

ICPE 2017
International Conference on Psychology and Education

**PRESCHOOLERS' COMPETENCE IN PHONETIC AND
SYNTACTIC ASPECTS OF NATIVE AND FOREIGN LANGUAGE**

Elena Bozhovich (a)*

*Corresponding author

(a) Psychological Institute of the Russian Academy of Education, 9 bld. 4, Mokhovaya st., Moscow, Russia,
elenabozhovich@inbox.ru, +7 (909) 644-7559

Abstract

This article examines correlation of Russian and English language competence levels among preschoolers. The competence level of children was determined by their success in completing relatively simple phonetic and syntactic tasks. The tests were conducted on an individual basis using methods, developed in Russian pedagogical psychology by N.I. Gutkina and A.R. Luria (both methods were modified by E.D. Bozhovich). In addition, a paired comparison matrix was made based on correctness of the way children pronounced familiar English words, clichés, and short sentences. The statistical analysis was performed using Spearman's rank correlation. The study involved two age groups of children attending kindergarten where English was taught (N= 71; 35 children aged 5.7-6.3 and 36 children aged 6.4-7). The results included the number of correct solutions provided by children doing the tasks, and types of mistakes made by them, while the qualitative analysis aimed to determine the mechanisms used by a child in doing those tasks. The study has shown a significant connection to exist between competence levels in the Russian and foreign language in terms of phonetics and syntax. However, the mechanisms of intellectual activity shown by children belonging to different age groups are different when working with linguistic materials in Russian and in English. These differences are driven by the two key factors: a) communicative experience of children obtained in their native language environment; and b) certain characteristics of English-teaching methods as prescribed by preschool training programmes. The suggested testing methods can be used both for preschool and primary school.

© 2017 Published by Future Academy www.FutureAcademy.org.UK

Keywords: Language, linguistic competence, verbal experience, phonemic hearing, preschool age, methods of learning.



1. Introduction

The history of studying foreign languages (both extinct and existing) in Russia has been long and intricate. The educated part of our society admitted that knowledge of both extinct and existing languages was culturally valuable. Aristocratic families communicated in German (XVII century) and French (XVIII-XIX centuries) as their main language. Foreign male and female tutors were hired for training children. The Russian classical pedagogical school also considered foreign languages important in child up-bringing. However, as early as in XIX century disputes arose in the educated community as to whether it was worth teaching children a foreign language from infancy. Some claimed that, in the first place, a child must be taught to think in and speak his or her native language well enough, and only after that a foreign language can be introduced. Others said that it is at an early age that a child easily masters different language systems.

In the middle of the XX century, N. Chomsky (1965, 1976, etc.) — a leading researcher of language competence — explained that the quickness and ease of speaking skills acquisition in childhood was due to "innate knowledge" about language. N. Chomsky was not alone in claiming this innateness of human linguistic abilities. N. Gardner (1999) also places linguistic intellect among innate biopsychological abilities. At the same time, he connects the mechanisms of its development and operation both with training and the level of other personal competences.

The optimum period for teaching a foreign language was under dispute for a long time. At first, however, it was examined without a definite scientific context and its two main factors: a) the makings of speech development with respect to various subsystems of language (including phonetic and syntactic ones); and b) correlation between processes of acquiring the native and a foreign language.

Let's briefly dwell on the first factor. The second one is relevant to the objective of our study, so it will be examined separately, based on the empirical evidence.

The ontogeny of speech was studied extensively by global psychological science from late XIX century and throughout the XX century. It was found, that makings of speech development emerge in the pre-verbal period, starting from a baby's voice responses and their other, more complicated, variations, such as cooing and babbling. The system of sounds, functions of vocalisations made by a child, as well as their connection with the need to communicate and express oneself are described in many works of Russian researchers, including: V.V. Zenkovskiy, V.V. Vetrova, E.I. Isenina, M.I. Lisina, etc. Phenomena of the pre-verbal period in infant development were explored in some foreign studies (Cruttenden, 1985; Bloom, 1995). Functions of vocalisations were also examined (Bloom, Russell, Wassenberg, 1987), so were the conditions for boosting them into existence (Legerstee, 1991; Rheingold, Gerwitz, Ross, 1959, and others). As for the babbling period, the "babble speech" metaphor is used (White, 1995). These phenomena are the makings of further development of the language competence in its phonetic aspect. However, such development starts for real only after words and phrases appear, and sounds of the language become a means for a child to differentiate meanings.

The line of speech development is usually described as moving from lower to upper language levels, i.e. from vocalisations to sounds, from sounds to words, and from words to utterances. Semantically, a child actually reverses this order: from weird inseparable pre-verbal utterances (made from sound and motor symbols) to the word as a component of an utterance. The child does not need

isolated words as such. This need arises in connection with a communication objective and communicative situation. A word or syntactic structure is selected in connection with "communicative choice" (Ervin-Tripp, 1973), orientation towards interlocutors, and the communicative situation (Lieberman, 1977; Bloom, 1990, 1993). Over the period of childhood, the communicative function of speech differentiates itself into several branches, which also makes the syntax of speech more complicated. Therefore, the makings of mastering the syntax of the language are to be found within the syntax of speech (Brown, 1973; Brown & Bellugi, 1964; Tomasello, 1992, and others).

It should be noted, that the sound aspect of the language becomes a subject of children's observations and empirical conclusions from about the age of three: they can notice that some word pairs differ only in one sound which accounts for their semantic identity, euphony, cacophony of separate words, etc. This does not work for syntax: children do not compare structures of separate phrases, don't ask questions about them, seldom detect their syntactic mistakes and inaccuracies in phrase-building of the others. For this reason, phonetic and syntactic competences have different origins in the native language, which can impact learning of the second (foreign) language.

2. Problem Statement

The problem statement for this study is: What is the correlation between native and foreign language competence of preschoolers?

The problem called for action due to shortage of information about quantitative and qualitative differences in Russian and foreign (English) language acquisition at preschool age. In this study, we have focused on two language sub-systems: a phonetic and a syntactic one.

3. Research Questions

This study pursued the following objectives: 1) to determine how well children identify certain sounds in Russian and English words; 2) to determine how well children identify lexical composition of sentences in Russian and English; and 3) to perform a comparative study of the obtained data.

4. Purpose of the Study

The purpose of the study was: to explore general characteristics and peculiarities of the way Russian-speaking preschoolers did the tasks involving native and a foreign language phonetics and syntax.

5. Research Methods

The study involved two groups of children who attended a kindergarten, where English was taught. The first group included 35 children aged 5.7- 6.3, the other one included 36 children aged 6.4-7; N=71. For the junior group, it was the first year of learning the English language; for the senior group, it was the second year.

The study employed 2 methods corresponding to the two aspects of language: “Hide-and-see of sounds” and “The number of words in the sentence”.

The method “Hide-and-see of sounds” (Gutkina) 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 “The number of words in the sentence” (A. Luria) 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.

Both methods were used with modifications made by E.D. Bozhovich.

In addition, a paired comparison matrix was made based on correctness of the way children pronounced familiar English words, clichés, and short sentences. After ranking the test subjects by this parameter the results were compared with the data obtained using the first method.

6. Findings

6.1. Results of measuring child competence in phonetics

The first method, “Hide-and-see of sounds”, provided the following results (Table 01).

Table 01. Sound Identification Results (%)

Children's responses	Russian variant of the method			English variant of the method		
	Age		Avg.	Age		Avg.
	5.7 - 6.3	6.4 - 7		5.7 - 6.3	6.4 - 7	
Correct answers	46.1	57.1	51.6	38.9	50.3	44.6
"Unclear" answers	35.3	35	35.1	34.7	32	33.3
Wrong answers	18.6	7.9	13.2	26.4	17.7	22

The table shows only slight differences in results obtained using both variants of the method. Spearman's rank correlation ratio for correct and unclear (fuzzy) answers is $r=0.99$. As for incorrect answers, the correlation is confirmed only for the group aged 6.4 – 7.

The difficulties in identifying a sound when using the Russian variant of the method are due to its position in the word and its coming into a child's own speech as part of his or her ontogeny. Vowels in the stressed position and consonants at the beginning and the end of the word — and also when a consonant is followed by another consonant — were normally recognized by children, but they were not always able to single them out, separating from the neighbouring sounds. It may be due to an objective characteristic of Russian phonetics, where open syllables prevail, so a child hears a combination of a consonant and a

vowel as a single whole. The junior group (5.7 – 6.3) found it particularly hard to identify fricative consonants [z] ([з]), [s] ([с]), [ts] ([ц]), affricate [tʃ] ([ч]), and sibilant [ʃ] ([ш]). These sounds are the last to appear in human speech. It is likely that a limited articulative experience acts as a temporary barrier for the phonemic hearing.

When using the English variant of the method, the children found it difficult to identify sounds [i], [d], and [r] in the middle of the word. Possibly, a child even failed to hear the sound in this position due to limited phonemic hearing. However, at the beginning and at the end of the word these sounds were correctly identified by many children, even though their articulation of these sounds was not perfect. The impact of articulative experience on the way children manage their tasks also manifests itself in confusion of sounds. For example, the child may be correct in saying that the sound in question is present in the word, but when trying to single it out the child substitutes it, pronouncing [t] instead of [d], or [l] instead of [r]. In this case, we may be dealing with an unstable acoustic image of foreign phonemes. No such instances were observed when using the Russian variant of the method.

Thus, the main factor in completing these tasks is not only the level of phonemic hearing, but also articulative experience. These factors are interlinked regardless of whether the language is native or foreign for a child. However, another mechanism was discovered when the children were doing the tasks in the Russian variant of the method. It is the interaction between the acoustic and visual images. Some children of the senior group (6.4 - 7) already know the Russian alphabet and can read. It appeared that when having difficulty in identifying a sound in the word, a child quickly invoked a graphical image of the word and saw the letters it contained, which helped him or her to give the right answer. Of course, interaction of the acoustic and visual images is limited to the native language at this age. Therefore, some children from this group successfully manage the tasks based on the Russian language, but are often helpless when dealing with the English language.

The paired comparison matrix showed that there was another — more general — factor influencing the way phonetic tasks were done. The comparison was based on the parameter of "good/poor" English pronunciation. However, the influence of this factor was all but simple. Children, whose pronunciation was evaluated by the teacher as being generally good, provided twice-and-a-half as many correct answers and twice-and-a-half as few incorrect answers compared to children with low teacher's evaluation (18.5% versus 7.8% for correct answers and 23.3% versus 43.2% for incorrect ones). However, this general factor had virtually no influence on unclear answers (55.3% versus 49.1%).

6.2. Results of measuring child competence in syntax

The data, collected using the second method — "The number of words in the sentence" — are shown in Table 02.

Table 02. Results of Identifying Words in the Sentence (%)

Children's responses	Russian variant of the method			English variant of the method		
	Age		Avg.	Age		Avg.
	5.7 - 6.3	6.4 - 7		5.7 - 6.3	6.4 - 7	
Correct answers	28.6	40.8	35.3	37.8	44.5	41.1
Wrong answers	71.4	59.2	64.7	62.2	55.5	58.9

As the table shows, there is little difference between the results obtained by the two different methods. Spearman's rank correlation ratio is $r=0.99$. Both groups confirmed the earlier data of missing function words (prepositions, conjunctions, articles). However, there are two notable points. 1. The results of doing these tasks are significantly lower than results obtained using the previous — phonetics-based — method, although analysing sounds in a word seems to be more sophisticated than analysing words in a sentence, which is a larger language unit. 2. The previous method demonstrated that children were a little bit better dealing with their native language than with English. On the contrary, the results of identifying words in a sentence were a little bit better with the English than with the Russian language. At first sight, this is a paradox. There paradox, however, can be explained. There are two powerful language perception mechanisms in action. One of them is associated with a child's verbal experience, while the other involves methods of teaching a foreign language at a preschool facility. Preschoolers' perception of a word in the sentences constructed in Russian and in English has some peculiarities.

There are many children who find it hard to identify separate words in a sentence. This is proved by experiments lead by A.R. Luria, in a later research by S.N. Karpova and I.N. Kolobova, professors of the Moscow State University, and afterwards by our joint efforts with E.I. Kozitskaya. A child perceives a sentence a single whole. Therefore, when a child needs to "disassemble" this whole into elements (words), he or she has to overcome the stereotypes of personal verbal experience.

And there is a co-factor: the linguistic and extralinguistic realities are intermingled in the child's brain. The sole orientation towards referential meaning of the sentence induces naive semantics. When analysing the sentence "Two cars have driven past", the girl said: "It's one word... . No, two, because there are two cars". Sometimes syntagmas (sense groups) are identified, also as inseparable fragments of the sentence. Many subjects say with confidence that a sentence "These are your toys, these are mine, these are common" has three words, and name full syntagmas. In the process of learning to identify words in Russian sentences, children progress from hearing a sentences as a whole to identifying syntagmas, and further on — to identifying words.

Acquiring the same skill in a foreign language goes in the opposite direction (given the existing system of training): from previously learned separate words, picked up by a child from a sentence by ear, through sintagmas, and to the sentence. The latter is sort of "stacked" from familiar elements. For this reason, we have better results for tasks based on the second method. When listening to a sentence for the first time, a child fails to or does not completely understand its meaning. At any rate, children can almost never quickly interpret it — only after a pause and additional questions of the tester.

7. Conclusion

The study has revealed a correlation between preschoolers' competence in their native and a foreign language with respect to both phonetics and syntax. However, the mechanisms of doing the tasks in these two languages do not fully coincide.

Ability to correctly identify a definite sound in a word depends on how well phonemic hearing is developed and on a child's own experience of articulating this sound, regardless of the age. Children form the senior group develop an additional mechanism, which is an interaction of the acoustic and visual

images of the word, producing a double effect. On the one hand, it helps to do the task correctly in the native language. On the other hand, it obscures the level of phonemic hearing, causing it to be misjudged.

The study of syntax also revealed a correlation between successful completion of the tasks with sentences which were presented in different languages. However, analysis of lexical composition of Russian and English sentences has different origins, therefore, mechanisms used for it are different too. There is a transition from hearing a sentence to its components (in the native language), and a transition from separate words to syntagmas and finally to the sentences (in the foreign language).

We believe, that the answer to the question of whether to start teaching a foreign language at preschool age is "Yes". Then, another question comes in: How to organize this training, taking into account children's verbal experience in the native language and peculiarities of their perceiving a different language system. Timely testing of native and foreign language competence level and mechanisms among preschoolers, taking into account their age group, enables a teacher both to design corrective actions and re-build methods of his or her work.

This study opens an opportunity for developing methods of testing language competence among preschoolers with respect to other language subsystems — lexical, phraseological, and semantic — using not only separate sentences, but coherent texts.

Acknowledgements

The author is very grateful to E.I. Kozitskaya, school psychologist, for her assistance in primary empirical evaluation of the methods used in this study, I.V. Lazareva for her assistance in delivering the English variant of the methods and conducting the tests, to M.V. Kapitonova, foreign language teacher, for doing paired comparisons of children while pronouncing English words, clichés, and short phrases.

References

- Bloom, K., Russell, A., Wassenberg, K. (1987). Turn taking affects the quality of infant vocalizations. *Child Language*, 14, 211-227.
- Bloom, L.M. (1990). Subjectless sentences in child language. *Linguistic Inquiry*, 21, 491-504.
- Bloom, L. (1993). Language development from two to three. *Cambridge University Press*, 514 p.
- Bloom L. (1995). The transition from infancy to language: Acquiring the Power of Expressing. *Cambridge University Press*, Ch. 1, 2-20.
- Brown, R., Bellugi, U. (1964). Three processes in child's acquisition of the syntax. *Harvard Educational Review*, 34(2), 133-151.
- Brown, R.A. (1973). The first language: The early stages Cambridge. *Harvard University Press*, 450 p.
- Chomsky, N. (1965). Aspects of the Theory of Syntax - 252 p.
- Chomsky, N. (1976). Reflections on language. *NY: Pantheon Books*. - Cop., 269 p.
- Cruttenden, A. (1985). Language in infancy and childhood. *Manchester University Press*, 195 p.
- Ervin-Tripp, S.M. (1973). Language acquisition and communicative choice. Ch.: The Structure of Communicative Choice. *Stanford University Press*, 302-377.
- Gardner H. (1999). Intelligence Reframed: Multiple intelligence for the 21-st century. *NY: Basic-Books*, Ch. 3, 27-46.
- Legerstee M. (1991). Changes in the quality of infant sounds is a function of social and nonsocial stimulation. *Fist language*, 11 (Printed in England), 327- 343.
- Lieberman, A.F. (1977). Preschoolers' Competence with a Peers: Relations with Attachment and Peer Experience. *Child Development*, 48(4), 1277-1287.

Rheingold, H.L., Gerwitz, G.L., Ross H.W. (1959). Social conditioning of vocalization in the infant. *Journal of Research in child development*, 52, 68-73.

Tomasello M. (1992). First verbs. A case study of early grammatical development. *Cambridge University Press*, 383 p.

White, B.L. (1995). The new first three years of life. *N.Y.: Simon & Shuster*, 384 p.