

The production of verbs in preschool children with typical language development

O uso de verbos em pré-escolares com desenvolvimento típico de linguagem

El uso de verbos en pre-escolares con desarrollo típico del lenguaje

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Abstract

Objective: to analyze the use of verbs in pre-school children with typical linguistic development enrolled in the public Early Childhood Education in an inner city of RS. **Methods:** The sample consisted of 48 children, 24 females and 24 males, with typical linguistic development and ages between two and five years old; they were divided into eight age groups. Recordings were realized of the spontaneous speech of each subject. Afterwards, the verbs were analyzed by the type and occurrence for each child. For statistical analysis, the Kruskal-WallisMann-Whitney tests were used, with significance level $p < 0.05$. **Results:** There was no difference in the number of verbal types produced between the genders. Comparing the number of verbal types produced between the groups, there was a significant difference in some age groups, but higher values were found in the range of 4: 7 to 4: 11. A total of 238 different verbal types were produced in the sample, with the verb “to be” having the highest occurrence. **Conclusion:**

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LN: research design;

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the number of verbs produced is not influenced by the sex of the children. In general, the use of verbs increases with age, except in the five-year age group, where there was a small decrease.

Keywords: Speech, Language and Hearing Sciences; Child Development; Preschool; Language; Vocabulary.

Resumo

Objetivo: analisar o uso dos verbos em crianças pré-escolares, com desenvolvimento linguístico típico, matriculadas na Educação Infantil da rede pública municipal de uma cidade do interior do RS. **Métodos:** a amostra foi composta por 48 crianças, 24 do sexo feminino e 24 do sexo masculino, com desenvolvimento linguístico típico e idades entre dois anos a cinco anos, divididas em oito grupos etários. Foram realizadas filmagens da fala espontânea de cada sujeito, e após, realizou-se a análise dos verbos, quanto ao tipo e ocorrência de todos os verbos produzidos por cada criança. Para análise estatística foram utilizados os testes de *Kruskal-Wallis* e *Mann-Whitney*, com nível de significância $p < 0.05$. **Resultados:** não houve diferença no número de tipos verbais produzidos entre os sexos. Na comparação do número de tipos verbais produzidos entre as faixas etárias, houve diferença significativa em algumas faixas etárias, porém maiores valores na média da faixa de 4:7 a 4:11. Na totalidade da amostra foram produzidos 238 tipos verbais diferentes, sendo o verbo “ser” o de maior ocorrência. **Conclusão:** a quantidade de verbos produzidos não é influenciada pelo sexo das crianças. De modo geral, o uso de verbos aumenta conforme a idade, exceto nas faixas etárias de cinco anos, onde houve um pequeno decréscimo.

Palavras-chave: Fonoaudiologia; Desenvolvimento infantil; Pré-escolar; Linguagem; Vocabulário

Resumen

Objetivo: analizar el uso de los verbos en niños preescolares, con desarrollo lingüístico típico, matriculados en la Educación Infantil de la red pública municipal de una ciudad del interior del RS. **Métodos:** la muestra fue de 48 niños, 24 del sexo femenino y 24 del sexo masculino, con desarrollo lingüístico típico y edades entre dos y cinco años, divididas en ocho grupos etarios. Se realizaron filmaciones del habla espontánea de cada sujeto, y después, se realizó un análisis de los verbos, en cuanto al tipo y ocurrencia de todos los verbos producidos por cada niño. Para el análisis estadístico fueron utilizados las pruebas de *Kruskal-Wallis* y *Mann-Whitney*, con nivel de significación $p < 0,05$. **Resultados:** no hubo diferencia en el número de tipos verbales producidos entre los sexos. En la comparación del número de tipos verbales producidos entre los grupos de edad, hubo diferencia significativa en algunas franjas etarias, pero mayores valores en la media de la banda de 4:7 a 4:11. En la totalidad de la muestra fueron producidos 238 tipos verbales diferentes, siendo el verbo “ser” el de mayor ocurrencia. **Conclusión:** la cantidad de verbos producidos no es influenciada por el sexo de los niños. En general, el uso de verbos aumenta según la edad, excepto en las franjas de edad de cinco años, donde hubo un pequeño descenso.

Palabras clave: Fonoaudiología; Desarrollo Infantil; Preescolar; Lenguaje; Vocabulario

Introduction

This study addresses the acquisition of verbs by preschool children with typical language development. It is mainly, but not only, based on innatism, according to which language is the result of the interrelation between the initial state (language acquisition device) and the course of experience.¹

Studies demonstrate that the acquisition of verbs provides grammatical development. This

is because they function mainly as predicates, expressing actions, are used since an early age, at around two, and their use improves around the third and fourth year of life.^{2,3,4,5}

According to literature, there are differences between the acquisition of verbs and nouns. Nouns are usually acquired first, since they are more concrete. That does not mean that children immediately understand the full meaning of the word, but the initial representation is concrete enough for them

to include other members of the same class. In addition, verbs are relational terms, and refer to more abstract and less cohesive concepts. Hence, the differences of a verb compared to others are less clear and more difficult to learn.^{5,6}

There can be difficulties in the acquisition of verbs due to semantic diversity, that is, the attribution of meanings to the words, or to grammar issues, as it guides syntax rules. Therefore, the generalization of verbs may be hindered during acquisition, making it necessary for the child to be presented to the verb more often to internalize their features.^{7,8}

Word acquisition is a major aspect for communication, and the expression “vocabulary explosion” is used to name the period when there is an increase in the number of words - among them, verbs. According to the literature studied, there are verbs related to physical actions, such as ‘to pull’ and ‘to walk’, and there are mental states verbs, such as ‘to want’, ‘to think’, ‘to be’, among others. Physical actions verbs are easily recognized during the acquisition period, compared to mental verbs.⁸

That unique feature of verb acquisition can be observed during the presentation, that is, before or after the action’s result; result verbs are favored by the completed condition (verb after the action), and movement verbs are favored by the future condition (verb before the action). Thus, physical action verbs generate stronger memory combinations, and thus are easier to remember than simple verbs. Moreover, the more a verb is stimulated, the more often and the more flexible its occurrence will be in the child’s speech, indicating that usage refines its knowledge.^{9,10}

With the concepts of time and verbal aspect, children can build representations about the predicate, think about events, and have elements to build a linguistic system, since these concepts are essential for language acquisition.⁸

Considering the aforesaid as well as the importance of the acquisition of this part of speech for language development, this study aims to analyze the use of verbs in spontaneous speech samples of preschool children with typical language development by comparing the variable gender (male and female).

Method

This is a quantitative and descriptive research, with cross-sectional data collection. It is part of a project approved by the Ethics Committee of the institution under number 0219.0.243.000-11. The subjects’ guardians signed the Free and Informed Consent Form, thus consenting with the study. As stated in the consent form, the subject receives a copy and another is kept in the researcher’s academic file, in accordance with resolution 466/12 of Brazil’s National Commission of Research Ethics (Comissão Nacional de Ética em Pesquisa - CONEP/2012).

The sample for this study was selected according to convenience. It is composed of 48 subjects aged two to five years, 11 months and 29 days, matched according to sex and age. The sample was separated into 24 male and 24 female subjects, distributed evenly across age groups of six months, as indicated in the following chart.

Chart 1. Distribution of subjects matched according to sex and age.

Age group	Number of subjects	Male	Female
2:00- 2:6	6	3	3
2:6- 2:12	6	3	3
2:12-3:6	6	3	3
3:6- 3:12	6	3	3
3:12-4:6	6	3	3
4:6-4:12	6	3	3
4:12-5:6	6	3	3
5:6-5:11:29	6	3	3
Total number of subjects	48	24	24

As inclusion criteria, all children needed to be members of monolingual families speakers of Brazilian Portuguese (BP), have typical language development, considering typical phonological acquisition and show consistent repair strategies for their age. The exclusion criteria were hearing loss; neurological, emotional, and/or cognitive impairment detectable by observation; motor or organic oral alterations; or undergoing/having undergone speech therapy.

The data collection was conducted in public preschools in a city in the state of Rio Grande do Sul. The speech-language evaluation included a questionnaire for guardians (anamnesis), orofacial evaluation (OMES-protocol - short version), assessment of oral praxias, oral language assessment using the Behavioral Observation Protocol (PROC - Protocolo Observacional Comportamental), and hearing screening using the study of hearing thresholds via air conduction at frequencies of 500 Hz, 1000 Hz, 200 Hz and 4000 Hz, tested at 20 dB HL, to check for peripheral auditory changes.

The questionnaire was adapted to include aspects of the child's global development as well as family dynamics, and was answered by the guardians individually.

In order to evaluate the orofacial myofunctional aspects, we used an adapted version of the Protocol of orofacialmyofunctional evaluation with scores (OMES-protocol)¹¹, analyzed the Stomatognathic System's structures and functions in terms of aspect, usual position, muscle tension, mobility and breathing. For children over three years and six months, the evaluation also included the Dyspraxia evaluation protocol¹² to assess oral praxis. These evaluations were used to rule out impairments at such levels.

The Behavioral Observation Protocol¹³ was used for the language evaluation of children aged up to four years. For older children, we observed them playing, their spontaneous oral narratives and their answers to questions. The protocol was not used for data collection of spontaneous speech of children above 4 years, since it is designed for children up to that age. The sequence of procedures was the same for all children, and all children over four years used the same toys, with interaction between researcher and child to guide the dialog activity, during which all the excerpts were analyzed.

In addition, phonetic and phonological aspects of speech were observed in spontaneous conversation and repetition of phonetically balanced words. This evaluation occurred before spontaneous speech was shot and it was only considered as a reference for language development in terms of inclusion and exclusion criteria for children in the study.

Hearing screening was performed using Visual Reinforcement Audiometry¹⁴ for children up to two years, six months and 29 days of age, and an audiological evaluation was carried out for children from two years and seven months to five years, 11 months and 29 days, including a play-conditioned audiometry or pure-tone threshold audiometry.¹⁵ In case the child's answers were wrong in one or more frequencies and two consecutive screenings, it was recommended that the child had a complete audiological and otorhinolaryngologic evaluation.

Then, all children who met the inclusion criteria (included in the present study's data) underwent the expressive vocabulary evaluation through spontaneous speech and naming of objects and miniature toys while playing, without direct questions.

The receptive vocabulary evaluation was not performed because it was not the objective of this study. The spontaneous speech evaluation was chosen because the objective of the research project of this study was to analyze all parts of speech, and the protocols do not include this criterion, as they emphasize the production and comprehension of nouns.

The assessments were shot for 20 minutes using a Samsung SMX-C200 camcorder. The videos were stored in an external hard drive for broad phonetic transcription of the speech of each child and alphabetical transcription of the examiner's speech. Consensus transcription^{16,17} was used to transcribe the speech of children up to three years and three months. That is, two judges worked independently in the transcript; then, the transcripts were compared and discrepancies were heard by a third evaluator until they reached an agreement for all utterances/words/sounds produced by the child. If there was no agreement between at least two evaluators, the passage was deleted. Thus, the reliability of the transcriptions was assured, preventing the deletion of a large number of words, since young children, even with typical development, have greater variability and unintelligibility in their productions.

For children of the other age groups, with more stable productions, transcription reliability was ensured by having one evaluator experienced in child language transcribe all samples and a second experienced judge independently transcribe 20% of the same sample^{18,19}. There was a mean agreement of 79.6% for the 3-year age groups; 81.9% for the 4-year groups; and 80.1% for 5-year groups.

For the verb analysis, all words produced by each child were first listed in a Microsoft Excel spreadsheet; next, the verbs were identified and listed in another spreadsheet, so as to gather all verbs produced (occurrences) by each child. Then, the repeated verbs were deleted and the number of different verbs produced (types) was counted.

The terms "occurrences" and "types" refer to the total number of words produced (in this case, verbs), instead of the number of different words produced (in this case, each different verb produced was accounted for only once).

Finally, for the statistical analysis, the version 9.2 of the Statistical Analysis System software was used to create frequency tables according to the number of types and occurrences of the verbs by age group and most produced verbs in the total sample (more than 50 occurrences). Then, with the same software, we used the Mann-Whitney test to compare the verbal types produced according to sex, and the Kruskal-Wallis test to compare them among the age groups. In both tests, the significance level adopted was 5% ($p < 0.05$).

Results

Table 1 compares the number of verb types produced according to sex. Female subjects showed higher mean percentage, but there was no statistically significant difference between both genders regarding the verbal types produced.

Table 2 shows a comparison of the number of verbal types produced according to age group. The *Kruskal-Wallis* test indicated a significant difference of verb types produced comparing the age groups.

Table 1. Comparative analysis of verbal types produced according to sex.

Sex	Number of subjects	Mean number of verbal types	p-value
Female	24	45.04	P=0.239
Male	24	40.79	

Statistical test used: Mann-Whitney; significance value: $p < 0.05$.

Table 2. Comparative analysis of the number of verbal types produced according to age group

Age group	Mean of verbal types produced	p-value
(A) 2:0 – 2:6;29	28.17	P = 0.001
(B) 2:7 – 2:11;29	35.50	
(C) 3:0 – 3:6;29	36.17	
(D) 3:7 – 3:11;29	46.67	
(E) 4:0 – 4:6;29	48.33	
(F) 4:7 – 4:11;29	53.83	
(G) 5:0 – 5:6;29	45.00	
(H) 5:7 – 5:11;29	49.67	

Statistical test used: Kruskal-Wallis. Significance value: $p < 0.05$. As for significance, A≠D, E, F, G, H; C≠F and B≠F.

The whole sample produced 238 different verb types. The verbal occurrences ranged from 43 (age group 3:0 – 3:6; 29) to 226 (age group 4:0 – 4:6; 29) per subject, and the general mean was 124.13 occurrences.

Concerning verb types, the verb children produced the most was “to be” (indicating permanent state), with a total of 1240 occurrences. (N.T. There are two equivalents to verb “to be” in Portuguese: one indicated a permanent state and the other suggests a temporary one.) Table 3 shows the most produced verbs by subjects (with 50 or more occurrences in the total sample).

The two years’ age groups produced 67 and 78 different verbs; the three years’ produced 85 and 102 different verbs; the four years’ produced 94 and 111 different verbs; and the five years’ produced 101 and 112 different verbs, respectively. Table 4 shows the five verbs with higher occurrence according to age group.

The term “verb types” is used to refer to the number of different verbs produced, that is, each verb was accounted for only once, instead of each repetition.

Table 3. Verbs with higher occurrence in the general sample

Verb	Number of occurrences in the whole sample (N=48)
To be (permanent)	1240
To have	652
To go	635
To look	419
To be (temporary)	318
To know	269
To find	120
To see	115
To give	108
To do	104
To want	91
To leave	81
To put	77
To get	75
To stay	73
To fall	73
To eat	62
Can	59
To walk	50

Table 4. Verbs with higher occurrence according to age group

Age group	Verb	Number of occurrences
2:0 - 2:6;29	To be (permanent)	119
	To have	52
	To go	45
	To be (temporary)	28
	To fall	2
2:7 - 2:11;29	To be (permanent)	101
	To go	86
	To have	77
	To be (temporary)	43
3:0 - 3:6;29	To look	31
	To be (permanent)	128
	To look	76
	To go	68
	To have	61
3:7 - 3:11;29	To be (temporary)	39
	To be (permanent)	136
	To go	97
	To have	72
	To look	65
4:0 - 4:6;29	To be (temporary)	51
	To be (permanent)	134
	To go	109
	To have	92
	To look	80
4:7 - 4:11;29	To be (temporary)	50
	To be (permanent)	256
	To have	111
	To go	95
	To know	83
5:0 - 5:6;29	To look	67
	To be (permanent)	200
	To have	80
	To know	61
	To go	54
5:7 - 5:11;29	To look	50
	To be (permanent)	166
	To have	107
	To go	81
	To know	52
	To look	31

Discussion

Initially, we verified that the number of verb types produced was not affected by sex, indicating that the children's communicative interaction and the linguistic maturation typical of language development influence that process more than their sex.^{20,21,22}

These findings corroborate a study that aimed to verify the quantitative and qualitative diversity

of the verbs uttered by Brazilian Portuguese speakers aged 2 to 4 years, as well as their evolution. It also found no statistical difference between sexes.⁴

Table 2 compares the verb types produced by age group. It also indicates the evolution of verb production according to age. This can be due to the last subjects' longer exposure to the language being acquired, since they demonstrate greater stability. The same was found in a study that conducted an experiment to investigate the syntactic influence as

an active resource used in the acquisition process that narrows children's possibilities of hypotheses about the meaning of the new verbs.²²

In general, a large number of different verbs was produced in the sample, considering both the total sample and the sample classified into age groups. Other studies on the acquisition of Germanic languages found a high production of verbs, with linear growth and higher increments in the third and fourth years^{22,23}. The present study indicated a similar process, except in terms of linearity, as some regressions were found in the age groups of five years. Another Brazilian study found linearity in the acquisition of verbs in children aged two to four years.⁴ The regression may be due to two reasons: a greater syntax development at that age and the awareness of the phonological substitutions that still occur. Both situations require more from linguistic processing, and may lead to imbalances in other areas, such as vocabulary, more specifically in the use of verbs.²⁴

The most prevalent verbs found in children's vocabulary were similar to a longitudinal study in which most verbs were the same as in the present study.²⁵ Moreover, the author states that the initial and most recurring verb forms are the imperative/present and the infinitive, similarly to the findings of this research.

Another study shows a list of the most prevalent verbs produced by children aged two to four years.⁴ All verbs on the list occurred more than 50 times in the present research, except "pôr" (to put), produced as the variant form of the same meaning "botar". However, sociocultural differences may influence the production of the verbs "pôr" e "botar" in Brazilian Portuguese.

Both in the present study and in similar ones^{4,23}, the most prevalent verbs were virtually the same, due to how often the stimuli appear, both in the language and in the child's environment.

Verbs indicating physical actions (such as go, look, find, etc.) and mental states (be, know, etc.) are among the verbs with greater occurrences both in the overall sample and the age groups'. According to a study⁷, physical action verbs are easier to acquire because they generate stronger memory codes. The present research does not corroborate such finding, given the balanced distribution of these verb categories in the sample. The fact that the verb "to be" indicating a permanent state had the most occurrences may be due to its function, as

it can represent mental states and function as a linking verb, and, thus, it is frequent in most sentences.

Conclusion

Verbs are prevalent in older age groups, demonstrating that, in general, there is an evolution according to age, except for the five-year age group. Different verbs were found to be the most produced ones by subject, and verb "to be" (permanent) was prevalent. There was no difference in sex as for quantity of verbs produced.

These results provide another important source of knowledge on language acquisition, especially regarding verb production. We suggest further studies are conducted comparing these children's performances to children's with language disorders with similar methodologies, and also including more age groups.

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