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LANGUAGE COMPETENCE OF CHILDREN ORDERING PRESCHOOL AND PRIMARY SCHOOL AGES (Based on the Russian Language)

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Abstract

Development of child linguistic competence has been a major issue in the recent decades. Results that had been obtained in previous research needed further investigation with a larger sample group and broader range of schools and child development centers. Linguistic competence is understood, in accordance with the concept of E.D. Bozhovich, as a psychological system that includes three main components: verbal experience of the child, knowledge about language, and linguistic intuition (sense of language).

The study showed the following: differences in the number of incorrect and correct answers of children in doing tasks which cover different subsystems of language result in a quantitative heterogeneous pattern; grouping of subjects by levels – high, medium-high, medium-low of language competence statistically confirmed the fact that groups with different levels of language competence differ in the number of children belonging to each group, this being true for preschoolers and students of public schools, and for different subsystems of language; the most significant differences are observed in the subsystems of phonetics, orthoepy, and syntax ($P \leq 0.01$), while in the subsystems of morphology, and vocabulary the differences are less significant ($P \leq 0.05$); individual indicators of language competence reveal a pronounced unevenness in development of different components of the system; almost every child can show results at different levels while doing tasks from different language subsystems.

Keywords: Psychological system, linguistic competence, verbal experience, knowledge about language, preschoolers, gymnasium students.

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1. Introduction

The term “linguistic competence” was introduced by N. Chomsky (1976) in the context of linguistic research (1972). The concept itself is not described here, as it is well-known. The content of this concept varies considerably in different scientific fields (Vasilevich, 1983; Gohlerner & Eiger, 1983; Slobin &.Green, 1976; Slobin, 2003, etc.). In most Russian studies language competence is associated with cognitive and communicative competences, and development of personal speaking skills (Chernov, 2013 etc.), as well as with child socialization processes.

In this study, linguistic competence should be interpreted as a psychological system including three basic components: personal speech experience, linguistic knowledge, and linguistic intuition - sense of language (Bozhovich, 2002). The concept of a psychological system is used in a sense that was introduced by L.S. Vygotskij – as an indivisible unity of some functions and/or complex formations (1982). The system develops and functions primarily through changing connections between its components.

Speech experience is a process and the result of using a native language for communication, cognition, and activity. It also includes empirical generalizations, i.e. prescientific knowledge about language. This knowledge - sometimes unconscious - has an everyday form, but corresponds to scientific knowledge. This fact is confirmed by the child’s abundant word creation, questions about the meaning of different words, corrections of “mistakes” in adult speech, etc. First elementary and empirical linguistic knowledge derives from speech experience. Consequently, there are reasons to think that linguistic competence primarily develops as a system.

Rigorous linguistic knowledge is acquired by the child at school in the process of systematic studying. Linguistic intuition begins to develop on the basis of communication experience and knowledge about the language.

Before school development of different language aspects, such as grammar, vocabulary, and prosody, is generally neither even nor simultaneous (according to A.N. Gvozdev, N.A. Rybnikov, S.N. Tseitlin). If one of the aspects is underdeveloped, it may cause a delay in the formation of the others. For this reason, it is important to perform diagnostics of linguistic competence among preschoolers in order to correct linguistic development in time. Moreover, comparing linguistic competence of children before school and in the first school year is essential for capturing effects of assimilating scientific knowledge about language.

In the previous study empirical data was obtained in one kindergarten and one school. By now, we have greatly expanded the experimental basis of our research (kindergartens, child development schools, gymnasia) and increased the sample group from 70 to 286 individuals. We performed comparative analysis of children’s linguistic competence in different educational environments.

2. Problem Statement

This work is a comparative analysis of language institutions.

3. Research Questions

The study was conducted in kindergartens, child development centers, schools and gymnasiums. Participants were preschoolers (5,9 – 6.6 years, n = 169) and first graders (6,8 – 8 years, n = 117).The level

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of language competence of children belonging to various age groups was determined by diagnosing development of this system with regard to phonetics, orthoepy, morphology, vocabulary, and syntax. A number of special methods were used for this purpose.

4. Purpose of the Study

The results of the preschoolers can be regarded as an indicator of their willingness/unwillingness to study; the results of the schoolchildren reveal the need for individualization and differentiation of teaching methods in order to develop a child as a native speaker.

5. Research Methods

The testing of linguistic competence of preschoolers and first graders is based on the following principles:

1) The use of both well-known and new methods to estimate the ability of a child to articulate small linguistic units in bigger structures. For higher levels - the use of methods of doing the tasks, where a child had to perform practical operations, supported by direct perception of linguistic material and empirical knowledge (articulation of a certain word or words from a statement, a text; morpheme from a word, etc.).

2) The use of methods with tasks to be done by analyzing linguistic material from a certain point of view (true/untrue to standard, comprehension, etc.). In this case, a child resorts to his or her experience, empirical knowledge and language intuition (“sense of language”).

3) Comparative analysis of results obtained by different methods as a foundation for providing a complete picture of individual and age variation regarding linguistic competence of children just before their going to school.

The following parameters were used for estimating individual and age peculiarities in development of linguistic competence: a) successful solutions of particular linguistic problems; b) types of mistakes made by children in the process of doing the tasks; c) the degree of variation in levels of the competence relating to different language subsystems.

The study employed 4 methods corresponding to the four aspects of language: “Hide-and-seek of sounds”, “Correct the mistakes”, “Meaning of a word or a phrase”, and “The number of words in the sentence”.

The method “Hide-and-seek of sounds” is used for testing phonetic hearing. A researcher reads out words, while the child has to articulate a certain sound. Four sounds were used in the experiment: two vowels and two consonants. We asked a child to say a word with the stress on the sound and then to pronounce the sound separately. We classified the answers into three groups: “correct”, “unclear”, and “incorrect”. “Unclear” answers are those when a child pronounces the sound together with the next or the previous one, i.e. the whole syllable.

The method “Correct the mistakes” (Bozhovich, 2002) is intended to test a child’s mastering of orthoepic and word-formation standards. The linguistic material determines the method of word-formation used by children at preschool age. The task for the child was to find possible mistakes in words and phrases that were read out by the researcher. The material includes not only incorrect, but also correct word constructions, word combinations, and phrases.

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The method “Meaning of a word or a phrase” (Bozhovich, 2002) is used for testing passive and, chiefly, literary vocabulary. The researcher reads out a short story with intervals between sentences. According to the instructions, if the child hears an unknown word, then he or she has to interrupt the reading and ask the adult to explain the word. After the reading, the researcher asks questions about the meaning of certain words from the text. (The set of words was not dependent on the child’s questions). When the child gave an interpretation that was adequate for the meaning of a word, it was considered a correct answer. Interpretation could include not only a verbal component, but also gesticulation.

The method “The number of words in the sentence” (Bozhovich, 2017) [The method is borrowed from the works of A.R. Luria in 1946, but significantly modified by E.D. Bozhovich] is used for testing how well the child understands the word composition of a sentence. Elementary counting skills are required from children for this experiment. The task is to specify the number of words in a sentence (read out by the adult), and then articulate each word. The right answer is the correct articulation of all words, including categorematic and syncategorematic words. Altogether, the researcher reads out six sentences of different length (from 2 to 6 words) and of different difficulty - to understand their lexical composition.

The sample group included: children attending a kindergarten (5.9–6.6 years – 78 children); children attending child development centers (6–6.6 years – 91 children); first graders of a public school (6.8 to 8 years – 70 children); first graders of a linguistic gymnasium (7–8 years old – 47 children). Total sample group included 286 people.

6. Findings

The results of the experiment performed using the first method are shown below (Table 1).

Table 01. “Hide-and-Seek of Sounds” task results (%)

Age group	**Experiment results**		
	Correct answers	**“Unclear” answers**	**Incorrect answers**
Preschoolers (kindergarten)	76,2	7,2	16,6
Preschoolers (child development centers)	72,2	4,2	23,6
Students (public school, 1st gr.)	87,6	6,3	6,1
Students (gymnasium, 1st gr.)	95,7	1,2	3,1

The differences in the results of phonemic task performance by preschoolers and school students of the first grade are quite obvious. However, the difference in responses of preschoolers attending various educational institutions and in the responses of students from various types of schools is small. This is due to the fact that kindergartens and child development centers use the same training program for distinguishing sounds. Also, reading-skills development programs at public schools and gymnasiums follow the requirements of the unified national standard. In addition, the children entering public schools and gymnasiums already have some experience of reading, which expands and improves during their further studies.

The biggest challenge for the subjects is the selection of the vowels “o” [o] and “a” [a] in the stressed position and the consonants “c” [s] and “sh” [ʃ] (the sound “ш" in Russian), followed by a vowel. The

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children in these cases do not recognize the syllable in which there is a specific sound. It seems that "unclear" answers are determined by two correlated factors: a) the influence of the linguistic system (an open syllable dominates in Russian language); b) the experience of saying and "singing" a word by syllables. The reasons are objective, but the strength of their effect is different in different cases. The percentage of incorrect answers in the preschool group is three times higher than in the school group.

Qualitative analysis of the children's mistakes revealed some peculiar types. In most cases, the incorrect answers in the school group were those with children denying the presence of a tested sound in a word in which the tested sound actually occurred. In the preschool group, there were two additional trends. The first trend was that children confused hard varieties of dental fricative consonants with each other (in Russian "с" [s], "з" [z], "ц" [ts]); an affricate "ч" [tʃ] with a prepalatal hushing sound "ш" [ʃ]. All these sounds appear later in ontogenesis, because a child needs more developed organs of articulation (Gvozdev). Thus, the results of the test being mostly high, qualitative differences are caused by a child's competence. Answers of preschoolers are generally based on sensory-motor experience (conscious empirical generalizations of phonetic material are very rare at preschool age). First-graders control their experience with their school knowledge. The second trend of phonematic mistakes in the preschool group was that many children gave a correct answer about the tested sound as being present in a word, but could not articulate that particular sound.

The next part of our analysis was the results obtained using the method "Correct the mistakes" (Table 2, p.7).

Table 02. "Correct the Mistakes" task results (%)

Age group	**Experiment Results**					
	Correct answers		**Incorrect answers**			
	Detected and corrected mistakes	**Adequate response to the correct material**	**Detected but not corrected mistakes**	**Undetected mistakes**	**Detected mistakes replaced by new ones**	**Detected mistakes in the correct material**
Preschoolers (kindergarten)	24,5	16,4	16,0	38,8	1,8	2,5
Preschoolers (child development centers)	28,5	16,2	20,5	15,3	17,5	2,0
Students (public school, 1st gr.)	38,6	17,9	14,2	28,0	0,4	0,9
Students (gymnasium, 1st gr.)	53,3	16,5	8,1	21,3	0,8	0,0

As it can be seen, students of public schools and gymnasiums are more successful in detecting and correcting the mistakes than preschoolers. There are no differences in the adequate responses to the correct words and phrases and in specifying non-existent errors between the tested of all categories. As for correcting mistakes, only kindergarteners are significantly less successful than children from other groups. Inability to correct mistakes and making of new mistakes in the process of correcting mistakes is more typical of preschoolers than students from public schools and gymnasiums. Diversity of the data can be

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explained by the fact that children's speech errors are corrected by educators, yet targeted analysis of mistakes when expressing one's thoughts is not provided by educational programs.

Incorrect answers are classified into four categories. The first category is "Detected but not corrected mistakes". We divided mistakes of this category into four types: 1) change of a grammatical construction, i.e. the replacement of a settled part of speech, tense, gender, number, person, voice; 2) sound analogy mistakes, which can lead to semantic distortion of the word; 3) mistakes of misunderstanding a word or a phrase; 4) "sensitivity" to a mistake, but inability to correct it. The last type of answers is not completely incorrect, because the children are "sensitive" to breaches of standards, but cannot find such breaches. These cases are a good demonstration of linguistic intuition as an unconscious and unproductive response of a language speaker to an unusual and incorrect structure.

The "Undetected mistakes" category includes two types of mistakes: 1) interpretation of an incorrect version as a correct one; 2) detection of a non-existent mistake in the experimental material.

The category "Detected mistakes replaced by new ones" has the lowest percent. The possible reason of these mistakes is a wish not to leave a question of the researcher without and answer while ignoring correct word-constructions.

What is common to all the groups is their orientation towards semantics of linguistic units, though there are no semantic mistakes in the material; hence there is no cause for such orientation and its naïve-semantic reactions. Some peculiarities of mistakes that are introduced into the correct material by children are: changed constructions from negative to affirmative ones, additions of seemingly incomplete word-combinations, and explanations of negative constructions. The semantic orientation in linguistic material is the top priority of every language speaker, which is confirmed by studies of D.N. Bogoyavlenski, A.M. Orlova, E.D. Bozhovich, and others. This orientation appears to be the one most closely connected with speech experience. A speaker primarily realizes meanings and significance, but not always controls structures of his or her speech when perceiving and/or uttering statements.

The quantitative analysis of children's success in word explanation is shown below (Table 3,p.9).

The data obtained with this method is, to a certain extent, associated with the data presented in the previous table, because the correction of speech errors and understanding of the meaning of words and phrases are closely related to each other. The lowest results were shown by kindergarteners, with the highest one delivered by gymnasium students. In our opinion, this is not only due to educational factors, but also to the different experience in using the language by children of different ages.

Table 03. "Meaning of a Word or a Phrase" task results (%)

Age groups	**Experiment results**			
	Correct answers	**Unclear answers**	**Incorrect answers**	**Absence of an answer**
Preschoolers (kindergarten)	28,2	17,1	33,9	20,8
Preschoolers (child development centers)	37,5	19,8	27,4	15,3
Students (public school, 1st gr.)	40	24,1	27,3	8,6
Students (gymnasium, 1st gr.)	79,8	15,2	5,0	0,0

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We would like to dwell in more detail on interesting differences between two groups of children. The children were explaining a phrase “a live creature” in the sentence “Do not touch a live creature until you see it is not dangerous”. Preschoolers and first-graders were equally successful in its interpretations. There were two types of answers in the preschool groups: 1) an example of one or more live creatures; “a rat”, “a mouse”, “a cat”, “a dog”, “a wolf”, and so on; 2) explanations of the predicative nature: “crawls”, ‘moves”, “finds food for himself”, “eats”, “drinks”, “stirs”, and so on. A different scenario was observed in school and gymnasium groups. In addition to the above-cited types of answers the students gave one more type, which can be illustrated by following examples (Here and below the translation of the child’s answers are close to their original Russian versions): “is not made by man’s hands”, “animated”, and “it has a soul”. Moreover, the answers of first graders cannot be clearly classified into two types, because some of them combine nominative and predicative aspects of explanation: “it is alive, it can crawl… like an ant”, “…something you or bites…”, “…something like a beetle that bites, …something dangerous”, “…it is alive… it can something”.

The general conclusion of the results of the test method “Meaning of a Word or a Phrase” is that the progress in developing linguistic competence at school and gymnasium (in comparison with the preschool age) can be estimated by qualitative analysis of the data against the background of slight quantitative changes.

The last method delivered the following results (Table 4).

Table 04. “The Number of Words in a Sentence” task results (%)

Age group	**Experiment results**	
	Correct answer	**Incorrect answer**
Preschoolers (kindergarten)	44,8	55,2
Preschoolers (child development centers)	75,0	25,0
Students (public school, 1st gr.)	83,3	16,7
Students (gymnasium, 1st gr.)	90,8	9,2

Gross differences in defining the verbal composition of the sentence were observed only between the children attending the kindergarten and those attending child development centers. This is due to the fact that child development centers use special game-based learning methods of recognizing single words in the structure of an utterance. (Sohin, 2002). There is only a slight difference between the results of public school and gymnasium students. In general, the results of first-graders are higher than the results of preschoolers, which is related to the training and initial stages of written language acquisition.

Preschoolers and students of public schools and gymnasiums make mistakes of the same types, their results differing only in the number of mistakes. Similar data was obtained in a research guided by A. R. Luria (1946), later - S. N. Karpova and I. N. Kolobova. Our study replicated the previous results.

We will dwell on specific problems with some tasks in the order of increasing their difficulty.

The sentence “A kitten plays with a puppy” has the highest number of incorrect decisions in the preschool groups. Many incorrect answers appeared when the children analyzed the sentence “These are your toys, these are my toys, these are our toys”. In this task the influence of naïve semantic orientation on

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a child's answers is extremely clear. A good illustration is the answer "three words in the sentence: your toys, my toys, ours" (with the stress on the marked words).

Thus, a qualitative analysis of the identified errors using the four methods shows different success in performance of the tasks within all groups of the subjects. The significance of the differences requires statistical evidence. We divided the group into five subgroups, based on the grouping techniques used in statistics (See the techniques of division into groups in Lakin, 1980). We used the following names for the subgroups: "high", "middle high", "middle", "middle low", and "low". The following table displays their composition.

Table 5 shows the results of the experiment, had conducted by E. D. Bozhovich and E. I. Kozickaya as an example of grouping the data by levels of completing all the tasks.

Table 05. Quantitative Composition of Sub-Groups (%)

Subgroup	**The number of children**							
	Hide-and-seek of sounds		**Correct mistakes**		**Meaning of a word, a phrase**		**The number of words in a sentence**	
	Preschool	**School**	**Preschool**	**School**	**Preschool**	**School**	**Preschool**	**School**
High	22,8	5,7	5,7	8,6	2,9	2,9	11,4	51,4
Middlehigh	34,3	5,7	17,1	40,0	20,0	45,7	25,7	25,7
Middle	28,6	17,1	37,1	31,4	28,6	37,1	22,8	14,3
Middlelow	8,6	2,9	31,5	17,1	45,7	11,4	17,1	5,7
Low	5,7	8,6	8,6	2,9	2,9	2,9	22,8	2,9

We used the chi-square (χ^2) to find the significant differences in quantitative composition of the preschool and school subgroups and inside every group. The largest percent of first-graders belongs to the "high" group according to their level of phonematic hearing and analysis of sentence composition, and to the middle-high and the middle groups according to mastering pronunciation standards, word-composition, form-composition, and vocabulary. Inside the group, the differences between the subgroups vary in the range $\chi^2 = 4,9 – 18,375$, the critical values being 3,84 - 6,35 and $p \leq 0,05\text{-}0,001$. The preschool group is more homogeneous with respect to the linguistic competence according to different linguistic subsystems. On the whole, the preschoolers belong to three middle subgroups. However, these subgroups are significantly different from the high subgroup and from the low subgroup in phonematic hearing, orthoepic competence, and vocabulary. The range of differences is $\chi^2 = 4,083 – 11,529$ with the same critical values.

We specifically analyzed the possibility of every child to belong to different subgroups. It was found that one and the same child could have the low level of phonematic hearing, the middle level of mastering orthoepic standards and word-composition, the middle-high level of passive vocabulary, and the high level of analyzing sentence composition. Other children may have different ratios. Therefore, language competence develops unevenly in relation to different aspects of the language system.

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7. Conclusion

The research has resulted in the following conclusions:

1. The development of preschool and school children's linguistic competence is not even with the respect to the phonetic, morphological, lexical and syntactical subsystems of language. Specialists should take into account the data of different levels of linguistic competence while preparing the curriculum for a group of students. It is impossible (and unnecessary) to equalize levels of the linguistic competence. However, it is possible to avoid poor mastering of some linguistic subsystems by monitoring a student's growth.

2. The main difference between the experimental groups is that of quantitative composition of three middle subgroups. An "average student" at school is closer to the high level in his or her development, while an "average" preschooler is closer to the low level.

3. Types and distribution of children's mistakes indicate a significant individual variability in using empirical knowledge acquired through communication experience.

According to our classification of subgroups it is quite possible that:

1. Children of the first ("high") subgroup are ready for school in terms of their linguistic competence level.

2. Children of the last ("low") subgroup are either not ready for school in terms of their linguistic competence level, or have limited abilities to master school material, which is closely connected with speech and thinking; these children need substantial correction of linguistic competence with respect to several linguistic subsystems.

3. Children of the middle groups need correction, but it should be focused on certain linguistic subsystems.

The future research is planned as a long-term experiment embracing the last two years of preschool education and the first years of elementary school.

7.1. Limitations.

The following limitations apply to our study. Firstly, the diagnostics of the children's language competence were performed in the early 2000s, and it is advisable to re-perform them today due to the education reform in Russia. Secondly, we plan to expand the number of children participating in diagnostic experiments. Thirdly, in addition to diagnosing the language competence of children living in Russian-speaking environment, it is desirable to do it for bilingual children and Russian-speaking children living abroad.

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