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# Expressive vocabulary performance of students aged from 4 to 5 years attending public and private schools

## Desempenho do vocabulário expressivo de pré-escolares de 4 a 5 anos da rede pública e particular de ensino

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### ABSTRACT

**Introduction:** Vocabulary performance may vary due to environmental stimuli, and socioeconomic and cultural context. **Purpose:** To compare the performance of expressive vocabulary of children attending public and private schools, aged from four to five years, and analyze the most frequent substitution processes. **Methods:** The sample consisted of 86 preschool children, aged from four to five years, male and female, without signs of syndromes and neurological or language disorders, divided into G1: Group of preschoolers in the Public School, and G2: Group of preschoolers in the Private School. All children were submitted to speech-language screening and expressive vocabulary evaluation through the ABFW Vocabulary Test. Data were submitted to statistical analysis, using Fisher's Exact Test and T-test ( $p < 0.05$ ), considering the occurrences of Designations by Usual Word, Non-Designations and Substitution Processes according to conceptual fields. **Results:** G2 presented better performance in the vocabulary test than G1, with statistically significant difference for all conceptual fields. However, when comparing pre-school performance with test parameters, most G1 and G2 preschoolers presented adequate performance. The most frequent substitution processes were those of hyperonymy and close co-hyponymy. **Conclusion:** Private school preschoolers present better performance in expressive vocabulary tests. In addition, substitution processes occurred more frequently in preschoolers in the public school system, and the most frequent ones were hyperonymy and co-hyponymy.

**Keywords:** Vocabulary; Semantics; Child, Preschool; Language development; Language tests

### RESUMO

**Introdução:** O desempenho no vocabulário pode variar em razão de estímulos ambientais e contexto socioeconômico e cultural. **Objetivo:** Comparar o desempenho em prova de vocabulário expressivo entre pré-escolares da rede pública e privada de ensino, na faixa etária de 4 a 5 anos, e analisar os processos de substituição mais frequentes. **Métodos:** A amostra foi composta por 86 pré-escolares, na faixa etária de 4 a 5 anos, de ambos os gêneros, sem sinais indicativos de síndromes, distúrbios neurológicos ou de linguagem. A amostra foi dividida em dois grupos: G1- grupo de pré-escolares da rede pública de ensino e G2- grupo de pré-escolares da rede privada de ensino. Todos os pré-escolares foram submetidos à triagem fonoaudiológica e à avaliação do vocabulário expressivo, por meio do Teste de Vocabulário do ABFW. Os dados coletados foram submetidos à análise estatística, utilizando o teste Exato de Fisher e o teste T ( $p < 0,05$ ), considerando as ocorrências de Designações por Vocábulo Usual, de Não Designações e de Processos de Substituição, por campo conceitual. **Resultados:** O G2 apresentou melhor desempenho que o G1 no teste de vocabulário, havendo diferença significativa para todos os campos conceituais. Entretanto, quando comparado o desempenho dos pré-escolares com os parâmetros do teste, a maioria dos pré-escolares do G1 e do G2 apresentou desempenho adequado. Os processos de substituição mais frequentes foram os de hiperônimos e co-hipônimos próximos. **Conclusão:** Pré-escolares da rede privada de ensino apresentaram melhor desempenho em prova de vocabulário expressivo. Além disso, os processos de substituição ocorreram com mais frequência em pré-escolares da rede pública de ensino, sendo os mais frequentes os de hiperônimo e co-hipônimo próximo.

**Palavras-chave:** Vocabulário; Semântica; Pré-escolar; Desenvolvimento da linguagem; Testes de linguagem

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**Conflict of interests:** No

**Authors' contribution:** All authors effectively participated in the design of the study, carried out data collection, analyzed and discussed study results.

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## INTRODUCTION

The acquisition of words is the starting point of oral communication between children and the environment around them. The first words are acquired at approximately 12 months of age, after periods of gradual and slow increase in vocabulary and periods of “explosion of vocabulary”. These processes continue throughout their whole school life, until around 16 years old, when the vocabulary acquisition starts to depend on the context of the subject<sup>(1)</sup>.

All the words one knows are part of their mental vocabulary, which is accessed according to their need to use these words<sup>(2,3)</sup> to represent objects, actions and events through words<sup>(3,4)</sup>. The process of language and vocabulary acquisition is particularly complex and depends not only on personal characteristics of each individual in terms of cognitive abilities, but also on the influence of the environment they are in and the social relations established<sup>(1,3)</sup>.

The vocabulary can vary according to the stimuli and the interactions received in the family and school environments, as well as the socioeconomic and cultural context<sup>(5)</sup>. Thus, the school plays an important role on children’s language development, since it represents opportunities of construction and expansion of the lexicon, due to the various communication situations enacted, interacting with several interlocutors, both individually and collectively.

Language involves four interspersed acquisition and development systems: pragmatic, related to the use of language in social communications; phonological, involving the perception and production of sounds to form words; semantic, which correlates words to their meanings; and grammatical, concerning syntactic and morphological rules to associate words in intelligible sentences<sup>(6)</sup>.

The acquisition of the semantic domain of words is required for a wide and comprehensive performance in language development, since assigning and understanding the meanings of words is necessary for satisfactory communication<sup>(7)</sup>. The ability to understand and utter words, that is, the receptive and expressive vocabulary, indicates the child’s language level and is closely related to intelligence and subsequent academic performance<sup>(2,8)</sup>.

During the vocabulary acquisition and expansion, there may be semantic deviations, because the child’s set of traces that differentiate the use of one word from another in different linguistic contexts is not settled yet<sup>(2,9,10,11,12)</sup>. Such deviations tend to disappear or decrease as children expand their vocabulary<sup>(2,10)</sup>. The use of the term deviation, also understood as a process of word substitution, is intended to represent the lack of correspondence between the meaning of the word pronounced by children and the meaning of the target word, based on adults’ speech. These substitution processes are usually observed in the period of vocabulary development, and they disappear or significantly decrease with age and lexical expansion<sup>(2)</sup>.

The assessment of children’s vocabulary allows to verify their lexical capacity<sup>(8,13)</sup> and the mechanisms used, in terms of quantity of words<sup>(13)</sup> and the assigning of meaning<sup>(9)</sup>. Nevertheless, the analysis of processes of word substitution highlights the differences and similarities of the lexical units used by children<sup>(13)</sup>.

The presence of substitution processes in children’s speech is a result of an attempt to name a target word that is not present in their lexicon<sup>(2,9,10,11)</sup> – a common feature of the lexicon acquisition process<sup>(2,10)</sup>. On average, it takes children five months from learning a new word to using it effectively, and that depends both on children’s context and their need to use this specific term<sup>(1)</sup>.

According to the literature<sup>(4,14,15,16,17)</sup>, students in public schools have lower performance compared to students in private schools, both in oral language tasks and in reading and writing tasks. This disparity in performance may be due to differences in socioeconomic status, type of extracurricular stimuli received, unfavorable family environment, emotional problems, motivation level for the tasks proposed, among other reasons<sup>(14)</sup>.

A study<sup>(4)</sup> evaluated the vocabulary performance of institutionalized children and compared it with the performance of children attending public and private schools. It found that institutionalized children had lower performance in the vocabulary test in relation to the control groups of children in public and private schools. However, the comparison of their performance to that of non institutionalized children showed no significant difference in regards to vocabulary performance and type of school. According to the authors, this may be because the public school that participated in that research had a high quality of education and was a reference in the region.

Therefore, this study aimed to compare the performance test of preschool children in public and private schools in the expressive vocabulary test and analyze the most frequent substitution processes. The innovation of the study is the attempt to analyze the types of mistakes, and, thus, contribute to a qualitative perspective of the difference in performance between the groups of students in public and private schools.

## METHODS

This cross-sectional, exploratory and quantitative study was approved by the Research Ethics Committee of *Universidade de Passo Fundo*, considering its ethical and methodological aspects, according to the guidelines of Resolution 466/2012 and complementary rules of the National Health Council, registered under number CAEE 23298713.5.0000.5342. All children’s parents and/or guardians authorized their participation in the research by signing the Free and Informed Consent Form. They also answered a multiple-choice questionnaire on their monthly income, pathophysiology history, and language and speech development.

The data were collected in a public kindergarten school and a private one, both in a Brazilian city in northern Rio Grande do Sul. The public school was located on the outskirts of the city, in a poorer area, according to socioeconomic status. On the other hand, the private school was located in the city center, and was focused exclusively on children whose parents were part of a hospital staff. The schools' principals authorized the data collection by signing the Institutional Consent Form.

All children, aged from 4 to 5 years, of both genders, enrolled in the schools were invited to participate in the study. There were 114 children in the public school and 109 children in the private school. Ninety eight children had their authorization form signed and their multiple-choice questionnaire answered. The questionnaire included characteristics regarding monthly income, pathophysiology history, speech and language development.

The children went through a speech and language screening, including language evaluation. First, three logical sequence scenes were used, and the children were asked to put them in chronological order of events. Then, they had to tell a story based on the sequence in which the pictures were arranged. The adequacy of the responses, their ability to follow the instructions given, the logical organization of thoughts and the grammatical structure of the words were evaluated. The pass/fail criteria were: proper organization of scenes in logical sequence, narration of the three scenes in sequence, and narration with predominance of reports or description<sup>(18)</sup>.

Afterwards, a phonological assessment of the students was carried out using the Children's Phonological Assessment (*Avaliação Fonológica da Criança - AFC*)<sup>(19)</sup>. That allowed the collection of a sample of spontaneous nominations, involving all contrastive phones, in all positions they occur in syllables and words. This speech sample was recorded and phonetically transcribed for the analysis of children's phonetic inventory and the phonological system<sup>(19)</sup>.

After the screening, children underwent the ABFW Vocabulary Test<sup>(9)</sup>, which analyzes different categories of vocabulary. This evaluation enabled the verification of lexical

competence and the mechanisms used in terms of quantity of words - Designations by Usual Word (DUW), Non Designation (ND) and Substitution Process (SP) - used to replace the target word. This instrument comprises nine conceptual fields (Clothing; Animals; Food; Transportation; Furniture and Utensils; Occupations; Places; Shapes and Colors; Toys and Musical Instruments), in a total of 118 pictures for naming and recognition.

All evaluations were performed individually and recorded on video and audio, for later transcription and analysis. The evaluations took a session of 40 minutes, on average.

Because of the exclusion criteria, out of 98 children assessed, 12 were excluded for presenting phonological disorders, signs indicating syndromes, delays and/or language disorders, neurological disorders, attention deficit and hyperactivity (nine children attending the public school and three children attending the private school).

Therefore, 86 students who met the inclusion criteria of the research – authorization by parents and/or guardians by signing the Consent Form; having the questionnaire filled; aged from 4 to 5 years; absence of reports or signs indicating syndromes, neurological or language disorders or phonological disorders - composed the sample, divided into two groups: G1 - group of students in the public school, composed of 41 children; and G2 - group of students in the private school, composed of 45 children. Table 1 shows the sample distribution of G1 and G2 in terms of age, gender and family income (mean number of minimum wages per month).

Table 1 shows that no statistically significant difference was observed in the mean age of G1 and G2. Also, the group distribution in the sample was homogeneous in terms of gender. However, the monthly family income was statistically higher in G2 than G1, on average.

First, the answers were transcribed in specific test protocols, and the percentages of DUW, ND and SP were calculated for each test category (conceptual field). Then, these percentages were compared between the groups of students (G1 and G2) and the reference values of the test, according to age<sup>(9)</sup>,

**Table 1.** Characteristics of the sample according to age, gender and family income per month

| Age group             | G1                  | Mean          | G2                  | Mean          | p-value             |
|-----------------------|---------------------|---------------|---------------------|---------------|---------------------|
| 4 years               | 23 (56.09%)         | (60.3 months) | 18 (40.00%)         | (59.4 months) | 0.797 <sup>#</sup>  |
| 5 years               | 18 (43.91%)         |               | 27 (60.00%)         |               |                     |
| Gender                | G1                  |               | G2                  |               | p-value             |
| Female                | 18 (43.91%)         |               | 18 (40.00%)         |               | 0.714 <sup>#</sup>  |
| Male                  | 23 (56.09%)         |               | 27 (60.00%)         |               |                     |
| Monthly family income | G1                  |               | G2                  |               | p-value             |
| Mean income           | 2.8 (minimum wages) |               | 4.1 (minimum wages) |               | 0.001 <sup>##</sup> |

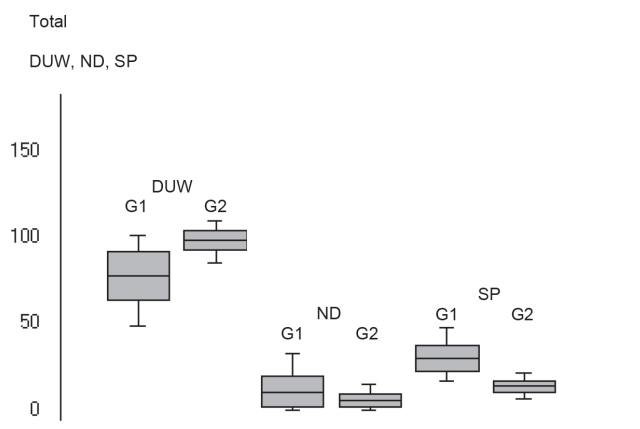
<sup>#</sup>: significance levels for Fisher's exact test; <sup>##</sup>: significance levels for T-test for two independent samples ( $p < 0.05$ )

**Subtitle:** G1 = Group of students in the public school; G2 = Group of students in the private school

adequate performance or poor performance. Finally, the types of substitution processes were classified<sup>(9)</sup>, and their frequency for G1 and G2 were analyzed. The values were tabulated in a spreadsheet, and a statistical analysis was carried out. The T-test for two independent samples was used to compare the variables family income, total DUW, ND and SP, and mean DUW, ND and SP, according to conceptual field, between G1 and G2. Fisher's Exact Test was used to compare the variables age group, gender, percentage of students with adequate performance, and classification of substitution process between G1 and G2. All statistical analyses were performed using the software Bioestat 5.0 (2007), with significance level of 5% ( $p < 0.05$ ).

## RESULTS

Regarding the occurrences of Designations by Usual Words (DUW), Non Designations (ND), and Substitution Processes (SP) for G1 and G2, DUW scores in G1 (77.71) were lower than in G2 (98.60), and the difference was significant (0.003). Such finding revealed that students in the public school usually named fewer words than students in the private school. In addition, the occurrence of ND, in both groups, was lower than the occurrence of SP, that is, children rarely failed to designate the object. In general, when children did not perform DUW, they performed a substitution process (Figure 1).



T-test for two independent samples ( $p < 0.05$ )

**Subtitle:** G1 = Group of students in the public school; G2 = Group of students in the private school; DUW = Designations by Usual Word; ND = Non Designation; SP = Substitution Process. G1 = students in the public school; G2 = students in the private school

**Figure 1.** Total DUW, ND and SP for G1 and G2

As for the mean percentage of occurrences according to conceptual field, G1 showed lower occurrence of Designations by Usual Words (DUW) than G2 in all conceptual fields, and the difference was significant. In addition, children in G1 did not name more words for all conceptual fields, except for Clothing and Furniture and Utensils, which was also a

significant difference. Finally, concerning the occurrence of Substitution Processes (SP), G1 performed more substitution processes than G2 in all conceptual fields, also with a significant difference. Table 2 presents the average of DUW, ND and SP percentages for G1 and G2 according to conceptual field.

As for adequate performance for the Designations by Usual Words (DUW) test<sup>(9)</sup>, the adequate performances were considered those reaching the reference value in each semantic field, according to the age group proposed in the test<sup>(9)</sup>. Most students, both in G1 and G2, had appropriate scores for all conceptual fields, except for the field Places, in the case of G1. Furthermore, regarding the conceptual field Food, although most students of both groups had appropriate performance scores, the percentage of G1 was lower than G2, and that difference was significant. Table 3 shows the percentage of students with adequate performance for the DUW test<sup>(9)</sup> in G1 and G2.

Regarding the occurrence of Substitution Processes (SP), all students, of both groups, performed substitutions by close co-hyponyms and cultural paraphrases. Also, the processes of change in grammatical categories, substitution by hypernym, substitution by distant co-hyponym, substitution by paronym or equivalent were performed by more students in G1 than in G2, also a significant difference. The process of valorization of visual stimulus was employed by more students in G2, and it was also a significant difference. Table 4 shows the classification of the SP performed by children in G1 and G2.

## DISCUSSION

The findings of this study revealed that the overall performance of students attending the public school in the ABFW - Vocabulary Test<sup>(9)</sup> was worse than the performance of children in the private school. However, the comparison of the performance and the expected scores for the corresponding age shows that most students, both in the public and in the private school, reached the minimum scores expected, except for the conceptual field of Places. Therefore, it is not possible to say that the vocabulary of students in public schools is outdated, since most of them had the expected scores for their age, according to the test<sup>(9)</sup>.

The difference in performance between children in public and private schools can be justified by cultural, social and economic inequalities<sup>(10)</sup>. In this study, the number of minimum wages earned by parents/guardians of students in G1 was, on average, lower than that of students in G2. A study<sup>(20)</sup> revealed that socioeconomic status influences different aspects of child development, including behaviors that are relevant to their health, learning, and socioemotional development, with effects beginning at birth and continuing into adulthood. Another study<sup>(21)</sup> found a positive association between language delay in children and low family income, with a

**Table 2.** Mean percentage of Usual Verbal Designations, Non Designation and Substitution Processes for G1 and G2 according to conceptual field

| Conceptual field             | Possibility | G1 (%) | G2 (%) | p-value |
|------------------------------|-------------|--------|--------|---------|
| Animals                      | UVD         | 84.00  | 92.67  | 0.001   |
|                              | ND          | 3.74   | 1.63   | 0.043   |
|                              | SP          | 12.26  | 5.70   | 0.001   |
| Clothing                     | UVD         | 74.15  | 90.00  | 0.001   |
|                              | ND          | 1.70   | 2.22   | 0.302   |
|                              | SP          | 25.15  | 7.78   | 0.001   |
| Food                         | UVD         | 65.87  | 82.53  | 0.001   |
|                              | ND          | 12.67  | 3.87   | 0.001   |
|                              | SP          | 21.46  | 13.60  | 0.001   |
| Transportation               | UVD         | 73.81  | 84.82  | 0.001   |
|                              | ND          | 4.29   | 1.28   | 0.013   |
|                              | SP          | 21.90  | 13.90  | 0.001   |
| Furniture and Utensils       | UVD         | 67.04  | 79.25  | 0.001   |
|                              | ND          | 7.33   | 5.83   | 0.200   |
|                              | SP          | 25.63  | 14.92  | 0.001   |
| Occupations                  | UVD         | 42.93  | 67.78  | 0.001   |
|                              | ND          | 14.88  | 10.00  | 0.043   |
|                              | SP          | 42.19  | 22.22  | 0.001   |
| Places                       | UVD         | 43.08  | 80.34  | 0.001   |
|                              | ND          | 12.17  | 5.58   | 0.003   |
|                              | SP          | 44.75  | 14.08  | 0.001   |
| Shapes and Colors            | UVD         | 68.29  | 88.89  | 0.001   |
|                              | ND          | 10.98  | 3.11   | 0.002   |
|                              | SP          | 20.73  | 8.00   | 0.001   |
| Toys and Musical Instruments | UVD         | 66.54  | 87.91  | 0.001   |
|                              | ND          | 13.10  | 8.64   | 0.042   |
|                              | SP          | 20.36  | 3.45   | 0.001   |

T-test for two independent samples ( $p < 0.05$ )

**Subtitle:** G1 = Group of students in the public school; G2 = Group of students in the private school; UVD = Usual Verbal Designations; ND = Non Designation; SP = Substitution Processes.

**Table 3.** Percentage of students with adequate performance for G1 and G2

| Conceptual field             | G1   | G2   |       |
|------------------------------|--|--|-------|
|                              | Percentage of students with adequate performance | Percentage of students with adequate performance |       |
| Animals                      | 97.6   | 100.0  | #     |
| Clothing                     | 92.7   | 100.0  | #     |
| Food                         | 63.4   | 95.6   | 0.002 |
| Transportation               | 92.7   | 97.8   | 0.344 |
| Furniture and Utensils       | 78.0   | 91.1   | 0.132 |
| Occupations                  | 90.2   | 97.8   | 0.187 |
| Places                       | 24.4   | 93.3   | 0.001 |
| Shapes and Colors            | 87.8   | 95.6   | 0.250 |
| Toys and Musical Instruments | 80.5   | 100.0  | #     |

Fisher's Exact Test ( $p < 0.05$ )

**Subtitle:** UVD = Usual Verbal Designation; # = number insufficient to run statistical test; G1 = Group of students in the public school; G2 = Group of students in the private school

**Table 4.** Classification of substitution processes for G1 and G2

| Classification of substitution processes*                                     |                  | G1 (%) | G2 (%) | p-value |
|---|------------------|--------|--------|---------|
| Change in grammatical category  | Performs         | 80.5   | 40.0   | 0.001   |
|   | Does not perform | 19.5   | 60.0   |         |
| Substitution by hypernym  | Performs         | 95.1   | 53.3   | 0.001   |
|   | Does not perform | 4.9    | 46.7   |         |
| Substitution by close co-hyponym  | Performs         | 100.0  | 100.0  | **      |
|   | Does not perform | 0.0    | 0.0    |         |
| Substitution by distant co-hyponym  | Performs         | 95.1   | 44.4   | 0.001   |
|   | Does not perform | 4.9    | 55.6   |         |
| Substitution by hyponym   | Performs         | 82.9   | 82.3   | 0.579   |
|   | Does not perform | 17.1   | 17.7   |         |
| Substitution by parasynonym or equivalent                                     | Performs         | 43.9   | 13.3   | 0.002   |
|   | Does not perform | 56.1   | 86.7   |         |
| Substitution and/or complementation of verbal by nonverbal semiotics          | Performs         | 2.4    | 0.0    | #       |
|   | Does not perform | 97.6   | 100.0  |         |
| Substitution and/or complementation of verbal semiotics by indicative gesture | Performs         | 2.4    | 0.0    | #       |
|   | Does not perform | 97.6   | 100.0  |         |
| Substitution by cultural paraphrases  | Performs         | 100.0  | 100.0  | **      |
|   | Does not perform | 0.0    | 0.0    |         |
| Substitution by designation of function                                       | Performs         | 90.2   | 84.4   | 0.317   |
|   | Does not perform | 9.8    | 15.6   |         |
| Substitution by co-hyponym attribute  | Performs         | 2.4    | 0.0    | #       |
|   | Does not perform | 97.6   | 100.0  |         |
| Valorization of visual stimulus   | Performs         | 24.4   | 86.7   | 0.001   |
|   | Does not perform | 75.6   | 13.3   |         |
| Onomatopoeia  | Performs         | 17.1   | 0.0    | #       |
|   | Does not perform | 82.9   | 100.0  |         |

Fisher's Exact Test ( $p < 0.05$ ); # number insufficient to run statistical test; \*\*Substitution process performed by all students

\*Source: Befi-Lopes DM. Vocabulário. In: Andrade CRF, Befi-Lopes DM, Fernandes FDM, Wertzner HF. ABFW: teste de linguagem infantil nas áreas de fonologia, vocabulário, fluência e pragmática. Barueri: Pro Fono; 2000. cap. 2.

Subtitle: G1 = Group of students in the public school; G2 = Group of students in the private school

higher occurrence of children with language disorders in low-income families. However, socioeconomic status is not the only factor to determine positive or negative expectations regarding children's performance. Socioeconomically favored children may have low academic performance, and children with low socioeconomic status may have high academic performance<sup>(22)</sup>.

In addition to socioeconomic status, other factors can contribute to that difference in performance, such as the human-family environment of stimulation<sup>(23)</sup>, mother's education<sup>(2,8,21,24)</sup>, and cultural diversity<sup>(8,21,25)</sup>. According to the literature, the characteristics of the way parents talk to their children contribute positively to the composition of children's vocabulary<sup>(3)</sup>, and the more educated the parents, the richer the stimuli offered to the child<sup>(26)</sup>. In addition, the more children

are stimulated in their environment, the greater the activation and access to vocabulary<sup>(27,28)</sup>.

Although the socioeconomic status suggests physical and material resources that family may provide the child with, it is always necessary to jointly analyze other factors that can affect the vocabulary performance, such as environmental characteristics, the communicative interactions experienced, and the communicative style used by parents<sup>(5)</sup>.

Other studies also verified better performance of children attending private schools<sup>(4,14,15,16,17)</sup>, which may be related to the greater incentive that private schools generally offer in terms of teachers' qualification and continuing education, in addition to broader infrastructure, with resource rooms with better equipment and more professionals.

A study<sup>(4)</sup> comparing students in the same age group

attending public and private schools also found more substitution processes in children in public schools, in comparison to students in private ones. The scores obtained in the conceptual fields of Occupations and Places coincide with those of other studies<sup>(3,4)</sup>, in which students' performance was worse in these categories. The greatest difficulty of both groups in naming the pictures corresponding to the conceptual field Occupations can be attributed to the fact that these words refer to more abstract concepts to children, which makes them more difficult to learn<sup>(4,11)</sup>.

The conceptual field Locations can be complex for children because it is usually less representative and well-known, and due to children's age<sup>(4,10,13)</sup>, the possibility of not knowing/recognizing the stimulus, and the nomination's dependence on the visual input provided<sup>(11,13)</sup>. Better performance on the conceptual fields mentioned above requires better lexical competence, since good representation and abstraction skills are necessary for the signification of these concepts<sup>(4,13)</sup>. Better performance in the categories Animals, Shapes and Colors, and Toys and Musical Instruments was also found in another study<sup>(4)</sup>.

Regarding the conceptual field Food, a lower percentage of adequate performance was observed in students attending a public school. This finding may be related to the low monthly family income of students in public schools, which prevents certain foods, such as pineapple, to be part of their diet. That may also be related to cultural and/or regional factors, such as the substitution of "*macarrão*" (pasta) by "*massa*" (lower-quality pasta). Another study<sup>(10)</sup> confirms those data, as it found regional variations, and observed that the designation of some words was different in students who lived in the city of Maceió. For instance, the nomination of the words "*balança*" (swings) and "*escorregador*" (slide) were highlighted, in the semantic field Toys and Musical Instruments.

One should consider the possible variations regarding the population when designing and applying language tests, particularly those in which vocabulary is concerned<sup>(10)</sup>. Considering vocabulary, particularly, it is always important to differentiate substitution processes that occur due to cultural differences, such as the substitution of "*privada*" by "*vaso*" (toilet); "*chupeta*" by "*bico*" (pacifier), variations observed in the regional vocabulary of children in this study.

The substitution of words by their hypernyms occurs because they are semantically easier, since hypernyms are broader terms to name an image and, thus, easier to be learned. The use of hypernyms indicates that children still perform a generalization, not using semantic features that specify the word<sup>(10)</sup>.

More students attending the public school performed substitutions by distant co-hyponyms, compared to students in private schools. Other studies also found higher incidence of this process<sup>(10,13)</sup>. The substitution of a word by another is a result of the lack of the more accurate term<sup>(10)</sup>, and children

prefer to use words in the same semantic category of the target pictures, and names based on their visual properties, considering semantic relations<sup>(13)</sup>.

There were many instances of substitution processes by hyponym among students in this study. Nevertheless, this was not found in another study, conducted with students in the same age group<sup>(10)</sup>. Moreover, a significant number of students in both groups performed a substitution process by designation of function, which may be because the child still does not have the accurate term that names the picture, but understands the function of that word<sup>(2,9,10,11)</sup>.

The process of valorization of visual stimulus occurred more frequently in students attending private schools - such process happens when the child names a component that stands out in the picture<sup>(9)</sup>. This occurred because most children in public schools mentioned the words "*comida*" (food) or "*verdura*" (vegetables) for the image corresponding to the target word "*salada*" (salad), constituting a process of substitution by hypernym, while children attending private schools mentioned one or more elements that composed the image, such as "*tomate*" (tomato), "*alface*" (lettuce), "*milho*" (corn), and "*ervilha*" (pea). A study<sup>(29)</sup> pointed that when children do not understand the image or do not know it at all, they tend to try using a random word whose concept is present in the picture to name it. Similarly, if the concept of the image was not acquired, children tend to assign them with known names of visually similar images<sup>(13)</sup>.

Finally, the high occurrence of substitution processes by cultural and/or regional paraphrases, such as the replacement of "*macarrão*" (pasta) by "*massa*" (lower-quality pasta), in both groups, revealed that regional differences can also interfere in the expressive vocabulary performance<sup>(2,10)</sup>.

## CONCLUSION

The performance of students attending the public school was worse than those in the private school in the expressive vocabulary test. However, when the performance and the test parameters are compared, the performance results of most students in the public school were satisfactory.

Considering the substitution process of words generally observed in the age group studied, the substitution by close co-hyponym and paraphrases was performed by all students, in both groups. However, processes of change in grammatical category, substitution by hypernym, substitution by distant co-hyponym, and substitution by parasyonym or equivalent were more frequently performed by students attending public schools, while processes of valorization of visual stimulus were mostly performed by students in private schools.

The study contributed in terms of the importance of school in children's semantic development, and brought light to the reflection that variables such as socioeconomic status, parents' education, resources, and the quality of environment stimulation

can influence vocabulary performance. The limitations of the study was the need to expand the sample, including a significant number of public and private schools, and to deepen the interaction among all the variables mentioned.

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