Введение. Современные требования к повышению качества организационно-методического обеспечения интеллектуального развития дошкольников в развивающей предметно-пространственной среде и недостаточная разработанность технологической составляющей проблемы актуализируют поиск новых педагогических возможностей, в том числе, на основе развивающего потенциала иноязычного образования детей. Разрешение данного противоречия лежит в создании полифункциональных содержательно насыщенных программ в данном направлении и их реализации в дошкольном образовательном учреждении.

Материалы и методы. Исследованием были охвачено 114 детей (по 57 человек в контрольной и экспериментальной группе) в возрасте 5,5–7,5 лет дошкольных образовательных учреждений г. Воронежа и г. Ельца. Использовались методики Л. А. Венгер, М. И. Ильиной, Р. С. Немова, Г. А. Урунтаевой для диагностики уровня образно-логического, наглядно-действенного и словесно-логического мышления. Результаты подтверждались с помощью статистического критерия χ²-Пирсона.

Результаты. Количественный и качественный анализ статистических результатов опытного обучения показал, что реализация авторской экспериментальной программы, а также создание выявленных педагогических условий активизации мыслительной деятельности дошкольника позволяют значительно повысить уровень интеллектуального развития ребенка в процессе раннего обучения иностранному языку (χ² = 13,376 > χ²0,05).

Выводы. Впервые разработана программа и выявлены педагогические условия ее реализации на основе проблемного подхода, включающего в себя различные виды детской деятельности для совместного выполнения иноязычных коммуникативных заданий и позволяющего значительно интенсифицировать развитие образно-логического, наглядно-действенного и словесно-логического мышления дошкольника в процессе проблемного обучения иностранному языку. На основе программы может быть разработан учебно-методический комплекс, способствующий совершенствованию процесса организационно-методического сопровождения интеллектуального развития детей дошкольного возраста.

Ключевые слова: экспериментальная программа, педагогические условия, проблемное обучение иностранному языку, дошкольники
V. N. KARTASHOVA, N. V. VOLYNKINA

Organizational and methodological support of preschoolers’ thinking skills development during problem foreign language teaching

Introduction. Contemporary requirements to quality improving organizational and methodological support of preschoolers’ thinking skills development in object spatial environment and insufficient development of technological aspect of the problem highlight the search for new pedagogical opportunities among them on the basis of developing potential of children foreign language education. Resolving the contradiction lies in multifunctional substantively rich program creation in this direction and its implementation in the pre-school educational institution.

Materials and methods. The study covered 114 (the control group – 57 children, the experimental group – 57 children) Voronezh and Yelets (Russian Federation) preschoolers at the age of 5,5–7,5. To diagnose the development level of imaginatively logical, visibly active and verbally logical thinking skills we used the methods of L.A. Venger, M. I. Ilyina, R. S. Nemov, G. A. Uruntayeva. The results were proved by the $\chi^2$-Pearson statistical test.

Research results. The quantitative and qualitative review of the experimental teaching statistical data proved the fact that implementation of the authors’ experimental program based on problem teaching and creation of certain pedagogical conditions for preschoolers’ thinking skills stimulation enhance significantly the level of children’s intellectual development during early foreign language education ($\chi^2 = 13,376 > \chi^2_{0.05}$).

Discussion and conclusion. For the first time a program was created and implementation conditions on the basis of the problem approach were identified. They included different types of children’s activity for joint foreign language communicative task performance and stimulated greatly development of preschoolers’ imaginatively logical, visibly active and verbally logical thinking skills during problem foreign language teaching. On the basis of the program a tutorially methodical set may be developed which would contribute to improving organizational and methodological support of preschoolers’ thinking skills development.

Keywords: experimental program, pedagogical conditions, problem foreign language teaching, preschoolers, thinking skills development

Social and economic changes in the country, dynamism of the society development, scientific and technological advance put certain demands on education. The main challenge of educational institutions is to form the personality able to take a decent place in life, responsibility, to solve non-standard situations. The contemporary training of a future member of the society is not limited by mechanical transmission of a rigid set of skills but takes a fundamentally different level of personal self-development according to the inner activity and thinking strategies which are typical and successful for the person.

Problem teaching is an important aspect of independently minded young people training. It’s necessary to start from early childhood. Unlike traditional teaching the problem one gives a child a pleasure of independent search and discovery, and what is more important, provides cognitive independence and thinking skills activity. That’s why whatever trends of the times come into educational institutions, no matter how the programs change the problem of thinking skills development, understanding of how a child perceives what he sees has always been one of the main tasks.

According to article 64 of the Federal Act “About Education” contemporary preschool education is aimed at development of a common pre-school culture, physical, intellectual and personal qualities including thinking skills [1]. In scientific literature thinking is defined as a mental process of generalized and indirect reflection of sustainable inherent properties and relations implemented for cognitive problem solution, systematic guidance in specific situations [2]. The Federal state educational standard of preschool education [3] presents the core requirements to creation of developing environment making it possible to implement different programs among them a foreign language teaching program including opportunities of problem solving in joint children and grown-up’s activity.

L. S. Vygotskyi’s idea of developing content of preschool level education aimed at revealing the child’s potential capabilities [4, p. 124] is recognized worldwide. At present its interpretation is greatly widened. Some researchers (A. G. Asmolov [5], V. V. Rubtsov [6]) believe that children learn not only from grown-ups but during interaction with each other. Others (N. N. Poddyakov) prove conclusively that children develop successfully on their own during practical exploitation and transformation of different objects [7]. This is facilitated by problem teaching arrangement the essence of which is to intensify a child’s own ways and means of thinking. Broadly speaking “a problem is a sophisticated theoretical and practical question needed to be studied and solved; in science it is a contradictory situation of opposite positions concerning the explanation of phenomena, objects, processes and requiring an adequate theory for its solvation” [8]. The main idea of the problem teaching is that the personality development occurs when there is a contradiction, things are better understood and remembered if you reveal them on your own and don’t get them as ready-made (M. I. Makhmutov [8], E. L. Melnokova [9], I. Ya. Lerner [10]).

According to V. T. Kudryavtsev the problem teaching is a type of developing teaching the content of which is represented as a system of various levels of complexity problematic tasks. Solving them learners get new knowledge and skills; through them their creativity, productive thinking, imagination, cognitive motivation, intellectual emotions are developed. The scientist notes that “the problem principle should transcend the teaching
process and spread upon the education sphere as a whole”, and goes on – “fundamental problematisation of the educational content at all the levels is considered to be the urgent task” [11, pp. 70–71]. Therefore, from V. T. Kudryavtsev’s viewpoint it is the problem that will determine education development perspectives. In a number of works (L. A. Venger [12], O. M. Dyachenko [13], L. A. Zaporozhets [14], A. N. Leontyev [15] et al) it is proved that preschoolers do not just get social experience but go far beyond demonstrating their extraordinary creativity: obtaining new knowledge on their own, revealing new ways of thinking etc. “What a child can do in cooperation... tomorrow he will be able to do on his/ her own” [4]. N. N. Poddyaakov [7] developed a methodology of preschoolers’ problem teaching. It draws upon the principle of a developing intrigue intensifying children’s thinking skills and creativity. Obtaining the system of problem knowledge consisting of two contradictory subsystems motivates a child to seek for answers to different questions. During the search children themselves experiment, sometimes make mistakes and as a result obtain new unexpected knowledge. This strategy motivates children to learn what is waiting for them the next lesson, intensifies their creativity. The researcher differentiates two types of problematism. The first type is uncertainty as an inner feature of the children’s psyche as a whole. The children’s creativity is stimulated by their need to overcome these features. The second type is uncertainty as the environment object’s feature which the child faces with during his/her life since many nature’s and culture’s objects are constantly changing. The more uncertainty the greater children’s activity is stimulated.

The problem teaching technology can be applied while working with preschoolers if the problem situation offered by the grown-ups is within “the zone of proximal development” so as the child could solve it on the verge of his/ her abilities making the best use of the intellectual, creative and motivation potential. The cooperation of a child and a grown-up in “the zone of proximal development” is carried out in a problematic situation which a child deals with due to the help of a grown-up. The problem teaching technology makes the learning process equal to thinking one. It implies not only obtaining the results of research knowledge but the way itself of it, methods of creative activity. The problem teaching technology is based on regularities of thinking psychology. When creating a new paradigm of developing preschool education in the center of which is a child particular focus is put on foreign language. Foreign language teaching makes it possible to meet the challenge of not only preschooler’s foreign language communicative skills formation, personality development but thinking skills development connected with speaking skills, self-study, the system of thinking operations and creativity, the speed of thinking processes: ability of comparing, recognizing, generalizing, making conclusions [16]. Thinking approach to preschoolers’ foreign language education identifies the need for support of profound content of preschool education level that ultimately will lead to motivating the child to move forward. In order to solve a problem children need definite methods which an educator is going to teach them. In this way teaching tasks are supposed to be introduced in the meaningful context of a child’s life.

The scientific works review [17–20] showed that as for organizational and methodological support of preschoolers’ thinking skills development during problem foreign language teaching the technological aspect is not thoroughly developed. The purpose of the article is to present an experimental program developed including special games and exercises and identification and justification of pedagogical conditions of its implementation in the pre-school educational institution.To achieve the goal three phases were passed: 1) theoretical review of the problem in scientific literature; 2) development
and implementation of the experimental program of thinking skills formation during problem foreign language teaching, identification and justification of pedagogical conditions; 3) pedagogical observation, testing, a quantitative and qualitative analysis and conclusion making.

Materials and methods

The object of the research is teaching preschoolers a foreign language. The subject of the research is thinking skills development during problem foreign language teaching. The methods applied were analysis, ascertaining and formative experiments, observation, testing, and a statistics method (Pearson's \( \chi^2 \) test). The study covered 114 (the control group – 57 children, the experimental group – 57 children) Voronezh and Yelets preschoolers at the age of 5,5–7,5. In order to diagnose the development level (high, average, low) of imaginatively logical, visibly active thinking skills as leading types of preschoolers’ thinking we employed: R. S. Nemov’s method “What is odd here?” to study the processes of imaginatively logical thinking skills, intellectual operations of analysis and generalization; L. A. Venger’s method to study thinking skills operations – synthesis and comparison of features, G. A. Uruntayeva and Yu. A. Afonkina’s method to study thinking skills operations – classification; to diagnose verbally logical thinking skills M. I. Ilyina’s test was used.

Research results

At the ascertaining experiment we found out that the level of preschoolers’ thinking skills development in the control and experimental groups was approximately equal. The results of the experimental group were the following. Only 5 children in the EG and 6 children in the CG coped with the task during 1-1,5 minutes demonstrating a high level of intellectual operations – analysis and generalization, which represented 9% in the EG and 11% in the CG. Possessing thinking skills operations – synthesis and comparison of features: 4 preschoolers in the EG and 4 preschoolers in the CG were able to make a choice on the basis of three features and call one or two ones and define the reason for their classification, which represented 7% in each group. While diagnosing the verbally logical thinking skills we found out that only 2 children in the EG and 3 children in the CG answered eight – ten questions correctly (a high level), which represented 4% and 5% accordingly.

18 children in the EG and 19 children in the CG coped with the task during 1,5-2 minutes showing an average level of intellectual operations – analysis and generalization, which represented 32% in the EG and 33% in the CG. Possessing thinking skills operations – synthesis and comparison of features: 16% preschoolers in the EG and 15% preschoolers in the CG were able to make a choice on the basis of two features and call one feature and define an essential classification feature but were not able to explain why, which represented 28% in the EG and 26% in the CG. While diagnosing the verbally logical thinking skills we found out that 14 children in each group answered six – seven questions correctly (an average level) which represented 25% and 25% accordingly.

34 children in the EG and 32 children in the CG weren’t able to coped with the task / coped with the task during 2-3 minutes demonstrating a low level of intellectual
operations – analysis and generalization, which represented 60% in the EG and 56% in the CG. Possessing thinking skills operations – synthesis and comparison of features: 37 preschoolers in the EG and 38 preschoolers in the CG were able to make a choice on the basis of one feature without calling it, weren’t able to define a classification feature even with the help of a grown-up, which represented 65% in the EG and 67% in the CG. While diagnosing the verbally logical thinking skills we found out that 41 children in the EG and 40 children in the CG answered three – five / less than three questions correctly (a low level) which represented 72% and 70% accordingly. Having received the results of the ascertaining experiment we got down to implementation of the authors’ program in the experimental group.

The content selection of the program was based on communicative and sociocultural, problem approaches, humanistic teaching principles, focusing on the child’s personality development, creation of preschoolers’ thinking skills development environment. A problem solvation lay at the core. While developing the program a particular attention was paid to creating different types of problem tasks for preschoolers. On the basis of knowledge about age-specific characteristics of children’s mental development we did our best not only to develop their thinking skills but to ensure comfortable for children’s activity emotional climate, not to have a negative effect on preschoolers’ moral and ethical and psycho-physiological features. During the experiment we identified pedagogical conditions which created the environment for a child’s thinking skills development. We assumed that “psychological and educational environment where a child’s thinking skills were developed should be problematic, judgment-free, include some uncertainty encouraging search and transformative activity, imply accepting a person as he / she is contributing to his /her creativity”.

We found out that pedagogical conditions for creating such environment were the following: 1) creation of favorable psychological atmosphere: benevolent treatment for a child of the educator that implies refusing negative judgment relating to children and active encouraging their ideas; 2) ensuring the opportunity to ask intensively questions of a divergent type by enriching the content of children’s life; 3) extensive use of questions relating to different spheres to develop children’s observation.

While implementing the program we paid a special attention to latent, real and indirect type of children’s interaction with environmental objects. The latent interaction is provided by children’s experience accumulation creating “the base of unclear knowledge” (according to N. N. Poddyakov). Obtaining spontaneous experiences cognitive intellectual communication with grown-ups outside foreign language classes (during walks, working activity, regime time). For instance, it is useful to encourage children to use a foreign language in everyday life (to count aloud plates, cups, apples etc.). While walking with children you may make such an offer to them: ”Let’s speak about flowers that decorate streets, of what kind are they?” or “Let’s count the fir-trees in the park” Real interaction occurs in a specially organized activity during foreign language lessons. Problem tasks, searchable situations make it possible to develop children’s thinking skills. Here are some examples of exercises and games implemented in the frame of the experimental program.

– To develop analysis, synthesis and classification thinking skills. The teacher puts three or four pictures with images of different objects (it is possible to use pictures of children’s lotto). The child identifies an odd picture. For instance, if there is a girl, a Teddy bear and a ball in the pictures the odd one is a ball because a girl and a Teddy bear are live, but a ball is not live.
– To develop analysis and synthesis thinking skills. Children consecutively take pictures from the lotto and describe the object depicted in them without calling it. The other player guesses by description what object it is.

– To develop analysis and comparison thinking skills. Children answer questions: “Tell me what you like and don’t like in this object or phenomena. For instance, why do you like winter, why don’t? We like it because in winter we can go sledding, have a snow fight, celebrate New Year’s day. We don’t like winter because it is cold, we have to wear warm clothes, days are short, and nights are long. Give an honest evaluation of such things as rain, an injection, a fountain pen, an alarm clock, a bow”.

– To develop analysis and generalization. Say in one word or word combination the following objects: a cup, a spoon, a plate, a fork (tableware); an apple, a pear, a lemon, a banana (fruit); a dove, a peacock, a duck, a frog pecker (birds); a dog, a cow, a pig, a sheep (animals); a chamomile, a lily of the valley, maize, a nettle (plants); winter, spring, summer, autumn (seasons).

The game «Think and say». The teacher offers children to think of and say what objects can do actions called by the teacher. For instance, if the verb is «to fly» the answers may be a bird, a butterfly, a cloud, a snowflake, and also my house, my fingers etc. There is more difficult variant when the teacher offers children to solve a set of problem situations in different ways: how to know the weather outside without coming out? Possible answers are the following: I’ll switch on the TV-set. I’ll ask my mother. I’ll open the window. (Or “How to cross the river? – I’ll take...” (as stimulating material Future Simple is used).

The game “Bad and Good”. The teacher offers the children to find in at first glance unpleasant events not only negative but positive moments: a man is late for the train; a TV set has broken; your clothes have been doused in soup; on Sunday the planned forest walk is canceled; it has been raining all day.

Lessons for preschoolers must have a positive emotional profile. Each lesson begins with creation of favorable psychological climate in the group. The teacher says: “Hello, children! I’m glad to see you at our lesson. Our parrot greets you in English. Today we are going on a fascinating journey to the country of the English language. We’ll play a lot. I want you to like our new games, to succeed in all you do; I want us to make each other happy”. Children get used to informal relations with the teacher; they wait for their teacher at the lesson. Besides teacher’s speech encouraging the children to speak a foreign language. For that the teacher uses such methods as “Butterfly flittering”, “Flight in the sky”, “Seabathing”, “Nature walk” etc. At the end of the lesson children may give and get “a present” (a flower, a doll, a car, a song etc.).

After the experimental teaching analysis and evaluation of the educational activity were carried out. According to the diagnostic results with methods employed at the ascertaining experiment significant changes in the levels of preschoolers’ thinking skills development were recorded: in the experimental group – the high level of imaginatively logical thinking skills changed from 9% to 14% preschoolers, visibly active ones – from 7% to 12% and verbally logical ones – from 4% to 5% children; the average level – from 32% to 61%, from 28% to 51%, from 25% to 49%; the low level – reducing from 60% to 25%, from 65% to 46%, from 72% to 46% accordingly.

The results of the control group stayed almost unchangeable: the high level of imaginatively logical thinking skills showed the same 11% preschoolers, visibly active ones increased from 7% to 9% and verbally logical ones stayed the same – 5% children;
the average level changed from 33% to 39%, from 26% to 30%, from 25 to 30%; the low level decreased a little from 56% to 51%, from 67% to 61%, from 70% to 65% accordingly (Figure 1).

<table>
<thead>
<tr>
<th></th>
<th>CONTR. BEFORE</th>
<th>EXPER. BEFORE</th>
<th>CONTR. AFTER</th>
<th>EXPER. AFTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERBALLY LOGICAL</td>
<td>11%</td>
<td>5%</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>VISIBLY ACTIVE</td>
<td>7%</td>
<td>12%</td>
<td>25%</td>
<td>26%</td>
</tr>
<tr>
<td>IMAGINATIVELY LOGICAL</td>
<td>11%</td>
<td>9%</td>
<td>39%</td>
<td>49%</td>
</tr>
<tr>
<td>VERBALLY LOGICAL</td>
<td>5%</td>
<td>5%</td>
<td>30%</td>
<td>37%</td>
</tr>
<tr>
<td>VISIBLY ACTIVE</td>
<td>7%</td>
<td>12%</td>
<td>25%</td>
<td>26%</td>
</tr>
<tr>
<td>IMAGINATIVELY LOGICAL</td>
<td>14%</td>
<td>12%</td>
<td>46%</td>
<td>51%</td>
</tr>
<tr>
<td>VERBALLY LOGICAL</td>
<td>5%</td>
<td>5%</td>
<td>30%</td>
<td>46%</td>
</tr>
<tr>
<td>VISIBLY ACTIVE</td>
<td>7%</td>
<td>12%</td>
<td>25%</td>
<td>26%</td>
</tr>
<tr>
<td>IMAGINATIVELY LOGICAL</td>
<td>14%</td>
<td>12%</td>
<td>46%</td>
<td>51%</td>
</tr>
<tr>
<td>VERBALLY LOGICAL</td>
<td>5%</td>
<td>5%</td>
<td>30%</td>
<td>46%</td>
</tr>
<tr>
<td>VISIBLY ACTIVE</td>
<td>7%</td>
<td>12%</td>
<td>25%</td>
<td>26%</td>
</tr>
<tr>
<td>IMAGINATIVELY LOGICAL</td>
<td>14%</td>
<td>12%</td>
<td>46%</td>
<td>51%</td>
</tr>
</tbody>
</table>

**Figure 1** The result of the experimental program implementation of preschoolers’ thinking skills development during problem foreign language teaching

To compare the results of the EG and the CG we used the $\chi^2$-Pearson statistical test which allowed to test the null hypothesis about the coincidence credibility of preschoolers’ thinking skills development level in the EG and CG. The empirical value $\chi^2$ for the EG and the CG data received at the ascertaining stage was $0,115$. $\chi^2_{cr} = 5,991$ for significance level $\alpha = 0,05$. Thus at the ascertaining stage $\chi^2 < \chi^2_{cr}$ because $0,115 < 5,991$. Therefore, the difference of results in the EG and the CG at the ascertaining stage was statistically insignificant. The empirical value $\chi^2$ for the EG and the CG data received at the control stage was $13,376$. $\chi^2_{cr} = 9,210$ for significance level $\alpha = 0,01$. Thus at the formative stage $\chi^2 > \chi^2_{cr}$ because $13,376 > 9,210$. Therefore, the difference of results in the EG and the CG at the ascertaining stage was statistically significant. Thereby the null hypothesis is declined and the alternative one about credible differences of the EG and the CG is obtained. Based on the data of the control stage of the experiment it could be stated that for all the criteria given the results of the experimental group are better than the results of the control group. Therefore, the diagnosis of the experiment practical stage as a whole demonstrated a positive dynamics of preschoolers’ imaginatively logical, visibly active and verbally logical thinking skills development during problem foreign language teaching.
For the first time the authors developed the program aimed at not only teaching children a lexical and grammatical material as the traditional approach suggests but intensive intellectual development through problem foreign language material presentation. The main idea is that the teacher creating a cognitive situation gives the children an opportunity to seek for ways of its solving using previously acquired knowledge and skills. The developed program on the basis of problem teaching intensifies children’s thinking, makes it critical, and inculcates independence in the cognitive process. Being focused on intensive preschoolers’ imaginatively logical, visibly active and verbally logical thinking skills development during problem foreign language teaching it will be more effective if certain pedagogical conditions are created for that: creation of favorable psychological atmosphere: benevolent treatment for a child of the educator that implies refusing negative judgment relating to children and active encouraging their ideas; ensuring the opportunity to ask intensively questions of a divergent type by enriching the content of children’s life; extensive use of questions relating to different spheres to develop children’s observation. As the practice proved, latent, real and indirect type of children’s interaction with environmental objects significantly contributes to preschoolers’ thinking skills development.

The received results correspond with the data obtained by Venger L. A. [12], Vygotskyi L.S. [4], Dyachenko O. M. [13], Leontyev A. N. [15] et al about the environment impact on the preschoolers’ thinking skills development carried out in everyday life, during the game; about significance of purposeful influence of grown-ups in this direction. According to Risayeva L. M. [17] early foreign language education within the dialogue of cultures must have a problem character which influences significantly the cognitive development of senior preschoolers. In this sense the authors’ experimental program and pedagogical conditions of its implementation draw researchers’ attention to the unresolved issues concerning organizational and methodological support of preschoolers’ thinking skills development during problem foreign language teaching.

Creation and implementation of a multifunctional substantively rich program concerning thinking skills development of children at the age of 5,5–7,5 provide a solution to the problem of organizational and methodological support of preschoolers’ thinking skills development during foreign language teaching. The problem teaching the children of preschool age is the foundation of their thinking skills development. Early foreign language education on the basis of the problem teaching has strong potential of preschoolers’ imaginatively logical, visibly active and verbally logical thinking skills development. The quantitative and qualitative analysis of the experimental work results made it possible to confirm the effectiveness of the authors’ program and pedagogical conditions of its implementation in the preschool educational institution.
REFERENCES

1. Federal Act “About Education”. Moscow, 2013. (in Russ.)
15. Leontyev A. N. Psychological foundations of preschool game. Psychological science and education, 1996, no. 3. (in Russ.).