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The use of conjunctions by children with typical language development

O uso das conjunções por crianças com desenvolvimento típico de linguagem

Keywords

Speech Therapy
 Child Language Development
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Descritores

Fonoaudiologia
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ABSTRACT

Purpose: To investigate the use of conjunctions in the spontaneous speech of three years old children with typical language development, who live in Santa Maria - RS. **Methods:** 45 children, aged 3:0;0 – 3:11;29 (years:months;days) from the database of the Center for the Study of Language and Speech (CELF) participated of this study. The spontaneous speech of each child was transcribed and followed by analysis of the samples to identify the types of conjunctions for each age group. The samples were statistically analyzed using the R software that allowed the evaluation of the number and type of conjunctions used in each age group by comparing them with each other. **Results:** The data indicated that the higher the age of the child, the greater the number of types of conjunctions used by them. The comparison between age groups showed significant differences when comparing the average number of conjunctions per age group, as well as for additive conjunctions and subordinating conjunctions. **Conclusion:** At age of three the children begin to develop the grammatical use of conjunctions, early appearing additive, adversative and explanatory coordinating conjunctions, and at 3:6 they are able to use the most complex conjunctions, as subordinating conjunctions.

RESUMO

Objetivo: Verificar o uso das conjunções na fala espontânea de crianças de três anos de idade com desenvolvimento típico de linguagem, residentes do município de Santa Maria - RS. **Métodos:** Participaram da pesquisa 45 crianças, com idades entre 3:0;0 e 3:11;29 (anos:meses;dias), do banco de dados do Centro de Estudos de Linguagem e Fala (CELF). Foi transcrita a fala espontânea de cada sujeito. Em seguida, foram feitas as análises das amostras identificando os tipos de conjunções de cada faixa etária. As amostras foram analisadas estatisticamente, analisando-se o número e o tipo de conjunções empregadas em cada faixa etária e comparando-as entre si. **Resultados:** Os dados indicaram que quanto maior a faixa etária da criança, maior o número dos tipos de conjunções utilizadas por elas. Quanto à comparação entre as faixas etárias, houve diferença estatística na comparação entre os números médios de conjunções por faixa etária, assim como para conjunções aditivas e para conjunções subordinativas. **Conclusão:** Aos três anos de idade, a criança já apresenta o uso gramatical das conjunções. No começo, aparecem as conjunções coordenativas aditivas, adversativas e explicativas, e aos 3:6, as conjunções mais complexas, como as subordinativas.

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INTRODUCTION

Communication is essential to human being's life as a way of expressing sentiments, emotions, desires and opinions. The language is consisted of a conventional system of arbitrary symbols and their combination rules, representing ideas to be transmitted by it. However, language disorders are the most common problem in children development, ranging from 2% to 19% in the literature⁽¹⁾.

Language development is processed in a predictable way throughout the various stages of psychomotor development, and its evaluation should be an integral part of the development of all children. Early detection of language changes is important because it allows the orientation to specialized intervention teams, preferably in pre-school age.

It is important to know the normal development in order to identify its deviations and pathology.

Some authors consider that the typical language development starts when the child constructs phrases and simple forms and although it consists of two sentences, they contain only a single proposition and little marking grammatical^(2,3). Later, the child is able to use coordinative sentences and later, subordinating. Thus, the additive conjunctions, expressing temporal, causal and opposite ideas relations begin to appear, and three years of age the child already use them flexibly, as it includes the syntactical rules^(3,4).

Of the grammatical elements, conjunctions are responsible for connecting sentences or terms of the same syntactic function and are classified as abstract relational meaning⁽⁴⁾. Even as a complex grammatical class, at three years of age, the child already has lexical resources abstract enough to use them flexibly⁽⁵⁾. Acquisition begins by coordinating conjunctions and, later, by subordinating conjunctions.

Children ranging from one year and six months to four years and six months, begin to show the grammatical expansion, including grammatical acquisitions. From a year and six months to three years old, there is an expansion in the production of statements, including certain items, some prepositions, pronouns of first, second and third person, place of adverbs and connections between sentences^(6,7).

Thus, from three years old, the child is already producing complex sentences together by conjunctions and form coordinate and subordinate sentences, in which the coordinates emerge first. Then comes the use of different categories like, adjectives, pronouns, adverbs and prepositions, according to a study in Spanish⁽⁶⁾.

Other authors^(3,7,8) believe that children, from 3 years of age, use more connective expressing spatial coherence of time sequence and most of the connectivity markers, such as conjunctions, which are used initially. Thus, for a well formed narrative, both in terms of cohesion and consistency, the use of conjunctions is important to develop the semantic-pragmatic skills, i.e. the ability to use content words correctly to describe the events appropriately⁽⁹⁾.

This study will evaluate three years old children as the authors believe that they are ready to use conjunctions as they can start from real to reach the abstract.

Thus, for the clinical practice, it is important to evaluate the use to observe which phenomena characterize the use of words during the lexical development period in the preschool years^(10,11) and detect possible language delays as specific language impairment (SLI), as conjunctions are always scarce in oral productions of these children^(10,12,13). This can be justified due to its use not only involving understanding syntactical rules, but also the organization of ideas and the establishment of temporal and causal relationships⁽³⁾.

The importance of this study is focused on the knowledge of lexical, syntactic, temporal organization and ideas in children in the age group studied and knowing the implications for clinical practice. As conjunctions are used to connect words and phrases using dependence and interdependence relationships, it is necessary that the speaker be able to master the morphosyntactic language skills to be able to use them consistently⁽⁸⁾. Since many studies show that there is a direct relationship between the oral narrative technique and the use of this word class, this research became important to notice the complexity of children's storytelling and detect possible delays in oral language.

Based on the exposed, the study aimed to investigate the use of conjunctions in the spontaneous speech of three years old children with typical language development, who live in Santa Maria - RS.

METHODS

This is a transversal, quantitative and retrospective study. The studied sample included 45 children from the database of the Centro de Estudos de Linguagem e Fala (CELFL). The study is linked to a project entitled "Phonological acquisition, lexical and fluency patterns in children with typical phonological development and deviant", duly approved by the Research Ethics Committee of the Universidade Federal de Santa Maria under the number 0219.0.243.000-11.

Children were evaluated in their schools for hearing aspects, orofacial and especially language. Children were authorized to participate in the study after their parents or guardians signed the Informed Consent Form.

The inclusion criteria for the study were: signature of the Informed Consent Form (ICF), age range between (1 - 3: 0; 0 to 3: 3; 29); (age range 2 - 3:4;0 to 3:7:29) and (age range 3 - 3:8;0 to 3:11:29) (years: months;days), be part of a monolingual family of PB and present typical language development, i.e., the child has started production of the first words, phrases and sentences within the expected period for language development, as well as psychomotor development. The exclusion criteria were: present hearing loss, neurological impairment, emotional and/or cognitive, detectable by observation, the presence of oral motor abnormalities and are under or have had speech therapy prior to the desired intervention.

The parents received a questionnaire with questions on gestation, delivery, clinical history, language development (babbling and emergence of first words, phrases) and general aspects of the family dynamics.

The orofacial evaluation used the protocol "Orofacial Myofunctional Evaluation with Scores - AMIOFE"⁽¹⁴⁾. This protocol

aims to characterize the muscular and functional conditions, such as mobility, stress, sensitivity of orofacial structures and swallowing, chewing, breathing and speech, allowing, on the basis of scores set not only the presence or absence some miofunctional disorder, but also the degree thereof. As for the functions, this study evaluated just the breathing because it is a screening.

Praxis were evaluated using the “Dyspraxia evaluation protocol”⁽¹⁵⁾. This teste requires that the child perform six lip movements, six tongue movements, six face movements, and six articulatory movements, receiving one point for each movement (facial oral and articulatory) performed correctly and no point (0) for those not performed, allowing the identification of any bucolinguofacial change.

The oral language evaluation was performed with the “Behavioral Observation Protocol”⁽¹⁶⁾ that aims to systematize the assessment of young children in the development of communicative and cognitive skills through a behavioral observation, being organized to propose a situation in which it planned to observe the child for a few minutes. This review allows the understanding the typical evolution of language development, the symbolism and the relationship between these aspects of development, but mainly allows you to configure the evolutionary levels and cognitive and communicative modes of operation presented by children with complaints of delays or developmental disorders .

The phonetic aspects of speech were examined by means of articulation examination, which aims to assist in the detection of possible phonetic changes during speech production, in addition to the already observed in spontaneous speech. Therefore, through repetition of words, the evaluation allows to obtain information on the perceptive and emissive level of the patient to conclude that the changes, if present, are due to poor auditory discrimination and/or an articulation impossibility, discarding any changes speech in selected individuals as joint problems can interfere with the correct perception of the sounds produced in speech.

Hearing evaluation consisted of conditioned playful audiometry, using the audiometer *Interacoustics Screening Audiometer AS208*, properly calibrated. The research of hearing thresholds was performed by air from 500-4000 Hz tested at 20 dB HL to eliminate any hearing loss.

For lexical evaluation we made videos of the free interaction, individually with each child and one adult, normally one of the researches, using a box with several toys targeted to the age group, during 15 minutes.

The interactions were filmed by the first and second author of this article, with the camcorder *Samsung*, model SMX-C200. Following the collection, the child and researcher statements were transcribed. This was performed by the first and second author of the article. The transcription was performed using the consensus method ⁽¹⁷⁻¹⁸⁾ for children of the first age range. In this method, two independent judges worked in the transcript and a third judge checked for discrepancies, with the need for agreement between at least two of the judging. If the absence of agreement, the segment was excluded from the sample. The following two ranges showed agreement among the

transcription⁽¹⁷⁾. Considering the two age ranges mentioned, the correlation was 79.6%.

This study evaluated subordinating and coordinative conjunctions. Thus, the coordinative are subdivided into additive, adversative, alternatives, conclusive and explanatory. The subordinating are integrative, causal, conditional, consecutive, comparative, conforming, concessive, time, final, proportional⁽⁴⁾ Thus, it was verified the number and types of conjunctions produced by age.

The data were statistically analyzed with the software R using the *Kruskal-Wallis* and *Wilcoxon* tests with a 5% significance level, i.e., $p < 0.05$.

RESULTS

The results of this research are presented in three tables. Table 1 refers to the average number of conjunctions by age, with comparison of the conjunctions use among age ranges. It is observed that the children of the range three obtained the highest average. There was a difference between the first range and the second and between the first and third ranges.

Table 2 refers to the average values of the number of coordinating conjunctions assessed by age, with the comparison among ranges. It was observed that the additive conjunctions showed no statistically significant difference. However, the aversive and explanatory conjunctions showed difference between the first and second ranges and between the first and third ranges.

Table 3 refers to the average number of subordinate conjunctions assessed by age group. The subordinate conjunctions used by the subjects evaluated show that the average of conditional, consecutive, comparative and time conjunctions did not show statistically significant difference among the groups. The average of integrative conjunctions showed statistical significance between the ranges 1 and 2 and between 1 and 3.

DISCUSSION

Table 1 shows that there is a considerable number of conjunctions in the three groups of three years set out in spontaneous speech of the 45 subjects evaluated. It can be explained as children with normal language development use conjunctions since two years of age and improve the use with age, coming to the effective use at 5 years old. Thus, the child has to dominate the language structure rules in order to understand and use properly the conjunctions in their speech production⁽⁵⁾

Only at the end of telegraphic period (18 and 24 months), the words of grammatical function as the articles (the, a,), adverbs (no, yes, where, here), prepositions (in, on), conjunctions

Table 1. Total number of conjunctions by age

| Range | Average | P-value |
|---------------|--------------------|---------|
| 3:0;0-3:3:29 | 6.73 ^a | |
| 3:4;0-3:7:29 | 11.20 ^b | 0.032* |
| 3:8;0-3:11:29 | 15.00 ^b | |

Caption: *Statistical test used: Kruskal-Wallis. Level of significance: 5%. The superscript letters indicate where there was difference - equal letters indicate no difference, different letters indicate difference

Table 2. The average number of the coordinating conjunctions produced by age

| Range | Additive conjunctions | Adversative conjunctions | Explanatory conjunctions |
|---------------|-----------------------|--------------------------|--------------------------|
| 3:0;0-3:3:29 | 5.600 ^a | 0.467 ^a | 0.400 ^a |
| 3:4;0-3:7:29 | 5.600 ^a | 2.533 ^b | 1.467 ^b |
| 3:8;0-3:11:29 | 8.667 ^a | 2.200 ^b | 1.133 ^b |

Caption: Statistical test used: Wilcoxon. Level of significance: 5%. The superscript letters indicate where there was difference - equal letters indicate no difference, different letters indicate difference

Table 3. The average number of the subordinating conjunctions produced by age

| Range | Conditional conjunctions | Consecutive conjunctions | Comparative conjunctions | Time conjunctions | Integrative conjunctions |
|---------------|--------------------------|--------------------------|--------------------------|--------------------|--------------------------|
| 3:0;0-3:3:29 | --- | --- | --- | --- | 0.267 ^a |
| 3:4;0-3:7:29 | 0.067 ^a | 0.067 ^a | --- | 0.133 ^a | 1.267 ^b |
| 3:8;0-3:11:29 | 0.400 ^a | --- | 0.200 ^a | 0.333 ^a | 2.067 ^b |

Caption: Statistical test used: Wilcoxon. Level of significance: 5%. The superscript letters indicate where there was difference - equal letters indicate no difference, different letters indicate difference

(who, why) and even the inflected forms in nominal categories (gender and number) and verbal forms arise to indicate person and time⁽⁹⁾. As could be seen in Table 1, the number and type of conjunctions increased with age, this is because, in the course of language development, the child improves your vocabulary, making speech richer with the use of both class words opening (names, adjectives, verbs, adverbs) as closed-class words (conjunctions, pronouns, determiners and prepositions), to then express different semantic relationships⁽⁵⁾.

It is noteworthy that this study is part of the range of 3: 0 to 3:11:29, as it is believed that in this period the child begins to use conjunctions more effectively, due to a development of syntax occurs.

Table 2 shows the presence of additive, adversative and explanatory variables in all ranges. The additive conjunctions do not vary among ranges; the adversative and explanatory conjunctions vary from the first range compared to the second and third.

Based on some studies, it is expected that the acquisition of coordinative structures happens in an early age (2-3 years). The same studies claim that the additive conjunctions are acquired first, because they have simpler phonetic structure, are also used more often in order to establish communication interlocutions⁽⁵⁻¹⁹⁾.

Observing the additive conjunctions, it is clear that there was no significant difference between the ranges, since these are the first conjunctions to be spontaneously produced by children⁽²⁰⁾. The additive coordinative conjunctions are considered simpler and more common in the use of language. Specifically the conjunction "and", which is the most used among children, in addition to being easier from the semantic point of view, also is from the phonology point of view⁽¹⁹⁾. There are also children that seem to easier understand and produce words beginning with phonemes already present previously in their phonological inventory, as both the open class of words as closed-class words can be influenced by the words phonology⁽⁸⁻²¹⁾.

Table 3 shows the number of subordinate conjunctions in the spontaneous speech of the 45 subjects evaluated. The conditional,

consecutive, comparative and temporal conjunctions did not show statistical significance, they do not appear on all ranges. However, the integrative conjunctions vary from the first range from the second and third, showing that the production of this combination is intensified from the second range.

The comparison of results from Table 2 and 3 allow concluding that the evaluated children have greater control of coordinating conjunctions, which corroborates other studies^(3,4-6).

Some authors consider that the beginning of the typical child's language development arises when he/she builds simple sentences and is subsequently able to use coordinative sentences and later subordinate⁽³⁾.

This is because the child begins to use subordinate conjunctions around four years of age and improves its use around five years old⁽⁵⁾. The production of sentences involving subordinate conjunctions covers lexical, grammar and more complex phonological skills. Thus, the child may master the language structures easier to then deal with the complexity issues of these elements that make up the subordinate structures to then understand and use these sentences in their speech production⁽²⁾.

This study results allow understanding the emergence of the conjunctions class acquisition, important for the use of the Portuguese language and suggests that the speech therapy watches for these grammatical elements according to what is expected for the child's age.

CONCLUSION

Analyzing the data, we concluded that the child, at age of three years old already has a grammatical use of conjunctions, initially with coordinating additive, adversative and explanatory conjunctions. And from 3:6, the more complex conjunctions arise, such as subordinate. This study adds to the clinical practice and for future research, suggesting that it is important to note, during the speech therapy, the development of more complex and meaningful sentences, with grammatical elements of conjunctions type, according to what is expected to the age range studied.

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Author contributions

LAN was responsible for the study design; *YAG, LPH, FMW* and *LAN* were responsible for tabulating the data and writing the manuscript; *HBM, FMW* and *LAN* were responsible for the design and overall direction of the stages of implementation and preparation of the manuscript, as well as the review and approval of the final version.