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LEXICAL-SEMANTIC PROCESSING OF NOUNS IN PRESCHOOL CHILDREN^a

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SUMMARY

The aim of the study is to determine the characteristics of lexical-semantic processing of nouns in children aged five and a half to seven years. The sample consists of 60 children, of which 30 (50%) are boys and 30 (50%) are girls. In relation to age, the sample of children is divided into three age groups with an age interval of six months. In order to research lexical-semantic abilities, the Test of speech development-Test of word definitions and the Semantic test were applied.

The results of the study show that preschool children most often produce functional definitions (31%), while the literary and descriptive definitions (18%), as well as logical definitions (17%) are almost equally represented in the answers of children.

When analyzing the results of semantic abilities, it was found that children achieve the best performance on the antonyms task, while the lowest achievement was accomplished within the synonyms task. Only on the antonyms task statistically significant differences were identified in achievement between the youngest and middle-aged group, in favor of older children ($p < 0.05$).

Boys and girls show similar tendencies in development of different abilities, measured by overall performance on all tasks, as indicated by the absence of interaction between age and sex factors ($p > 0.05$).

The importance of children's vocabulary development and its impact on school performance has been the subject of many studies. A well-developed vocabulary in children is part of their language competence and contributes to development of adequate communication skills, therefore, the linguistic indicators we used in our study represent a significant indicator of lexical-semantic development.

Key words: lexical ability, semantic ability, preschool age

INTRODUCTION

Numerous linguistic and non-linguistic factors affect the storage and processing of linguistic information in verbal communication process. At the lexical level of language production, there are three causes responsible for the success of language information processing. The first cause relates to the length of words expressed through the number of phonemes or syllables, type of words and their morphological characteristics. The second cause involves the mutual relations among the words in language corpus (e.g., frequency of words used in the text), while the third cause involves factors that influence the speed and accuracy of recalling words from the mental lexicon (eg, concreteness/abstractness of words) (Erdeljac & Sekulić-Sović, 2018).

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The development and enrichment of children's vocabulary is a timeless process. The intensity of this process is greater during period of marked lexical development and decreases over time, but never completely cease. Placing words in a relations through the creation of neural networks of the mental lexicon allows the child to reach the level of abstraction, with the knowledge that a large number of terms can be labeled with a single name, and that there are certain links between them (Aitchinson, 1998).

In Ferdinand de Saussure's theory (Saussure, 1916), one of the major dichotomy in language is division into syntagmatic and paradigmatic relations. Syntagmatic relations exist among words, whose relations are based on the linear character of language (e.g. fragrant-flowers), while paradigmatic relations occur among words that have an associative relations (e.g. glass-mirror). The most commonly studied paradigmatic lexical relations (synonyms, homonyms, antonyms, and metonyms) are also called semantic relations between words, because they are based on mutual similarity of meaning. However, in addition to the similarities that exist between words in some of these relations, there are some differences. In the case of synonyms, the difference reflects in the name for the concept, i.e. synonyms are two lexical units with the same (or similar) meaning (house-home) (Jakić, 2016). Antonyms represent two lexical units opposite in meaning (good-evil) (Crystal, 1996), while the metaphor connects two domains - source and goal, and with it, unknown can be uttered with the help of well-known, as in the example "Beware of him, he is a real fox" (Omazić & Šoštarić, 2005). Homonymy is a relation between two lexemes of the same expression but of a different meaning (palm-as a tree; palm-as a part of a hand).

The development of the word definition ability is a gradual process, beginning in preschool period and continuing throughout schooling (Al-Issa, 1969; Marinellie & Chan, 2006; Marinellie & Johnson, 2003; Storck & Looft, 1973; Swartz & Hall, 1972). In children younger than five years, definitions tend to be concrete and functional. With age, definitions become more abstract (Kikas, 1993; Skwarchuk & Anglin, 1997), which correlates with the development of their mental lexicon, as well as increasing awareness that superior terms are conventionally used in definition and organization of concepts.

Words are a crucial component of comprehension and the building blocks of language. They provide a link between a phonological (or orthographic) form and a referent, resulting in a unit of meaning that can be understood and shared between people. A word contributes to the meaning of a sentence but at the same time, the meaning of the word is in part a product of the sentence and context in which it appears. Therefore it is not surprising that children who struggle with language during development often have difficulty dealing with words. This is most obviously when a child has an impoverished vocabulary: not knowing the meaning of a particular word has clear and detrimental implications for comprehending language which contains that word (Nation, 2014).

The word definition ability as early as on preschool age is closely related to development of verbal expression, intellectual functioning, and overall academic achievement at older age. Success on word definition tasks requires not only understanding the meaning of words, but also the ability to express the knowledge clearly, which is a combination of cognitive and metalinguistic competences (Newcomer & Hammill, 1997; Nippold, Hegel, Sohlberg & Schwarz, 1999; Snow, 1990; Watson, 1995).

Numerous studies point to the fact, that development of lexical-semantic abilities is a necessary prerequisite for mastering other levels of linguistic structure. In Roth, Speece & Cooper's (2002) research, semantic development assessed through the word definition tasks was the most significant indicator of reading development. The importance of lexical and semantic abilities, as an indicators of linguistic development, has been recognized by numerous authors in their studies (Frost, Madsbjerg, Niedersoe, & Olofsson, 2005; Hammill, Mather, Allen, & Roberts, 2002). Undeveloped structure of semantic network results in limited semantic knowledge, which in turn leads to errors in naming, reading, and writing skills (de Vries, 2012; Baba, 2009). Semantic development is intense during the preschool period, continues during the school period and lasts during the adult's life. Unlike phonology and grammar, it is not completed and there are always new words to learn (Golubović, 2016, 2017).

METHOD

Considering that development of lexical-semantic abilities is intense during the preschool period, the main aim of the study is to determine the characteristics of lexical-semantic abilities in preschool children. A specific aim of the study is to determine the characteristics of lexical-semantic processing of nouns in children aged five and a half to seven years.

Participants

The sample consists of 60 children, of which 30 (50%) are boys and 30 (50%) are girls, aged five and a half to seven years. In relation to age, the sample is divided into three groups with an age interval of six months. A detailed view of children in our sample, in relation to age and gender categories is presented in Table 1.

Table 1. *Distribution of boys and girls in age subgroups*

Age	N	Boys	Girls	Average age in months
I group (5.6 – 6.0) years	20	10	10	68
II group (6.1 – 6.7) years	20	10	10	76
III group (6.8 – 7.2) years	20	10	10	81

Instruments

In order to investigate lexical-semantic abilities in children, two instruments were used:

1. *Test of speech development-Test of word definitions* (Vasić, 1991). The test consists of five questions. The child has a task to answer the questions: *What is a human? What is a mother? What is life? What is a house? What is the sun?* The examiner-speech therapist records the answers in the test form. Children's responses can be analyzed in different ways. In our study, we decided to quantitatively and qualitatively analyze the obtained answers. According to the test instructions, a category of definitions is defined for each item. After that, each definition is assigned from 0-7 points, depending on the type of definition.

2. *Semantic test* (Vladisavljević, 1983). The test is used as a diagnostic tool in speech therapy practice to examine the meaning of certain words and their associations, and thus is an indicator of child's thinking and linguistic abilities. It consists of four subtests, each subtest containing ten items. With these four subtests, the following word categories are examined: *homonyms*, *synonyms*, *antonyms* and *metonyms*. The examination is conducted individually. Before performing the test, the child is instructed and explained what is expected from him. The child's responses are analyzed quantitatively and qualitatively.

Examining procedure

The research was conducted in February and March 2020 at the Preschool institution "Čika Jova Zmaj" in Belgrade. Kindergartens in which we conducted research are from city core of Belgrade. The children from our sample have regular anatomical and functional status of the speech organs, without the presence of sensory, motor and emotional disorders. The sample consists of children who, according to data obtained from pedagogical and psychological documentation, have at least average intellectual abilities. All children in our sample are monolingual and their mother tongue is Serbian. Assessment of lexical and semantic abilities is done by individual testing of children in separate rooms, with the permission of the parents, teachers, head of the institution, as well as voluntary consent of the child. Solving tests was independent and was not time-limited. The children were instructed what they are supposed to do depending on the test, as well as an explanation from the speech therapist that these tests had no impact on their success in kindergarten activities.

Statistical methods

In addition to measures of descriptive statistics, one-factor and two-factor analysis of variance were used in data processing. Data analysis and data processing were performed using the Statistical Package for the Social Sciences (SPSS).

RESULTS

The achievement of preschool children on word definition tasks are presented in Table 2.

Analyzing the results of three age groups of children in relation to the type of definitions, it was found that children were most successful on the *What is a human?* task, since 33% of children answered in the form of *logical definitions*. In addition, most definitions that indicate higher levels of lexical-semantic development was found on the *What is the sun?* task. On this task, 16% of children answered in the form of *logical definitions*, while 22% of children answered in the form of *descriptive definitions*.

In the task *What is a mother?*, children's answers are dominated by definitions in the form of *echolalia* (eg, *Mother is mom* - 27%) and *functional definitions* (eg, *Mother is cleaning, working, ironing...* - 29%), while 6-12% of children answered in the form

of *literary, descriptive* and *logical definitions*. The largest percentage of children (62%) answered in the form of *functional definitions* on the *What is a house?* task, while other forms of definitions are found in less than 8% of children in the sample.

Table 2. *Distribution of definitions in three age groups of preschool children*

Questions	0		1		2		3		4		5		6		7		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
What is a human?	I	4	20	1	5	6	30	2	10	1	5	/	/	4	20	2	10
	II	1	5	1	5	3	15	2	10	3	15	1	5	8	40	1	5
	III	1	5	2	10	2	10	5	25	3	15	2	10	4	20	1	5
What is a mother?	I	/	/	9	45	1	5	3	15	2	10	1	5	/	/	4	20
	II	1	5	3	15	/	/	5	25	2	10	4	20	2	10	3	15
	III	1	5	4	20	1	5	9	45	1	5	2	10	2	10	/	/
What is life?	I	1	5	8	40	8	40	1	5	1	5	/	/	1	5	/	/
	II	3	15	10	50	2	10	4	20	/	/	/	/	/	/	1	5
	III	3	15	7	35	2	10	5	25	1	5	1	5	1	5	/	/
What is a house?	I	1	5	2	10	1	5	12	60	1	5	1	5	/	/	2	10
	II	1	5	2	10	/	/	12	60	1	5	1	5	1	5	2	10
	III	1	5	/	/	/	/	13	65	/	/	3	15	2	10	1	5
What is the sun?	I	2	10	1	5	3	15	4	20	2	10	5	25	2	10	1	5
	II	2	10	/	/	/	/	9	45	2	10	4	20	1	5	2	10
	III	1	5	/	/	1	5	6	30	4	20	4	20	2	10	2	10

Legend: *response categories*- 0 (NO answer); 1 (echolalia); 2 (wrong answer); 3 (functional definition); 4 (literary definition); 5 (descriptive definition); 6 (logical definition); 7 (a specific logical definition) *age groups*- I (the youngest group: 5.6-6.0 years); II (the middle aged group: 6.1-6.7 years); III (the oldest group: 6.8-7.2 years)

The lowest percentage of definitions that indicate higher levels of lexical-semantic development is found in task *What is life?*, where 96% of children answered in the form of definitions: *no answer, echolalia, wrong answer* and *functional definition*. Figure 1 shows the overall frequency of different types of definitions in children’s answers.

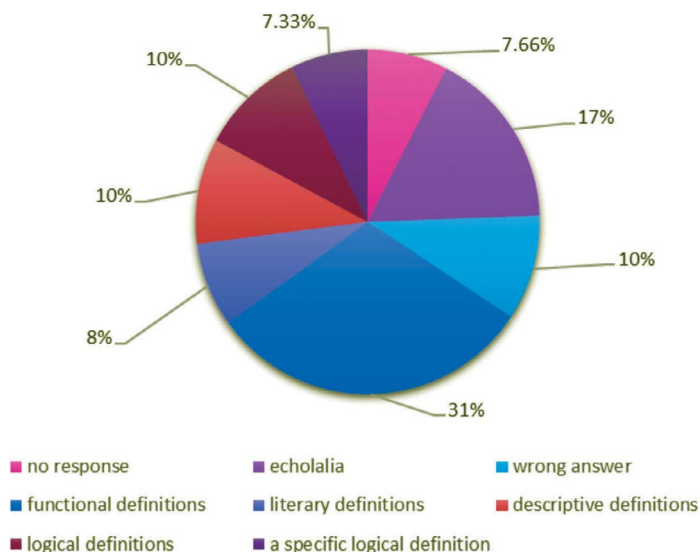


Figure 1. The frequency of different types of definitions in preschool children

The results of frequency of different types of definitions show that preschool children most often produce *functional definitions* (31%), while *literary* and *descriptive definitions* (18%), as well as *logical definitions* (17%), are almost equally represented in children's answers. Lower levels of lexical-semantic development were found in the form of definitions: *no answer* (7.66%), *echolalia* (17%), and *wrong answer* (10%). Table 3 shows the results of developmental trend on Word definition tasks in three age groups of preschool children.

Table 3. *Developmental trend of word definitions in preschool children*

	M	SD	Min	Max	F	df	p
I group	14.65	6.54	1	26			
II group	16.20	4.43	11	26	0.96	2	0.38
III group	16.95	4.83	7	27			
Boys	16.70	5.53	7	27			
Girls	15.17	5.12	1	25	1.23	1	0.27

These results show that different forms of definitions do not differ significantly in three age groups of children ($p > 0.05$). In addition, there were no statistically significant differences between boys and girls achievement on Word definition tasks ($p > 0.05$).

Analyzing the results obtained using percentile rankings, the correct answers of children are divided into four categories - up to the 25th percentile - *the lowest achievement*, up to the 50th percentile - *the average lower limit*, to the 75th percentile - *the average upper limit* and above 75th percentile - *the highest achievement*. Children that are at or below the 25th percentile have up to 12 points, the 50th percentile is at 16 points, while children that are at or above 75th percentile have between 21 and 35 points.

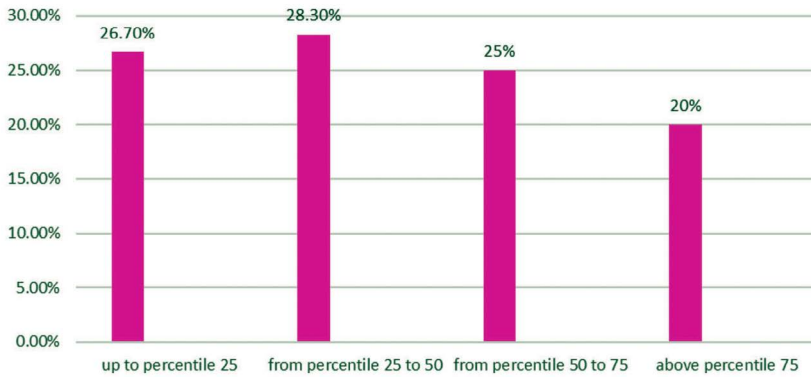


Figure 2. Children's achievement on Word definition tasks according to percentile ranks

The results of the percentile rankings show that 53.3% of children have an average achievement scores on Word definition tasks, namely: 28.3% of children at the average lower limit and 25% of children at the average upper limit. The lowest achievement scores are obtained in 26.7% of children, while the highest achievement scores are obtained in 20% of children. Table 4 shows the results of developmental trend of Semantic abilities in three age groups of preschool children.

Table 4. Developmental trend of semantic abilities in three age groups of children

Semantic test		M	SD	Min	Max	F	df	p
homonyms	I	4.87	2.64	0	9	1.40	2	0.25
	II	4.87	2.75	0	10			
	III	6.10	2.60	2	10			
synonyms	I	3.20	1.93	0	6	0.22	2	0.79
	II	3.45	1.70	0	7			
	III	3.65	2.60	0	10			
antonyms	I	4.70	2.20	0	9	3.82	2	0.02*
	II	6.00	1.53	4	9			
	III	6.42	2.33	0	10			
metonyms	I	3.52	2.41	0	9	0.75	2	0.47
	II	4.42	2.65	0	10			
	III	4.45	3.04	0	10			

Legend: age groups- I (the youngest group: 5.6-6.0 years); II (the middle aged group: 6.1-6.7 years); III (the oldest group: 6.8-7.2 years)

The data from Table 4 show that highest average scores are obtained on the *antonyms* task (5.70 points), while the lowest average scores are obtained on the *synonyms* task (3.43 points). On the *homonyms* task, the average test score was 5.28 points, while on

the *metonyms* task, the average test score was 4.13 points. The results of the study show that, relative to total sample, there are no statistically significant differences in achievement between three age groups of children on the tasks *homonyms*, *synonyms* and *metonyms*. On the contrary, on the *antonyms* task we found that middle aged group performed significantly better than youngest group ($F = 1.72$; $df = 2$; $p = 0.03$). Table 5 shows the results of total achievement in three age groups of children on the Semantic Test.

Table 5. Total achievement in three age groups of children on the Semantic test

	Semantic test				F	df	P
	Min	Max	M	SD			
I group (5.6-6.0 years)	5	32	16.20	7.54			
II group (6.1-6.7 years)	12	32	19.12	5.92	1.56	2	0.21
III group (6.8-7.2 years)	5	37	20.20	8.50			

The results of total achievement on the tasks of lexical relations: *homonyms*, *synonyms*, *metonyms* and *antonyms* in three age groups of children show that there are no statistically significant differences in achievement on all tasks ($p > 0.05$). Despite the fact that the highest scores were obtained in the oldest group of children, and that the middle aged group was more successful than the youngest group in overall achievement, this difference is not statistically significant. Table 6 shows the results of total achievement of boys and girls on the Semantic Test.

Table 6. Total achievement of boys and girls on the Semantic test

Semantic test	Boys		Girls		F	df	p
	M	SD	M	SD			
Homonyms	5.46	2.64	5.10	2.76	0.27	1	0.60
Synonyms	2.90	1.84	3.96	2.20	4.13	1	0.04*
Antonyms	5.95	1.90	5.46	2.38	0.75	1	0.38
Metonyms	3.93	2.71	4.33	2.72	0.32	1	0.57

The boys obtained the highest scores on the *antonyms* task (5.95 points), as well as the girls, who obtained slightly lower average scores within the same task (5.46 points). Homonyms and metonyms was relatively difficult tasks for all the boys and girls in the sample, since a slightly lower average scores are obtained on these tasks. In the end, the lowest scores was obtained on the synonyms task. The difference in achievement between boys and girls is the most expressed on this task, which is confirmed by the statistically significant difference, in favor of girls ($p < 0.05$).

Boys and girls show similar tendencies in development of different abilities, measured by overall performance on all tasks, as indicated by the absence of interaction between age and sex factors on the *Semantic test* ($F = 1.25$; $df = 5$; $p = 0.29$) and *Word definition tasks* ($F = 1.18$; $df = 5$; $p = 0.33$) (Figure 3 and 4).

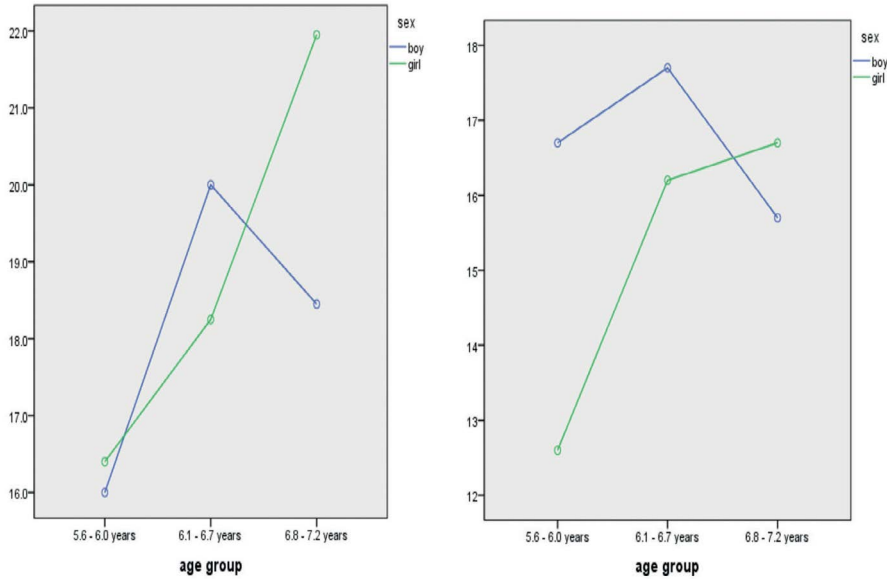


Figure 3 and 4. Sex-age interaction on the Semantic test and Word definition tasks

Analyzing the results obtained using percentile rankings, the correct answers of children are divided into four categories - up to the 25th percentile - *the lowest achievement*, up to the 50th percentile - *the average lower limit*, to the 75th percentile - *the average upper limit* and above 75th percentile - *the highest achievement*. Children that are at or below the 25th percentile have up to 13 points, the 50th percentile is at 18.5 points, while children that are at or above 75th percentile have between 24.6 and 37 points.

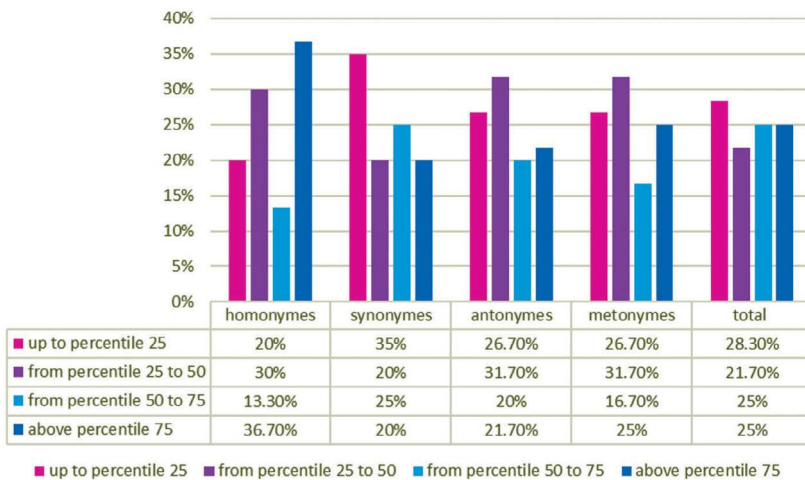


Figure 5. Children's achievement on all tasks on the Semantic test according to percentile ranks

The results of the percentile rankings show that 28.3% of the children have the lowest achievement scores, while 25% of the children have the highest achievement scores on the tasks of semantic abilities. The average achievement was found in 46.7% of the children in the sample, namely: 21.7% of children at the average lower limit and 25% of children at the average upper limit.

Analyzing the results of children on individual tasks, we found that highest percentage of children have the highest achievement scores on the *homonyms* task (36.7%). On the other hand, the highest percentage of children have the lowest achievement scores on the *synonyms* task (35%) (detailed in Figure 5).

DISCUSSION

Preschool children intensively develop the ability to define concepts - nouns, during the preschool period. In that regard, our results showed the highest percentage of *functional definitions*, as well as smaller percentage of *literary*, *descriptive* and *logical definitions* in preschool children. Categories of *functional*, *literary*, and *descriptive definitions* implies an answer that includes basic semantic characteristics for the given term, which is typical for preschool children, while *logical definitions* besides semantic characteristics also include figurative meaning, which is typical for school age (Golubović, Guberinić, Ječmenica & Živković, 2019).

Our results support numerous previous findings, that definitions of young children consist of a “mere outline, a framework of bare essentials” which is filled in as the child matures (Markowitz & Franz, 1988). Gray and Holmes (1938) reported that the word definitions of young children express action and use, and that descriptions, synonyms, and classifications are not used. Conceptan (1916) showed that children aged five and six define words on the basis of use but by the age of nine, children preferred definitions “superior to use”, such as descriptions, classifications, and specifications of material.

Piaget (1928) theorized that functional definitions were linked to the earlier, egocentric thinking of young children (through age eight) whereas logical or formal definitions were seen as an expression of the more formal or conceptive thought patterns of older children (beginning at age nine). Some research showed that functional definitions are the earliest form of definitions, predominating from age five to age nine. During that period, functional definitions slowly decrease in percentage, while abstract definitions slowly increase. By age eleven, abstract definitions are more frequently used than the other two forms. The status of concrete or descriptive definitions is not entirely clear from the research, although they appear to develop somewhat later than functional definitions and to decline before the age of nine or ten when abstract definitions become dominant (Al-Issa, 1969; Litowitz, 1977; Swartz & Hall, 1972). These findings are in line with our study results, since we found that the structure of children’s definitions does not change significantly during preschool age, and that at the age of five and a half to seven years *functional definitions* are dominant.

In preschool children, definitions are not completely informative for the communication partner, as in the case of adults, while progress during education results in development of *logical definitions* (Benelli, Arcuri & Marchesini, 1988). When

a child does produce a “good” definition, it seems to be reliable evidence that he knows that particular word quite well and can use the word for linguistic purposes (Johnson & Anglin, 1993). Consequently, many authors believe that children’s definitions provide indirect evidence of the important process of vocabulary acquisition (Nagy & Herman, 1987).

On Word definition tasks, children’s success was largely influenced by the concreteness and frequency of the stimuli tested, which is supported by the results of our research. With the exception of *What is a mother?* task, where 27% of children produced a definition in the form of *echolalia*, in our study as the most frequent and the most concrete terms *home* and *sun* stood out. Specifically, on these tasks the lowest frequency of *omissions*, *echolalia*, and *incorrect answers* was obtained. On the other hand, the highest percentage of *logical definitions* is obtained on *What is a human?* task, from which we conclude that definitions in 33% of children are at the level of younger school age for this concept.

Results of our study support findings, that ability to produce high-quality, formal definitions is not applied consistently to all nouns, even by adults (McGhee-Bidlack, 1991; Miller, 1991). Many words that are known receptively cannot be defined well, perhaps, because specific word characteristics influence the relative difficulty of the definitional task. For example, concrete nouns are easier for both children and adults to define than abstract nouns of equal familiarity (McGhee-Bidlack, 1991; Reynolds & Paivio, 1968).

High percentage of *logical definitions* suggests greater breadth and depth of children’s knowledge for a given concept. Definition is a skill that relies on linguistic knowledge. The linguistic component includes the knowledge of appropriate categorical terms as well as characteristics of a word that distinguish it from other words in the same category, while the metalinguistic component refers to the knowledge of how to define. Definition is also a skill that depends on retrieving stored words and terms in order to provide complete information that is useful to the listener or reader (Nippold, 1988). Awareness that a given concept, in addition to basic semantic characteristics also can have a figurative meaning, is part of the *logical definitions* in children and indicates a higher knowledge of semantics (Golubović, Ječmenica, & Kobac, 2018). Once a child has reached a certain level of cognitive and lexical maturity, he or she is able to define the meaning of a term by noticing its general and special characteristics, which differentiate it from other concepts (Kašić, 2002).

Development of lexical relations is most expressed on the *antonyms* task, while *synonyms* are the category in which preschool children need additional encouragement. The results of our study are in line with the fact that children first develop the ability to find a large number of meanings within a word, and then to establish other semantic relations among lexemes (Vladisavljević, 1983). Children have problems learning words when there is not a one-to-one mapping between the word and its meaning. Most interest has focused on words with overlapping extensions such as synonyms. However, children also have difficulty correctly interpreting homonymous terms even when both meanings are in their lexicon (Woodward & Markman, 1998). Beveridge & Marsh (1991) showed that six-year-olds still have difficulties, and a study by Mazzocco (1997) suggests that children’s difficulty in overriding the familiar meaning of a

homonyms persists until children are at least 10 years. The results of the research are in line with our findings, since on the homonyms task children in our sample scored an average 5.28 out of a maximum 10 points. On homonyms tasks, with no further information to guide them in their answers, children up until the age at least six often make wrong interpretations (Campbell & Bowe, 1983). Doherty's (2004) study suggests that children have genuine difficulties learning secondary meanings of homonyms, and these difficulties persist at least until the age of ten. Research shows that when the primary referent of the homonym is absent, children are quite good at identifying the intended meaning. This is the more common situation in real life, so children's actual problems with homonymy are unlikely to be serious.

One of the explanations why preschool children are not so successful at the *homonyms* task is in the fact that, children assume each meaning is represented by a distinct form. Children might therefore fail to deduce a second meaning for a known word because they assume known words cannot have second meanings (Slobin, 1985). Semantic development still continues through the school age, which in turn leads to an improvement in knowledge of the word meanings and development of metalinguistic skills. The same pattern of lexical development was found in a study of young school children. In a sample of 64 children, aged eight to ten, it was found that number of points on all lexical relations tasks, especially on synonyms task, increased with age (Golubović & Ječmenica, 2018).

According to our study results, the development of lexical relations is most expressed within the *antonyms*. Some research have found that children appreciate antonymy from very young ages and understand them quite naturally. Children from ages two to five not only use antonyms in their utterances, but that they often did so at higher type of use than the adults speaking to them. Antonymy is present in children discourse from the earliest ages (Jones & Murphy, 2005). Clark (1972) found that children as young as four could provide a correct opposite answer to some of the stimulus words, while spontaneous usage of antonyms was found in children as young as two years old (e.g., "He's a girl and you're a boy") (Jones & Murphy, 2005).

Our results are in line with previous studies, where it was found that children's accuracy on the antonyms task improves with age (Phillips, 2013). Antonyms use was always proportionally greater in child-produced speech than in child-directed speech and was also found to significantly increase in child-produced speech with age, a change that was not paralleled in the child-directed speech (Jones & Murphy, 2005). Heidenheimer (1975) found that there was a significant increase in antonyms production in a word association task between the ages of 5.3 and 5.9, but that children as young as 4.0 would spontaneously produce antonyms in this word association task, suggesting that even these young children have a nascent understanding of antonyms, or at the very least the words that form an antonymic pair are beginning to be linked to each other by these young children. Heidenheimer (1978) evaluated children in grades 1, 3 and 5 and found that children production of synonyms lagged behind their production of antonyms in a word association task, and that the production of synonyms increased significantly with age.

An explanation why children on the Semantic test in this and other research (Golubović & Ječmenica, 2018) have the lowest achievement on *synonyms* task, we looked for in Huford (2003) study. According to this author, pure synonymy is rare. By contrast, homonymy is common in languages. Markman (1989) notes a disposition in children to assume, initially at least, that no two words may overlap in meaning. Some authors have also proposed an innate *Uniqueness Principle* which prevents the child from internalizing more than one form per meaning (Pinker, 1984; Wexler & Culicover, 1980). Human avoidance of synonymy is plausibly innate, according to Hurford (2003).

By analyzing errors on the lexical relations tasks, we identified the most common types of errors: *phrase* (answer in the form of a phrase); *no + stimulus answers* to *antonyms* task; *omissions* (absence of answer); *derived answers* (phonologically similar to stimulus words, answers derived from stimulus words) and *semantic errors* (words that are semantically close to stimulus words). Since linguistic understanding depends on the complexity of child's knowledge of the meaning relations between words and the accessibility to this knowledge, in this way, we can explain the presence of errors on the *homonyms*, *synonyms*, *antonyms* and *metonyms* tasks in children from our sample. On the lexical relations tasks, it is necessary that stimulus word activate the production of other meaning related words, through the semantic network. In this way, underdeveloped connections within the semantic system lead to the production of incorrect answers in fewer children.

CONCLUSION

The importance of vocabulary development in children and its impact on school performance has been subject of many research. The lexical richness in children correlates with success in acquiring reading and writing skills. A well-developed vocabulary in children is part of their language competence and contributes to the development of communication skills, therefore, linguistic indicators we used in our study represent a significant indicator of lexical-semantic development.

As an idea for further research in this area, we suggest consideration of the factors that slow or encourage the development of lexical-semantic abilities. Factors such as school success, better communication skills, and higher levels of intellectual functioning inevitably affect lexical processing and semantic development.

Defining words, homonyms, synonyms, antonyms and metonyms are tasks in which children consciously use their linguistic capacities. Therefore, by nature, intervention for these abilities may help promote linguistic awareness. Recent research has emphasized the integral relation between linguistic skills and success in school. Given the close link between definition skills, linguistic awareness, and academic success, it is essential that investigators continue this line of research in children with typical language development and language impairment.

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