces some sort of a manual babbling that it is similar to the one produced orally by the hearing child.
- There is a simplification in the sign production, taken into account the motor point of view; these are similar to the ones produced by hearing children: there are mistakes connected to the substitution of one of the parameters forming the sign with another easier to the motor point of view. For example in the sign for "Uccello" there is a substitution of the manual configuration the correct form has the "L" configuration, while the child uses the "5" configuration that is easier to produce. These kind of mistakes disappear progressively during the evolving process of language acquisition.

There are interesting researches on the morphology acquisition and it emerges that at the age of 2-3 years there is a gradual acquisition of morphological aspects; some of that are not completely correctly used before the age of 5.

In conclusion, the researches made on acquisition of sign languages show that there is an analogy with the acquisition of an oral language. At the beginning the signs produced by children seem to be without a morpho-syntactic complexity as the one of a sign language: children's productions are characterized, in a first phase, by exclusions and simplifications; in a second phase, it is possible to notice a gradual acquisition that continues for some years. The process of a sign language acquisition is dependent on biological factors (the maturity of the motor system), cognitive abilities and on the structural characteristics of the language. (Caselli, Maragna, Volterra 2006; Pigliacampo, 2007).

3.2 The deaf child with hearing parents

A deaf child with one, or both, parents with a deafness is an uncommon situation, this is the case of only 5% of the deaf population; for the other cases, the hearing parents are unprepared to welcome a deaf child, so this one presents a general delay on the language development and an individual variety higher comparing the data of hearing children.

The precocity of the diagnosis, the grade of deafness, the kind of prosthesis and the type of speech therapy (oral or bimodal²) chosen by the family are factors that influence the process of language evolution of every child.

In general, from birth to the seventh month, the oral and gestural non intentional behaviors of deaf children are similar to that one of the hearing children. Their communicative development appears normal in the times, in the rhythm and in the modality till the stadium of the expansion. From the eighth month, contrary to the hearing ones, the variety of consonants decreases and the spontaneous babbling

² These two methods are different for the use of the signs, for an introduction and a comparison see Caselli, Maragna Volterra 2006: 192-202.

tents to disappear and it does not develop in complex forms of intentional communication; this happens for the lack of an acoustic input (Bortolini, 2002).

At the age of 13 months, major problems for deaf children with hearing parents are bound to the difficulty of using words and gestures, de-contextualizing them to the routine of their usage, and to use them as symbols. After the 17th month, it is evident they experience difficulty in increasing their vocabulary and combine words to create sentences; this is the period in which their communicative problems are clear and their parents have to confront the situation (Liverta, Sempio, Marchetti, Lecciso, Petrocchi 2006: 30-32).

Hearing parents are not prepared to face this problem; this situation needs a process of psychological, communicative and relational adjustments. Before the deaf diagnosis, the interactive and communicative modalities are various. It often is used a precise and constant connection to the situational context: we talk about things present in that moment and the baby can directly act on them; it is used a rich non oral communication made out of sights, gestures, face and body expressions, touch sensations. It is clear that this kind of communication works also with a deaf child, but when the child does not progress with babbling and with words, when it does not reply the questions they're asked and does not understand the adult's requirements, the parents start to have doubts about their baby's situation. After the diagnosis, the relationship between parents and a child can deteriorate because of the deep pain and sense of diversity felt by the family. Parents feel inadequate from a communicative point of view so they weaken the stimulation in a moment when it should be as intense as possible.

Several researches on the linguistic development of deaf children not immersed in a language show that even if there is a situation of linguistic learning poverty, children develop and use a gestural system that expresses a lot of communicative, semantic and pragmatic functions typically present in the language children exposed to one use in typical conditions.

The authors use these phenomena to sustain different theories. Goldin and Meadow (1999), for example, explain this phenomenon as a spontaneous invention

of communicative symbolic gestures made by deaf child and uses this explanation to sustain innatist theories of language acquisition. From this perspective, there is a minor importance of the role of input and the communicative interaction between the child and the adult. Contrary, other authors gave a huge importance of the input, underling that these children are immersed in a communicative context even if not completely accessible to them. An important role is given by the context, in which the communication is made. The gestures used by deaf children are not created autonomously but are the result of an active building process of meaning-sharing between adults and children, these meanings assume gradually the role of communicative symbols. Other studies underlined the importance of communicative interactions between parents and their child in the development of communicative and linguistics abilities.

For a deaf child the visual channel must be used to communicate, to share attention on objects and events of the environment; for this reason it is difficult to help a deaf child in developing the conversational abilities and teach the turnover. In particular at the age of 5-6 months, to maintain a certain level of attention and give a linguistic input is particularly difficult because the attention passes from the parent's face to the object and its interest is on the external word and not to the social word. At this age, parents have to find new strategies to capture the attention of their baby and to establish interaction with it. They must wait until they establish a visual connection and capture the baby's attention on a specific topic of its interest before the communication begins.

In general, it seems that when deaf mothers interact with their children, they use some distinctive behaviors to support the shared attention. To recall the child's attention they use face expressions in particular, a physical contact with their hand and the feet of the baby, they put their face and their hands in the visual field of their baby and sign on his body or on the object of their attention. These particular strategies of visual communication seem to be fundamental for the acquisition of the turnover.

Hearing mothers do not have a great familiarity with the dynamics of visual communication and, for this reason, they use the oral channel with the tendency to start the conversation before having their child's attention. This causes the lack of information and the interruption of the communication (Caselli, Maragna, Volterra 2006).

If the baby is born in a hearing family it could grow in an environment not correct for its needs and it cannot develop its capabilities to the fullest. I want to underline that deaf children have the capability of acquiring a language but it is not possible for them to acquire an oral language because it uses a deficit channel for the child. The problems related to a normal development of the communication and of the language cause psychological and learning problems; these are not dependent to an incapability of the child, but to an environment that can give the right stimulus and does not use the appropriate communicational instruments to develop the child's language acquisition. So the input given to the child is poor on the linguistic point of view and he is exposed to communicative contexts not ideal for him; for these reasons the deaf child is marginalized. Hearing children are immersed from their birth to a spoken language, the same happens to deaf child with deaf parents native speakers of a sign language, it does not happen for a deaf child with hearing parents.

In conclusion there is not a difference between hearing children exposed to an oral linguistic input and the situation of deaf child exposed to a sign linguistic input: the phases of the acquisition are the same and are reached at the same time. The language faculty can be realized in both the modalities: using a visual-signal channel or an acoustic-visual channel.

4. LEXICAL ACQUISITION

In this section I am going to summarize the theories on how we have acquired the lexicon in the process of a language acquisition in normal condition of immersion in it.

It is important to underline that by normal condition I mean a complete full immersion in a language, oral or sign language. Unfortunately, these conditions are not always respected even if the deaf child has a prosthesis or a cochlear implant.

The main question is: how a child improves its lexical competence?

It is demonstrated that the lexical acquisition is not given by an explicit teaching: not a lot of time is spent in explaining single words.

Another aspect to consider is that when we talk with a child and it does not know a new word, this one is used in sentences, for example, if we are in a zoo with a child and he never had the chance to get familiar with the animal known as a zebra we'll probably say: "Look! This is a zebra! Look at it! It is running. Do you like zebras?". Every sentence, even if short, is rich and various.

During the process of acquisition, the child is immersed into real and complex events: in the same moment several objects are named and more than an action is done, or not always we refer to something present at the time.

The real conditions of lexical access are a challenge for the child and the first one is to recognize in the linguistic continuum the sounds of his language and identify the limits of the words.

As regards the development of the lexicon, after the distinction of the words he'll have to discover the meaning and find the referent in the world (Waxman, 2004).

For example, take into account this situation: a father and a child are walking and a dog crosses them. The father says: "have you seen the dog?". To learn the word "dog" the child has to put it out from that sequence of words produced by his father and has to identify in the scene the dog. After this operation he has to associate the word to a referent in the world. "Dog" stands for the dog of the conversation but also for every dog of the world, so the child has to understand that a word can stand in an object category.

Another interesting question is how the child understands that "dog" stands for the animal and not for the tail of the dog. You could think that the children proceed by

mistakes and attempts, in other words the child notes the co-occurrence of a certain word with a certain referent, hypothesizes that that word stands for that element and in the end verifies if this hypothesis is correct when the same word is used in other occasions.

But this is not the real process of our mind: if the child founds its process on the co-occurrence of words and objects he could make wrong suppositions, on the other hand if we take into account the abstract words there is any co-occurrence.

As we have briefly seen to acquire the meanings of the words is not an easy affair, the child faces it with linguistic, conceptual and perceives abilities that it have to coordinate. It have to find words and referents, it have to have an organization of what is around him and he have to be sensitive to the social clues.

It is interesting to notice that the grammatical classes proceed in a precise order: nouns, adjectives and verbs.

4.1 Conceptual organization

One of the problems that the child has to face during the lexicon acquisition is to find the connection between words and their referents. The child, before his production, has knowledge that allows it to form some concepts that can be used to acquire the meanings of other words.

In this way, it is important to underline that, even if the child has pre- linguistic concepts, the usage of words can influence the formation of categories and the conceptual organization of the child. Taking into account this statement, Waxman and Markow (1995) have shown that children at the age of 12-14 month answer in different manner to an exercise of categorization thanks to the presence or not of verbal etiquettes used in presence of objects. This suggests that the words have also the function to show the common aspects between objects, so are useless to form categories and expand the concept repertoire.

In this experiment, the experimenter shows the child 4 different animals and with the first group pronounces the sentence a); with the second the sentence b) and with the third the sentence c).

a) GUARDA QUESTO.

b) QUESTO E' UN GOTO.(name)

c) QUESTO E' GOTOSO. (adjective)

In the case b) and c) it is the syntactic context to determine that the two invented words "goto" and "gotoso" are name and adjective. So in this experiment we assume that children are sensitive to the syntactic context where the word is inserted.

During the experimental phase a new animal was shown, a cat, so on another object of the same animal-category of the other used during the experiment; then it was shown a new object of a different category, a train. What happened is that children who listened to the sentences b) and c) were surprised to see a train. Why? The use of new words in sentences has allowed them to see the common aspects between objects; in other words they were forming a semantic category. It is interesting to note that it happened independently from the grammatical category of the word: nouns and adjectives have equally supported children in forming categories.

Another interesting experiment is the one of Katz, Baker and McNamara (1974) where they have proved the importance of syntactic context with children of 17-24 month.

They proposed these sentences to the children and had different answers:

1) A-This is a DAX.

B-Give me a DAX.

2) A-This is DAX.

B-Give me DAX.

The experimenter proposed to a group the sentences in (A) showing an object, then he put object in a group of similar things. After he said the sentences in (B).

The children of the group (1) gave the same or a similar object to the one shown during the experiment but the group (2) gave to the experimenter the same object that was earlier shown to them.

The children of this group had analyzed "DAX" as the proper name of that object, while the other group had seen "DAX" as a common noun.

This experiment shows that young children make a syntactic analysis in fact they have chosen the appropriate referent for the sentences that they had listen; they have created a category one for the proper names and one for the common name.

In another work, Balaban and Waxman (1997) established that verbal etiquettes influence the categorization at the age of 9 months; when children start to understand words. It is interesting that non-linguistic sounds do not produce the same effect, they do not have a role in the categorization. The experiment was made in this way: during the phase of familiarity the baby has seen an animal and heard a sound (not a word) and in the experimental phase it was clear that the child did not make a category, so non-linguistic sounds do not produce the same effect of seeing the common aspects of the objects.

4.2 The social context

The child is immersed in the language also when we do not speak directly to him. It is improbable that children ignore the conversations of adults. To understand the meaning of the words, the child has to learn that the words have a referential value: humans use them with the intention of referring to objects or events, giving

them the value of symbols that stand for something in the world. But it must also know that it can use word to make the same things as the adults do.

The child acquires the meaning of the words and, general speaking, the language, in a social context, interacting with the adults and with the other children. In this context, the use of the language is connected with a series of actions that can and must be interpreted to understand the object of the conversation, the child has to understand the intentions and purposes of the speaker, for example, it has to understand what an adult wants when he uses a certain word.

During the games, the adult nominates the object that the child is using or that captures its attention, the adult invites the child to observe an object by showing or pointing at it. If the child is capable of interpreting the actions on the object and establishing a connection between the actions and the denomination, he could have an advantage on the lexical acquisition. On this subject there are studies affirming that the child can establish on which object the adult's attention is directed to, following the sight of the adult to share the same attentional focus, it is called sharing attention (Bruner, 1978).

Woodward, Markman and Fitzsimmons (1994) have shown that children at the age of 13 months associate the word to an object only if the adult, during the denomination, looks at the object or point at it. When the adult doesn't make these actions during the denomination, the child can not make the association, even if the object is there and if they played with it. In order to establish the meaning of a word, the child does not use the contiguity between object and word but observes and interprets the actions of the adult during the act of denomination. The ability of interpreting the social clues is very important because during the communicative interactions and the acts of denomination adult and child do not share the same attentional focus.

As we said before, the act of referring is an intentional one. Using a word in a certain interactive context, the adult wants to attract the attention on a particular object or event. Woodward (2003) says that around the 9-12 months, children have a rudimental concept of intentionality that will develop in the next months and

years. This concept is important to understand that through the words humans can communicate about facts from past events, thoughts and desires.

5. THE NOUN CATEGORY

Different words highlight different aspects of a certain event. For example, the word “man” and “fat” can be used for the same individual, but in the first case it shows the individual, in the second case it shows a characteristic of the individual. So the expectation that brings to associate content words to object categories must be improved by thinking about the grammatical category of the word and the specific ways in which the words are used in a specific language. Waxman and Booth (2003) sustain that at the age of 11 months children associate the content words, nouns or adjectives, to an object category, while at the age of 14 months they distinguish between nouns and adjectives and associate the first category to object category and the second to object categories and to a set of different objects that have the same property, in other words children do not have distinguished yet the role of the adjective. The tendency to associate nouns with object categories was studied by different experiments on different languages (Hall, 2004; Imai, 1999; Waxman et al., 1997). It is possible to think that the link noun-object category is an universal link. This hypothesis consists in the fact that all the languages of the world have the noun category that is stable and presents very few difference between languages.

5.1 Noun-acquisition hypothesis

Think about a situation in which a child sees for the first time an animal with the tail and we say: “Look! This is a zebra!”. How the child understands that the word stands for the animal and not for its tail?

Markman (1994) has proposed that the child acquires the meaning of the words driven by three assumptions:

- The assumption of the entire object: a new etiquette must be referred to the entire object and not to a part of it or the material.
- The assumption of the taxonomic extension: the etiquettes must be referred to objects of the same category instead of objects thematically linked.
- The assumption of mutual exclusivity: the etiquettes are incompatible with each other. An etiquette can be associated with only one object. The child assumes a one-to-one relation between objects and words.

On the basis of the entire object, the child is driven to think that a new noun used in relation to an object is referred to that object and not to the substance of a part of that object. The second assumption rules the way the child extends the word; taking into account the word “dog” this is extended to all the animal of the same category, that is to say that it is extended in a taxonomic and not in a thematic way. For example, children do not extend the word “dog” to the doghouse³.

The last assumption affirms that for the child exists only one etiquette for each object, actually it excludes the idea of the existence of synonyms. This assumption drives the child, who has a name for a certain object and hears a new word in a context in which there are the known object and an unknown object, to associate the new word to the unknown object. The same assumption can drive the child to assume that the new word, used in a context in which it is present only the known object, can be associated to the material or a part of that object. Not all the researchers agree with him on the necessity of these assumptions⁴. In particular Bloom (1994) said that these assumptions are not useless for the prepositions and

³ See Markman, Hutchinson, 1984.

⁴ See Bloom, 200 for an alternative approach.

abstract noun acquisition and for the meaning of verbs. These assumptions do not explain how the child understands if a word is referred to a plurality of objects or just one object. For example, the word “class” is singular but it is referred to a group of people or to the room. How does the child distinguish between these two possibilities? Gordon (1985) suggested that American children at the age of 2 years use the syntactic context in which the name is used to decide to whom can be referred to; finally we have to say that the assumption of mutual exclusivity must be abandoned because synonyms exist and the child acquires it even if not at the age of 2 or 3 years.

6. VERBAL ACQUISITION

What we have seen so far is that nouns highlight common aspects. At the age of 14 months it was demonstrated that there is a specific link between noun and the object category. The same happens with the verbs at the age of 18 months. Echols and Marti (2004) conducted an experiment with children of 13 and 18 months using the technique of the visual preference. Three groups see an unknown animal making something (an ant bear, that opens and closes a box), than they see the same scene in another screen and, in the end, in both the screens. While they see the scenes the first group hears a sentence with an invented noun (noun condition): “this is a doco”; the second group hears a sentence with an invented verb (verb situation): “it is doging; it docs”; the third group hears a sentence without relevant words (condition without words): “look!”. After this phase, the child sees two scenes: one in which the animal was making something new and another in which another animal was making the same action of the ant/bear.

The results show that at the age of 13 months children in the noun condition preferred the familiar animal making another action; while the children in verb

condition did not had any preference. This preference emerges at 18 months when the children preferred to see that the new animal makes the known action.

These results suggest that at 13-14 months the child expects that nouns stand for object categories, while at 18 months emerges a specific expectation from the verbs: there is a correspondence between verbs and actions.

It is not surprising that the specific link between different grammatical categories and their possible meaning emerge in different moments of the child's development. Contrary to nouns, the use of a verb is hardly contiguous to the event that the verb describes: there is a timing confusion between the verb and the action and it is difficult to abstract the meaning. Gleitman (1990) establishes that in order to acquire the meaning of verbs, it occurs to have an examination on the syntactic context in which the verb is inserted. Take into account the following examples:

(A)

- a) La tartaruga ha polato il criceto.
- b) La tartaruga ha valato.
- c) La tartaruga ha dacoltato il cibo al criceto.
- d) La tartaruga ha gotolato il formaggio con il coltello.

What can we say about these made up verbs? Do they have the same meaning?
Now look at these sentences:

(B)

- e) Gianni ha tortito la tartaruga.
- f) Gianni ha tortito che la tartaruga è scappata.
- g) Hai tortito cosa è successo?

A possible meaning is “vedere”. Gleitman says that children use the syntactic information and the extra-linguistic context to establish the meaning of the verbs.

Gleitman explains this situation saying that the syntactic structure works as a zoom that brings into focus only that portion of the extra-linguistic event compatible with the pronounced sentence. From this point of view, the process that associates verbs with their meaning is a procedure that associates sentences and words describing events. This hypothesis is called syntactic bootstrapping of a verb meaning or syntactic cueing to a verb meaning⁵.

Furthermore Gleitman sustains the idea that children use the syntactic context to discover the verb's meaning starting to the requirement that exists a connection between syntax and semantics. And this relation exists because verbs are associated with a certain number of subjects and these subjects are expressed in different ways⁶. The argument structure of a verb is very important because it allows verbal acquisition: children can acquire some aspects of the verb meaning, like which subjects are necessary and how do they behave. It is important to underline that, for the verb acquisition, it is also necessary the information of the extra-linguistic context.

I have said that children use the sentence in which the verb is inserted, but this affirmation must be furthermore elaborated: taking into account the syntactic bootstrapping hypothesis, the child does not base their acquisition on a particular syntactic structure but on several kinds of sentences in which the verb is used.

We can put ourselves in the same situation: the examples in (A) do not give us the possibility to make a hypothesis on the meaning of the new word; but the examples in (B) allow us to make hypothesis because it is possible to confront the different structures and determine the possible meanings.

This fact presumes that the child can remember the various syntactic contexts and operate comparisons between these structures to establish the meaning.

⁵This idea is inspired by Brown (1957), he said that children use the syntactic context to establish if a word is a noun or a verb.

⁶ See Grimshaw (1979)

7. ADJECTIVE ACQUISITION

At the age of 14 months children associate nouns to object categories and at 18 months they have developed specific abilities to analyze verbs. Regarding adjectives, at 14 months children extend the use of the adjective to object property, if the property is color, but not regarding its consistency. Only at 21 months, American children extend the adjectives to different properties as color and texture to object properties, but only if the objects belong to the same base category (Klibanoff, Waxman, 2000). In other words children extend the adjective “red” to the rose, or other objects of the same base category (other roses); this does not happen to other red objects, other cars. This result is not surprising because adjectives are dependent in a particular way on the noun: a long film and a long vacation do not have the same duration.

Extending adjectives to object properties of the same base category denotes the sensibility of children for this peculiar property of the adjectives. We use adjectives also to describe objects not belonging to the same base category: we can extend the property to different objects that have that property. The child develops this ability at 3 years: it can extend the adjectives to objects that do not belong to the same base category but only if we give it the possibility to compare objects of the same category which are different by only one property; or if it can make a comparison between objects of two different categories that have the same property. This idea is supported by the experiment of Waxman and Klibanoff (2000): they presented to a group of children two dishes, one red and one yellow. To another group are shown a red dish and a yellow cup. To the groups the experimenter said: “this is blicouse” (referring to the red dish) and “this is not blicouse” (referring to the yellow dish for the first group and to the yellow cup for the second). In the next phase the children are shown a red and a brown bottle and the experimenter asked: “which is the blicouse bottle?”. Only the first group

answered in the correct way. This shows that the comparison of two object of the same base category allowed to identify the relevant property and associate it to the new word “blicouse”. So the possibility to make comparisons between objects with the listening of a sentence containing that adjective allows to extend the adjectives also to objects of other categories.

8. THE FUNCION OF THE CONTEXT

Take into account these sentences:

- 1-)(E' UN FULMINE.
- 2-)(PREPARO DUE SPAGHETTI.
- 3-)(E'A PEZZI.

Without a context a native Italian speaker can easily see two meanings for each sentence. To understand exactly the meaning of 1-3 it is necessary to have more information about the situation. For example, in the sentence number (1), if we are talking about a person we can easily see the metaphor and analyze that sequence of words like “Marco è veloce come un fulmine” alternatively if there is a storm and suddenly we see a lightning in the sky (1) can be read literally.

The context “out of the sentence” has a crucial role to avoid misunderstandings and who works with deaf children knows this. But sometimes to clarify a word it is not that important the context “out of the sentence”, the sentence-context could be enough.

Consider the following examples for the word “scorta” (Franchi, Musola 2012):

- 4- Lo scorta.
- 5- L'ho scorta.

6- L'ha scorta.

7- L'ha scorta lì dentro.

8- La scorta lì dentro.

9- La scorta è lì dentro.

Thanks only to the sentence we can analyze the word "scorta" as the verb "scortare" in (4), (8); the verb "scorgere" in (5)-(7) and the noun "scorta" in (9).

The examples above show that it is enough the context of the sentence to remove the ambiguity of the word, in other words it is sufficient that the word is inserted in a sentence to identify the correct meaning.

In Italian there are a lot of words with the same written form but different meaning and different grammatical category. Just think about "sbarra", "volta", "letto", "molto", "rosa"... For these words it is impossible to determine the meaning unless we put those words in a sentence. Only in this way we can determine if "sbarra", "volto" and "letto" are a noun or a verb, if "molto" is an adverb or an adjective and if "rosa" is a noun or an adjective:

1) SBARRA

a- Marco sbarra la porta. (verb)

b- Marco porta la sbarra. (noun)

2) VOLTA

a- La situazione si è volta al meglio. (verb)

b- La volta celeste è stata a lungo osservata. (noun)

3) LETTO

a- Ho letto. (verb)

b- Ho un letto.(noun)

4) MOLTO

a- Ho cucinato molto pollo. (adjective)

b- Ho cucinato molto il pollo. (adverb)

5) ROSA

a- Voglio una rosa. (noun)

b- Ne voglio una rosa. (adjective)

All these examples shows the importance of the sentence in the meaning-selection. Putting the word into a sentence, an Italian native speaker can easily identify the correct sense of that word thanks to his mental grammar that elaborates the syntactic information given by the sentence.

For a deaf child, with a partial advancement of its mental grammar, it is not so easy to distinguish the different meanings of a certain word. What happens is that the deaf child often analyzes the polysemic word with an only one meaning: he'll see (5a) and (5b) or (3a) and (3b) as the same sentence. Unfortunately the context of the sentence is rarely taken into account when one help the deaf in the lexical and linguistic exploration.

What we have to consider during a work on the language of a deaf child are both: the context in and out of the sentence.

9. THE IMPORTANCE OF THE SENTENCE

I said earlier that the context of the sentence has a huge importance for the identification of the grammatical category, to support this idea I will report the small experiment made by Franchi and Musola (2001).

We have to put ourselves in the same condition of deaf children with several difficulties in Italian; take into account two made up words like “ruona” and “mida”, without a context we can't say which is the grammar category of these two words, but if we insert these words into a sentence we could make some hypothesis:

1) LA RUONA LA MIDA.

We could make a connection between this sentence and a similar one like “la mangia la mamma” and analyze “ruona” as a verb and “mida” as a noun; but in the same way we could see a familiarity with the sentence “la mamma la mangia” and analyze “ruona” as a noun and “mida” as a verb.

For this reason this context is not sufficient to identify the grammatical status of these words, we need more contexts to make a precise analysis.

Let's see these other uses:

2) LA MIDA E' QUI'.

3) LE MIDE SCOTTANO.

4) LA RUONANO LORO.

5) L'HA RUONATA LA MAMMA.

The examples 2-5 confirm our hypothesis that “mida” is a noun and “ruona” is a verb. We can say that “mida” is a feminine, singular noun and “mida” is the third person of the verb “midare” and it is a simple present.

On the other hand if we hear sentences like:

- 6) LA MIDANO!
- 7) LA MIDA LUI.
- 8) LE RUONE SONO BUONE!
- 9) LE RUONE LO MIDANO.

We could say that “mida” is a voice of the verb “midare” and “ruona” is a feminine, singular noun. We can build our knowledge on these new words because of our mental grammar. Thanks to our innate competence of analysis and recognition of a linguistic sequence of words, it is possible to discover the meaning of a certain word.

This brief experiment on our experience of native speakers shows that it is necessary to listen to several sentences to understand the properties and the meaning of words in general.

What we identify as grammatical category is an implicit knowledge that allows us to build the sentence in a certain way: if we know that “mida” is a noun we’ll never say a sentence like:

- 10) *LE MANGIANO MIDA.

The example 10 is not correct because in a sentence like that the last position is for the adverb, therefore it is crucial to have experience of a certain number of sentences with the new word modified in the sentence. Only in this way we can discover how a word works or does not work.

So, to acquire a new word it is required a lexical content and a grammatical use, these two characteristics are simultaneously processed in our mind by our mental grammar.

10. DEAF CHILD AND LEXICON

A large number of studies and the experience of the operators that work with deaf children underline that the lexicon is one of the higher obstacles of their pupils. Everybody agree with the fact that deaf children have a limited knowledge when it comes to synonyms and the undertones of a certain word; they have a lexical rigidity that does not allow to see the different meanings of a word and can create misunderstandings; for this reason it is difficult for them to recognize idiomatic expressions and proverbs.

This problem emerges in the text comprehension: it is a common practice to invite the child to underline all the new words that it does not know and what emerges from this practice is that it underlines all and leaves some expressions that it thinks to know. I will report an example of my experience:

“...mentre la sua mente malvagia continuava ad elaborare l’orribile tiro che avrebbe tirato a quella odiosa vecchia megera...”

I proposed this text to a girl who underlined quite all but not “orribile tiro che avrebbe tirato”. I knew that she had not understood that expression but she did not underline it because she had the literary meaning of that sequence of words.

The limits of deaf children are not immediately visible: it happens that they can not recognize the expressions and the words that they do not know because they think they do know them.

Regarding the lexical rigidity, the operators complain that deaf children are not familiar with synonyms and the similar morphology. It happens that they know the word “gatto” but not “micio” or “gattino” or “gattara”, it seems that the deaf child

7R. Dahl (1988) Gli Sporcelli. Salani.

can not see the relation between the primitive word and its variations; it stores up all the words without a relation to them.

Let's make an example, I am giving you a made up word in a sentence (1):

1) Maria studia scarenia.

Even if this word does not exist, if I ask you "what will be her job?" you'll probably say (2):

2) Maria diventerà una scarenista.

And you'll could also make the plural feminine (3) and masculine (4):

3) Maria e Giulia diventeranno scareniste.

4) Maria e Marco diventeranno scarenisti.

And you could also say (5):

5) Questo è un tipico problema scarenico.

This is possible because we have a syntactic operator that gives us the possibility to manipulate the words without difficulties. It is completely different for the deaf child: it learns words as if they were put in a list, so, taking into account our little experiment, it has to learn five words instead of just one.

Another aspect pointed out by the operators is that the deaf children are not able to edit the meaning of the words starting to the context in which they appear. During my stage with a deaf girl I told her: "ieri ho letto del Papa" and she was speechless: she can't understand the link between me, the Pope and the bed.

These kind of mistakes are a symptom of something worst than a misunderstanding of seeing the link between the word and the context: the word "letto" in that syntactic sequence can not mean "bed" it could only be "read". The syntactic context obliges us to interpret that word as a verb and not as a noun, the deaf child does not see the grammatical information given by the context of the sentence.

The capability to obtain information on the words to the syntactic context allows the child to build a vocabulary in which every entry has the grammatical and semantic information. What happens with the deaf child is that it has a lexical archive with the meaning of the words and without the grammatical information: the majority of deaf children knows of a word, the referent in the world and knows about the existence of nouns, verbs and adjectives but can not unify these two aspects in their word knowledge.

This separation brings the deaf child to produce grammatical sentences; in fact if it does not know the grammatical functioning of a certain word it never can use it correctly. As a consequence of this situation we have children that know the meaning of verbs like “parlare” or “dire”, which have a similar meaning but a different construction: they know what do they mean but they don’t know that “parlare” has an only one argument while “dire” take three arguments.

It is possible to see it in the grammatical judgments that I proposed to a girl of 16 years:

- 6) ME G.
V V PARLO.
* V DICO.
* V TI DICO.
V V TI DICO: “CIAO”.
* V TI PARLO: “CIAO”.
V V TI PARLO.

This girl knows the meaning of these verbs but she doesn’t know how do they work.

These properties, as we have seen so far, are acquired in a precocious age because they are not attested in the production phase when the children make mistakes on the use of these verbs.

In conclusion, in the vocabulary of a deaf child is possible that there is not a link between “gatto” and “gattino”; that the participle “letto” has the same meaning of the noun “letto” and there is not difference between the syntactic context required by “dire” and “parlare”.

This information gives us clues on how the lexicon is organized in the deaf child and it is in contrast with what happens in a normal language acquisition: in normal conditions at the age of 11 months the child analyzes the words in their internal structure and they are classified for their grammatical category.

11. METHODS OF WORKING ON THE LEXICON

It seems that the deaf child organizes its vocabulary making a separation between meaning and grammatical functioning; it is important to underline that this is not a peculiar characteristic of deaf children because, as we said before, when the deaf child has an open access to the language, oral or signed, it develops a lexical and linguistic awareness equal to the hearing children. So the particular lexical organization is not connate to the deafness but it is a consequence of the particular exposition to a certain language that the deafness determines.

Even if the deaf child has prosthesis and cochlear implants and is immersed in the acoustic stimulus, this is not enough to guarantee the linguistic and lexical organization. It is clear that the stimulus is not so rich and precocious so the child has not a natural and complete lexical organization. This means that the child needs to be followed by different operators which have the assignment to give all the linguistic information necessary and sufficient to put the child in the condition to acquire the language in the correct way.

What emerges is that when an operator works with a deaf child, it has the urgency to give the meaning of that word because they have scholastic deadlines and a

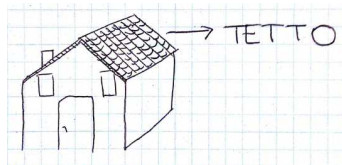
program that must be followed, so the child is forced to compete and chase the rest of his classmates in the learning process.

Regarding the lexicon, operators usually use the figures (1) (2) (3)⁸:

1)



2)



3)



These are examples on how the operators explain a term through pictures. The words are isolated from the conversation and are shown separately to make the association word-referent possible; with signing-child it is possible to give the sign for that word.

This idea was born thinking about the hearing child production; the first productions are formed by isolated words, for this reason it seems the best idea to give to the deaf child isolated words. Furthermore the lexical content of the words seems to be the minimal information in common with the all native speakers, so it is a common practice to focus the attention of the deaf child on the lexical content.

⁸These are examples taken from the notebook of a deaf child.

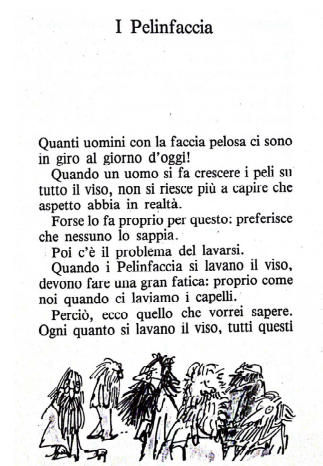
Another method adopted is the usage of synonym or explanation of the meaning: during the reading of a text it is possible to find a new word and, to continue the lecture, the operators give to the deaf child its synonyms or the definition in (4) and (5)⁹ the choice was for the use of the synonym:

4) “...molto probabilmente si sarebbero visti rimasugli ben più consistenti...”

5) “... Con un occhio di vetro puoi fare un sacco di brutti scherzi perché, te lo toglie e te lo rimetti quando ti pare...”

In this passage (5) a deaf child underlined the expression “pare” as to say that that sequence of words was unknown. The operator explained that “pare” has the same meaning of “vuoi”; and in (4) the word “rimasugli” was changed in “pezzi/resti”. In this way the child could go on with the reading.

Before the reading the child is invited to see the images around the text and analyze the title (6)¹⁰:



During my work stage I saw an operator working on this piece of “Gli Sporcelli” of R. Dahl and he asked the child to look at the title and analyze it, afterwards he asked the meaning of “Pelinfaccia”. The child did not answer so the operator invited him

9 R. Dahl (1988) Gli Sporcelli. Salani.

10 R. Dahl (1988) Gli Sporcelli. Salani.

to pay attention to the figure which represents six men with long hair and full beards. After this procedure the child could answer correctly to the requirement of the operator.

This kind of approach is highly incisive. The comprehension of the text is aided to a work on the information that can be extracted from the title, the pictures or the prior knowledge; so the extra-linguistic context helps the child in the text comprehension.

Regarding the grammatical functioning, to facilitate the storing of the grammatical information the operators make a lot of grammatical exercises, with the aim of highlight the regularities and the functioning of the Italian language and to show, for example, that there are feminine and masculine nouns which are “in rhyme” with their adjectives; in fact, we can say “casA bella” but not “casA bello”.

Another common practice is the simplification: the sentences are proposed in a simplified Italian in order to help the comprehension of the sentence. The Italian aspects that are manipulated are the subjects, the use of the clitics, the use of relative and passive sentences. The subjects are always explicit because one of the problems of deaf children is to find the subject; the other aspects are quite canceled because they are considered too difficult and, for this reason, are offered in a future moment. The sentences that contain clitics, relative or passive are manipulated in order to avoid the difficult. To make an example (1a) becomes (1b); (2a) becomes (2b) and (3a) becomes (3b):

- 1) a. Maria ha preso la palla e l’ha lanciata.
b. Maria ha preso la palla e ha lanciato la palla.
- 2) a. Maria, che ha preso la palla, ha un fiocco in testa.
b. Maria ha un fiocco in testa e ha preso la palla.
- 3) a. Le colline sono ricoperte da boschi.
b. I boschi ricoprono le colline.

Clitics are replaced with their referent and the relatives are often replaced with a coordination while the passive form is replaced with the active one.

12. SOME CRITICS

Considering what we have already said about the lexical acquisition and the production, it is important to underline that the oral production of a hearing child is the last result of a long work on the language acquisition.

We have seen that traditional methods used with children to work on the lexicon are founded on the observations of the oral production of hearing children. This kind of approach does not follow the natural process of the language acquisition because it starts from the last step lacking the others. In this way the deaf children lose the information that has allowed them the acquisition of their hearing companion. In fact, the lexicon of deaf children does not have the typical characteristics of a native speaker but in some way it resembles the one of a person who is trying to learn a foreign language and not in the good manner either.

Taking into account the processes that are backwards in the language acquisition and that are illustrated in the prior paragraphs, it is important that the child has the possibility to study the new words into different sentences and not in isolation: in this way it can acquire the information regarding the lexicon but also the grammatical functioning. The sentences must be rich and various not only on the extra-linguistic and communicative perspective but also to the syntactic point of view. The deaf child is able to pay attention to the functional elements of the sentence and to the morphological modifications of the words. This ability allows and accelerates the development and the lexical organization, for this reason it is really important to give an appropriate input to the child. This point is crucial to help comprehend that the stimulus given to the deaf child risks to be poor and too simplified, almost without relevant information.

Considering the lexicon, a deaf child has all the instruments to discover the meaning of the sentences, collecting spontaneously all the relevant information contained in the linguistic and extra-linguistic context, we have to put the child in the condition to allow it to use its ability in order to discover autonomously the meaning of the words; we have to guide this process giving it the adequate input. In this way it will organize its lexical archive taking into account the semantic and the grammatical information and it will discover the relation between the words. To acquire new words will be like a game.

Sometimes the methods used risk to create misunderstandings: the association noun-picture seems to be an innocuous instrument but can give a wrong information. Let's take for example the image of the book; in it everything is clear but if we consider the image of the roof we could make some observations. What is the operator showing? What does the child understand? Can we put ourselves in his shoes and try to guess the meaning. That image could stand for "banner", "banners", "house"? We can play the same game with the picture associating to the verb "salire". In that case the discovery of the meaning is an adventure: that image could stand for "climb down", "go down" or "scale". These misunderstandings demonstrate that this instrument is not the best solution to show the meanings of a word, to show abstract names like "love" or "sympathy" and does not give the grammatical and lexical information. For example, regarding the verb "salire", using this instrument, the child can not see that "salire" is an intransitive verb and it could analyze it as "andare". It is important to be conscious of what we are proposing and what the child perceives.

Previously I have talked about the use of the synonyms, this practice has the advantage of resolving immediately the problem of the comprehension but when it comes to the linguistic input, we have to pay attention. I want to use the example reported in the previous section to have another point of view on that practice.

- 1) *"... molto probabilmente si sarebbero visti rimasugli ben più consistenti ..."*
- 2) *"... Con un occhio di vetro puoi fare un sacco di brutti scherzi perché, te lo toglie e te lo rimette quando ti pare..."*

In the first example the word “rimasugli” was replaced with the words “resti/pezzi” and “ti pare” with “vuoi”; these changes seem to be innocuous but the operator is saying that “pare” is the same of “vuoi” and it is not so. Let's consider the examples in (3):

3) V Vuole un gelato?

* Pare un gelato?

V Vogliamo un gelato.

* Pariamo un gelato.

V Non possiamo fare quello che ci pare.

* Non possiamo fare quello che ci vuoi.

The examples in (3) show that these two words are not interchangeable, and also in that context the replacement is not possible (4):

4) *“... Con un occhio di vetro puoi fare un sacco di brutti scherzi perché, te lo togli e te lo rimetti quando ti VUOI...”*

These kind of mistakes are really common and during my work- stage in an elementary school I could see the effects of this procedure. In that period I saw an operator replace the word “emigrare” with “andare in un altro paese” after some days the girl said “io ho andata a Bannia. Anzi! Io ho emigrata a Bannia”. This situation is really common, and it is the result of a wrong method, we have to take into account that everything we say to the deaf child is a linguistic input; if it is not correct, the effects can be deleterious.

Regarding the text, the use of pictures and a previous discussion is a really useful method because the content of the text is made easier by this kind of approach but I have to say that, after some time, there is the possibility that the child could get used to finding the relevant information out of the text and to pay less attention to the linguistic context. I agree with this approach but I think that it is necessary at the beginning, when there are the first contacts with the texts but, in a future

moment, the extra- linguistic information should be deleted in order for the child to focus its efforts on the structure of the language. For this reason, it is important to not use it systematically because if the child becomes dependent on the extra-linguistic context he will never be autonomous in the reading comprehension.

A large number of operators think that the normative grammar can give to the child the solution to their linguistic problems. So I want to make you some questions to reflect on: why does a child of 5 years know the Italian language? Has it studied it in books? Does an illiterate use the Italian language? Is a deaf child different from us? Do you agree with this citation (5)¹¹?

5) *“Ciao, sono il tuo nuovo libro di grammatica. ... sappi che senza il mio aiuto nessuno può aprire bocca senza sbagliare! Sono io che conosco le regole della lingua. Non ci credi? Allora sfoglia le mie pagine e scoprirai che cos'è la grammatica.”*

Of course we can open our mouth without making mistakes. An illiterate can do it too! Why should we consider a deaf child different? As we have said before, the deaf child has all the instruments to acquire naturally a language, our work is to find the better way to activate its syntactic processor. Giving a list of rules does not activate the part of the brain predisposed to the language acquisition but activates the part of the learning¹²; the learning of grammatical rules or classifications does not trigger the natural, unconscious and spontaneous activation of the mental grammar. Sometimes these rules negatively condition the production of a deaf child (6)¹³:

6) Maria è bello. * *

11 Le Parole Animate, De Agostini Scuola (2006)

12 See G. Denes, Parlare con la testa. Le basi neurologiche e la struttura del linguaggio (2009).

13 Data taken during my stage.

Maria è bella.	V	V
Marco è bella.	*	*
Marco è bello.	V	V
7) Marco mangio.	V	*
Marco mangia.	*	V
Maria mangia.	V	V
Maria mangio.	*	*

In (6) it is possible to note that the lesson on the agreement between noun and adjective was correctly learned but the judgment expressed on grammar in (7) shows that the child overextended the agreement also where it is not possible to do it. For this season it is necessary to limit the explicit grammatical rules.

As we said before, we have to pay attention to what kind of linguistic input we give to the deaf child. Every time we simplify a sentence we should be honest: do these sentences belong to the Italian language? I'll report the examples of the previous paragraph.

- 8) a. Maria ha preso la palla e l'ha lanciata.
b. Maria ha preso la palla e ha lanciato la palla.
- 9) a. Maria, che ha preso la palla, ha un fiocco in testa.
b. Maria ha un fiocco in testa e ha preso la palla.
- 10) a. Le colline sono ricoperte da boschi.
b. I boschi ricoprono le colline.
- 11) a. Hanno giocato con la palla.

b. Loro/essi hanno giocato con la palla.

The examples (8.b) and (11.B) show that the simplifying can produce sentences in a non conventional Italian; in fact, the repetitions in (8.b) are not a an Italian characteristic. I can not say that that sentence is ungrammatical but I will never say it. As regards (11.b) to our language, it is a pro-drop language and the use of the pronoun is a stretching while the pronoun “essi” is in disuse. Another important point is that the coordinate sentences, it is demonstrated¹⁴, are easier in comprehension and production but they are not the only possible construction. The subordinate sentences are part of our grammar; we can't delete them.

The simplifications risk to give a non-conventional linguistic input; and sometimes, to give a wrong input. We don't have to be astonished if a girl writes (12):

12) “... Mio papa è andato addosso al bambino e il bambino non è caduto e mio papà è caduto con sci, mio papà si è fatto male sulla spalla...”

(12) this is the prove that we are giving an artificial language which is completely different from the Italian.

13. ANOTHER APPROACH

Considering the stages of language acquisition and the ways used by our mind to process the language, it is possible to elaborate a method that requires these knowledges: the logogenia[®] method. Logogenia is a linguistic discipline and a method created by Radelli (1998). She proposes this method with the aim to make the acquisition and not the learning of a language with deaf individuals possible. She had the intuition to change the communicative channel: from an oral form to a

¹⁴ See F. Volpato, Valutazione delle abilità linguistiche dei bambini con impianto cocleare: uno strumento per indagare la produzione delle frasi relative (2011).

written one, completely accessible to a deaf person. This method uses the written form of a language and for this reason it is necessary reading and writing. This procedure faces the poor stimulus giving a written input that is compact, precise and efficacious: the method logogenia wants to balance the huge quantity of linguistic data that we give to the hearing child with another more concentrated.

Regarding the lexicon, the purpose of this method is to accustom a deaf child to its innate capability of grasping the meaning of sentences. In addition, the lexical content is not given, the grammatical functioning must be discovered by the child and the new word must be presented in different sentences (Franchi, Musola, 2012). In other words, this approach shows the lexical content and the grammatical functioning using the syntactic context; in this way the child can organize his lexicon not like a list but for oppositions, synonyms and grammatical categories. This method uses orders in which the child is obliged to do something, the child experiences the word meaning; questions which have the function to guide and keep attention alive and the whole activity is done through sentences which have the function to show the grammatical functioning of the new words.

There isn't a limit in the exploration of lexical and morpho-syntactic properties. These two aspects are simultaneously shown through declarative sentences, yes/no and wh- questions. The comprehension of a word is guided by a feedback, that must be given by the operator to the child; a closed set; a context ad hoc and the usage of synonyms and antonyms.

13.1 The feedback

The feedback has the function to confirm or not the child's idea. The example¹⁵ below shows how this method works:

15 See Franchi, Musola, 2012, Percorsi di Logogenia/1. Strumenti per l'arricchimento del lessico con il bambino sordo. Cafoscarina.

1) DISTRATTO

(the logogenista is reading carefully)

Sono attenta? Sì/OK

Sono distratta? Sì/NO

(The logogenista is reading distractedly)

Sono attenta? no/OK

Sono distratta? Sì/OK

The child doesn't know the meaning of "distratta"; we can suppose that that term was similar to "attenta". Only feedback can delete this certainty, the feedback is enough to make it conscious that its hypothesis was wrong. The advantage is that the feedback is immediate and can be helpful for the operator, who can be conscious about what is known or unknown, and for the child who can have the certainty that its hypothesis is right or not. We have to say that the feedback must be clear and precise because the child builds its hypothesis on our "yes" or "no".

13.2 The closed set

This method uses and takes advantage of the child's intuition to discover the words' meaning. It is possible to guide its intuition through the exclusion: it is necessary to create a limited and defined context and drive the discovery by exclusion. The advantages are that the child makes this travel autonomously and reads and understands sentences in which the new word is used. I will report an example taken from Franchi, Musola (2012):

1) BOTTIGLIA

[We put on a table different objects]

Tocca la matita. Ok

Tocca la palla. Ok

Tocca le chiavi. Ok

Tocca la bottiglia. No / Ok

In this example the child has found the new word making experience, reading and touching; he arrives to the meaning making mistakes and attempts. This method keeps in touch the child with his innate ability to discover meanings.

13.3 Context creation

It is important to create a context in which the operator and the child have the same perception of something: to explain the word “horrendous” it is important that the operator and the child are in agreement with what is “horrendous” or not.

The following example (3)¹⁶ shows how to create a situation of perception- sharing:

1) UTILE

Questo foglio serve? No / ok

Posso buttarlo via? Sì / ok

Questa matita serve? Sì /ok

Posso buttarla via? No / ok

La matita è utile? Sì / ok

La matita è inutile? No /ok

Il foglietto è inutile? Sì / ok

Il foglietto è utile? No /ok

16 See Franchi, Musola, 2012, Percorsi di Logogenia/1. Strumenti per l’arricchimento del lessico con il bambino sordo. Cafoscarina.

First of all the operator has to be sure about the consideration of something before to start a lexical path. If we don't consider a specific context appropriate to the person with who we are working there is the risk to create misunderstanding. Let's put ourselves in the same condition as a deaf child: try to understand the word.

2) XXX

Football is XXX.

Reading a book is XXX.

What can we say about the new word? XXX stands for... interesting? Beautiful? Boring? We can only say something about the grammatical category because it is in sentences but we can not say anything about the meaning. For this reason it is important to create a context with a common perception.

13.4 Antonyms and synonymous

This technique uses the new word in a situation where the child can do a direct experience or can easily imagine it. In a work on lexicon the use of synonyms and antonyms connects the new word with a similar or opposite concept. The new word will be understood by analogy or difference and the child can clearly see the different syntactical behavior.

In (5) we can see the contrast between "considero" and "penso che", this example uses easy sentences which are easily comprehensible and gets the child to do a direct experience.

1) CONSIDERARE

Guarda l'orologio.

Cosa pensi di questo orologio? Che non mi piace. Ok

Pensi che questo orologio sia brutto? Si / ok

Pensi che questo orologio sia bello? No / ok

Consideri questo orologio bello? No/ ok

Consideri questo orologio brutto? Si / ok

Dimmi il nome di un tuo compagno antipatico. Stefano / ok

Consideri Stefano simpatico? No / ok

In this work the operator is not only saying that “considerare” is similar to “pensare che”; he is showing the different construction of these verbs; so it is possible to note the double effect of this kind of approach: the lexical and the grammatical side of this word.

14. CONCLUSION

We have seen that, in a normal condition, children are immersed in a syntactically rich stimulus and they are sensitive to lexical and functional elements; even if they omit articles they are reactive to the presence of this kind of elements.

In the lexical activities with a deaf child we should respect this conditions, proposing it the words in sentences and not in isolation. It should be better to start as soon as possible to give the child the possibility to form his grammar and his lexical archive in the most natural way. The input must be various and syntactically rich, it has been proved (Lightfoot, 1999) that the child needs to perceive a certain number of sentences in order to record a particular linguistic property, for this reason there is the need to use sentences with a young child too. If we give sentences the child can activate his innate capability to elaborate language.

It is a common thought that the linguistic input has to be gradual and organized by steps: in a first moment the lexical content and in a second phase the grammatical functioning; but this is not the real stimulus: in standard acquisition condition the

child simultaneously elaborates different information (lexical and grammatical) and the received input is not gradual or organized by steps. It is demonstrated that the variety of the stimulus and the direct experience activate the mental grammar. It is possible to see the effects of an “artificial” stimulation in the non-standard production of deaf child. Deaf children are receiving a stimulus that does not follow the steps of language acquisition but the steps of a language production. We have seen that non-deaf child production is the last effect of a long process of language acquisition, so we should employ this knowledge in order to offer to the deaf child a stimulus similar to the one of hearing children. It is not possible to have the same quantity but we should aspire to the same quality. For this reason we have to offer them sentences instead of isolated words.

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