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The Influence of Ways of Organizing Learning Interactions on the Development of Communicative and Reflexive Abilities of Children 6—10 Years Old

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The features of the development of communicative and reflexive abilities of children aged 6—10 years, depending on the ways of organizing educational interactions, are discussed. Basic social competencies defined by the requirements of the current Federal State Educational Standard of Primary General Education are considered as indicators of the development of abilities in the learning environment. Based on the selected indicators, a variant of the "Puzzle" diagnostic method has been developed, which allows to study the relationship between the development of social competencies in younger schoolchildren, and the joint way they perform while solving experimental problems. A comparative analysis of students' social competencies allows to prove the influence of ways of organizing educational interactions on the development of communicative and reflexive abilities of primary school children.

Keywords: communicative and reflexive abilities, social competencies, joint activity, ways of organizing educational interactions, primary school students, diagnostics.

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Влияние способов организации учебных взаимодействий на развитие коммуникативно-рефлексивных способностей детей 6—10 лет

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Обсуждаются особенности развития коммуникативно-рефлексивных способностей детей 6—10 лет в зависимости от способов организации учебных взаимодействий. В качестве показателей развития способностей в условиях обучения рассматриваются базовые социальные компетенции, определенные требованиями действующего ФГОС начального общего образования. На основе выделенных показателей разработан вариант методики «Мозаика», позволяющей изучать взаимосвязь развития социальных компетенций у младших школьников в зависимости от совместного способа выполнения ими экспериментальных заданий. Проведен сравнительный анализ социальных компетенций учащихся, обсуждается влияние способов организации учебных взаимодействий на развитие коммуникативно-рефлексивных способностей детей младшего школьного возраста.

Ключевые слова: коммуникативно-рефлексивные способности, социальные компетенции, совместная деятельность, способы организации учебных взаимодействий, учащиеся начальной школы, диагностика.

Introduction

The assessment of the development of social competencies in our national education system has not been a special task for a long time. However, in the latest edition of the Russian Standard of Primary General Education there appeared requirements for the formation of meta-subject results of primary education, and the list of meta-subject results included important social competencies. Thus, the Standard requires that a primary school should create conditions for the

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comprehensive development of students' abilities. This provision is deeply consistent with the attitudes of the cultural-historical psychological theory of L.S. Vygotsky [1], defining the process of internalization of social experience as the main mechanism of a child's mental development. "The very emergence of a mediated structure of human mental processes is a product of his activity as a social person. Initially social and externally mediated, it only later turns into an individual psychological and internal, preserving in principle a single structure" [3, p. 19]. The results of recent studies confirm that the most important conditions for internal child development are the organization of meaningful child-child and child-adult interactions unfolding in the process of performing joint learning activity [4; 5].

Social meta-subject results, as they are presented in the current Standard of primary education, are both a result and a condition for the development of basic abilities of this age, manifested in situations of social interaction, and cover several different psychological processes.

Firstly, meta-subject results impose requirements on the communicative competence of younger schoolchildren. Communicative competence includes "the active use of language, information and communication technologies as the tools to solve communicative and cognitive problems", "the willingness to listen to the interlocutor in the conversation and conduct a dialogue"; "the willingness to recognize the possibility of the existence of different points of view and the right of everyone to have their own; to express their opinion and to argue their opinion and assessment of events" [7]. Communicative competence is characterized both by communicative means and indicators. Communicative means are used in a joint solution to analyze content, transmit information, evaluate actions and results, and they can be verbal, gestural, material, etc.). Communicative indicators describe dynamic characteristics of joint activity: the use of the opponent's vocabulary, the development of a "common language", the ability to agree on common designations or techniques, the construction of schemes of joint actions and interactions. These skills allow students to hear and understand each other's speech, grasp the meaning of nonverbal communication and give an adequate response.

Secondly, meta-subject results impose requirements on the ability to organize a joint activity, participate in it and get a group result. In the Russian Standard of Primary General Education, it is formulated as: "defining a common goal and ways to achieve it; the ability to agree on the distribution of functions and roles in joint activities; to exercise mutual control in joint activity" [7]. The above actions are included in the basic set of skills necessary for the implementation of joint learning activity.

Thirdly, meta-subject results impose requirements on the child's behavior in various social situations. They include: "formation of the ability to understand the reasons for the success or failure in learning activity and the ability to act constructively in a situation of failure"; "readiness to resolve conflicts constructively — by taking into account the interests of the parties and cooperation" [7]. These meta-subject results indicate how much children, faced with a conflict situation in the process of joint problem solving, are able to resolve it meaningfully. At the same time, children develop their own opinions, exchange and compare them, analyze the points of view of each other and coordinate them in a common decision.

Any of the presented aspects of mastering social behavior include a reflexive analysis of the social situation as the most important mechanism. Thus, to develop a "common language", it is necessary to link one's vision of a common problem with the other's vision of the same problem and the way to solve it. The organization of a group work requires that each participant determines his position regarding the overall activity plan.

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Overcoming cognitive conflict presupposes the ability to see the task from the point of view of other participants, find a contradiction of positions and on this basis propose a way to overcome the conflict situation. In other words, the main social competencies that are to be formed in primary school as a way to effectively solve educational tasks necessarily include a reflexive component.

In preschool childhood, the child's social contacts with peers and adults develop spontaneously. At school, there appears an opportunity to build special forms and types of interaction of children that most effectively ensure the formation of the basics of learning activity among students. However, in the current practice of teaching, most of the educational interactions is determined, regulated, and stimulated by the teacher, and the student must respond to the teacher's initiative in a learned socially acceptable form. In the traditional teacher—student dyad, the child acts as a "guided performer" of an adult's initiatives. It means that the main structural elements of activity — it's content and motivation — remain inaccessible to the student, and it means that a child cannot form learning activity in its complete structure. The current system of education does not involve child-child interactions that is another effective developing resource. Students in the classroom with the traditional frontal form of work are only co-present, and their spontaneous attempts to interact and communicate are strictly suppressed. As the main form of interactions at the traditional lesson is a teacher-class interaction, each student has a very small proportion of interactions that also reduces its effectiveness. Thus, the most important psychological mechanisms of child development are not properly used by traditional the pedagogical practice.

In the school of developmental learning (the educational system of D.B. Elkonin—V.V. Davydov [2; 8]), children's interactions are a necessary condition for mastering the subject and meta-subject content [5]. The teacher specially and purposefully organizes various forms of group activity in which students exchange opinions, actions, control and evaluate each other, correct mistakes of partners.

Description of the research

Hypothesis and goals of research

We assumed that the teacher's organization of learning interactions in the classroom is a necessary condition for the formation of a set of competencies, which characterize the development of communicative and reflexive abilities of primary school students.

The goal of the research was to evaluate the development of communicative and reflexive abilities of students in schools with different ways of organizing learning interactions.

Method and procedure for diagnosing the development of communicative and reflexive abilities.

To assess the development of communicative and reflexive abilities, we have developed an original version of the "Puzzle" method.

In the new version of the "Puzzle" method, the task for a group of students was to assemble four simple geometric figures from pieces of a colored puzzle. At the same time, specific conditions of the implementation of the joint work make it more complicated.

These difficulties were manifested in the following:

1 — features of the group work organization:

— the puzzle elements were divided between the four participants of the group work in a way that no geometric figure could be composed independently by any participant without using elements from the sets of other partners;

— the puzzle elements were distributed among the participants in a way that to lay down a specific geometric figure, it was necessary to interact with different partners;

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— each participant could see only his own set of puzzle pieces (to achieve this, screens were placed between the participants of the group work, limiting the view of the puzzle elements);

— the rules of joint work limited the participants in a way that they were not allowed to show their puzzle elements or "peek" into someone else's;

— the only available means of organizing a group solution (this was reported in the instruction) was the ability to talk to each other;

— the participants of the group work were not informed which geometric figures they could construct from the elements proposed to them;

— as soon as a couple of participants (or a group of participants) laid out certain puzzle elements on the table, they had the opportunity to see whether the desired geometric figure was being formed, i.e. to evaluate the productivity of their interaction and the effectiveness of a group work.

2 — features of material selection:

— each of the four geometric figures (that needed to be combined in the process of group work) was cut into two parts, these parts were necessarily in the sets of different members of the group;

— in addition to the required eight puzzle elements, participants received the so-called "extra" elements that were not suitable for solving the overall problem due to size or shape; in total, the group was offered 16 puzzle elements (4 for each participant), of which only eight pieces were suitable for solving the problem;

— the elements differed in three features — color, shape and size, and only two features — shape and size — were essential for the solution.

The procedure of the "Puzzle" technique included several stages. Initially, experimental groups were formed. To do this, children sitting in pairs at the desks in a classroom turned to face each other, forming groups of 4 people each. A conditional "screen" (for example, a book) was placed in front of each participant, and an individual set of puzzle elements was laid out for this "screen" — four pieces of a puzzle of various shapes, colors, and sizes. The participants of the group work could get acquainted with their puzzle elements, consider them.

The experimenter gives the following instruction:

"Each of you has received a set of pieces of a colored puzzle. Examine your pieces so that the neighbors do not see them. Among the pieces, there are parts of simple geometric figures with well-known names. Each of these geometric figures was cut into two parts. You need to find these two suitable parts and put them together to construct a simple geometric figure. There are four such figures in total. You will look for suitable parts without showing your pieces to each other. You can't peek into other people's sets or show your pieces to others. Otherwise, the whole group is excluded from the game. You can only talk. Keep in mind that the pieces are divided between you so that no one can compose a whole figure by himself from his own set of pieces. As soon as you find two suitable parts of the figure among the pieces of the puzzle, you shall write down in the form (the presenter shows the form) which figure you are going to compose, and only after that shall you put the selected pieces on the table together and compose the figure (at this point the experimenter takes two triangles and composes a square). Look, here is a square made of two parts, this is a "correct" figure. (Then the experimenter folds a "wrong" figure — for example, a triangle and a semicircle.) These parts do not fit together, you cannot compose a "correct" geometric figure using them. It means that these parts have "burned out" and can no longer be used in the game. All the details you have laid out also cannot be used in the further assembly of the figures. They "burn out". Therefore, negotiate properly, don't

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hurry. The task for each group is to collect as many figures as possible (preferably, all four figures). After you agree about the pieces, first write down the name of the geometric figure, that you are going to compose, in the form, and only then lay out the details on the table at the same time. Start working, the time has gone!".

During the joint work, the experimenter observed the behavior of the participants and recorded his observations in a special form.

The Puzzle technique is designed for 20 minutes of a children group work.

The material of the Puzzle technique includes:

— sets of puzzle elements — 4 elements for each participant, a total of 16 elements;

— "screens";

— forms for participants to record the geometric figures that the group is going to compose (one for each group of children);

— a form for monitoring the process and results of children's work — one for each group (for the experimenter).

In general, the Puzzle technique models the situation of joint problem solving and thus actualizes the basic reflexive and communicative competencies of the participants. Firstly, direct communication of participants becomes the main means of solution (as we mentioned above, the conditions of the Puzzle technique limit the possibility of using other means in the process of solving). Secondly, at each step of the joint work (i.e. composing each of the geometric figures), each participant needs to determine with whom he should interact and how to organize this interaction to get the overall result — to compose the desired figure. Thirdly, the procedure allows participants to receive a feedback on the effectiveness of their joint actions right at the moment of their execution (either the desired figure is composed, or the details are "burn out" and remain on the table, excluded from the sets of details for the next steps of joint work, but available for general viewing). Thus, in the

course of the work, the participants found themselves in a situation of success and failure, as well as conflict and mutual misunderstanding.

Once again, let's pay attention to a number of significant features of our diagnostic procedure.

1. The main requirement for the diagnostic procedure was to create experimental conditions that force the participants of joint work to address each other and interact with each other. That's why the elements for constructing geometric figures were distributed among the participants in a way that no one of the group members could fulfill the task independently, without involving other children's participation.

2. The task proposed for the group solution was quite simple. The subject of our study was the ability to build effective group interaction. So, the result of the joint work was to be determined precisely by the implementation of the communicative, interactive, and reflexive means of problem solving, and not by the complexity of the task.

3. The Puzzle method allowed not only to state the presence or absence of interactions but also to determine and describe their effectiveness, analyze the features of interactions development in the process of joint problem solving. Therefore, the task allowed the children to have several attempts to solve it. It means that they had the opportunity to assess the correctness of the hypothesis or effectiveness of the strategy during the joint work itself, and not only after its completion. In addition, the Puzzle procedure was developed in a way that artificially hindered the possibility of a direct solution and required the development of a group strategy, hypotheses, and meaningful communication. Thirdly, we used the means of "concealing" essential features, which were introduced into the material itself. These "concealing" means to include both insignificant additional features (that is color in our procedure) and very similar characteristics

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of "suitable" and "unsuitable" puzzle elements (size and shape).

Thus, despite the external simplicity of the task, its solution required building special reflexive interactions, "seeing" the elements of partners and identifying them as "suitable" or "unsuitable" according to the features that are revealed in the process of group communication. In some groups, it was the reflexive position that determined the style of communication itself. For example, a group member, instead of describing the features of his puzzle element, requested about the element he "lacks" to compose the figure. It means that he proposed a hypothesis about the possible overall result, and managed to describe specific characteristics of the element of someone from the partners which is necessary to compose the geometric figure.

A sample of subjects.

The study involved students of the 4th grade- of three Moscow schools. Students of the 4th grades of the school that implements the program of developmental education of D.B. Elkonin-V.V. Davydov (a total of 78 groups, 312 people) form Sample 1. It's Moscow school No. 91, in which the program of developmental education of D.B. Elkonin-V.V. Davydov has been developed for many years. This program includes the practice of using specially developed subject content that is focused on the development of the foundations of theoretical thinking among students, and special forms of organization of the educational process, including various types of a group work and meaningful interactions between students and teachers, students themselves in the process of solving learning problems. The original version of the Puzzle technique was used to diagnose reflexive and communicative competencies in 2021. Further, the results obtained were statistically correlated with data from another version of the method (2019, 2017, 2016, 2014, and 2012). According to a number of indicators, the results of the statistical analy-

sis made it possible to combine samples from 2021 and previous diagnostic years. Therefore, the results of the full sample were used in the further analysis.

Sample 2 consisted of students of the 4th grades of two schools who implement in the learning process the established ways of organizing educational interactions in the classroom (a total of 48 groups, 192 students). The article presents diagnostic data on the development of social competencies of primary school students obtained in 2021.

Analysis of the results

We used several indicators while analyzing the results.

1. The main indicator is *the correctness of the group solution*. The correctness of the group solution was determined by the number of correctly assembled geometric figures. The maximum is four figures — a circle, a square, a hexagon, a triangle (instead of a hexagon, children sometimes compose a parallelogram from the same elements).

2. The additional indicator is *a strategy of a group solution*. The following data were used to analyze the group solution strategy:

The number of attempts. The analysis of the results showed that the groups choosing different strategies performed a different number of trials. So, there were groups that laid out the figures until they used all the elements of the puzzle. This strategy indicates that in the process of joint work these children did not analyze their mistakes, i.e. the content of reflection was limited to developing an interaction strategy and was not aimed at solving the task assigned to the group itself. If the group was focused on the content of the task, then the participants "work on errors" after each attempt to compose a figure. Sometimes, in the process of this "work on errors", one of the participants took out a piece of the puzzle and laid it on the table as "burnt out". This action simplified further collaboration and allowed all group

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members to analyze which feature was not taken into account or correctly described. There are groups that, departing from the original instructions, tried to collect not geometric figures, but some object images, for example, "mushroom" or "boat". They composed 2 pieces of the puzzle (sometimes 3 or 4 puzzle elements), saw the result, and attributed some subject name to it, entering it into the protocol. Such substitution of the assigned task for a simpler one in the process of joint problem solving indicates a low level of development of group reflection.

The number of geometric figures. Comparing the "number of attempts" with the "number of geometric figures" indicated the effectiveness of the group work strategy. If the number of the attempts is greater, then the strategy is less effective, because it includes a lot of unnecessary unproductive proposals. If the number of attempts coincides with the number of figures, it means that the group is focused on the task, fulfils the instruction and is concentrated on the process of content communication.

The sequence of composing geometric figures. The analysis of the features of joint work on effective and ineffective groups showed that there are figures easier to identify in the conditions that are set by our method, and more complex figures. So, the easiest to recognize is a circle. In order to assemble this geometric figure correctly, one participant needs to describe correctly the size of the sector cut from the whole circle (there are 3 sectors of different sizes in the puzzle set), and the other participant — the size of the missing part of the circle. Even if the group who started its work with the assembly of the circle chose the wrong pieces of the puzzle (for example, a sector larger than the cutout in the circle), then the group could easily learn to assemble other figures on the basis of the analysis of this mistake. If the group started working with a triangle or a hexagon, then it turned out to be more difficult for the participants to detect significant and insignificant signs on these elements, to create a general way of describing the pieces of the puzzle.

Characteristics of communication in the process of the group work. The Puzzle method proposes meaningful communication as a necessary means to solve the joint task. The material used in the Puzzle method (pieces of geometric figures) was chosen in a way that there were no ready-made designations for most elements of the puzzle in the language. That's why we had an opportunity to observe the real process of building some artificial "common language". Firstly, each participant had to master the way of describing the elements that were presented in his set, and secondly, he had to agree with others about the method of describing itself. Even if one participant came up with the "right" way to describe the elements, but others did not understand it, they could not compose the required figure. Therefore, each group had its own special way of communication, used its original means, built interaction in different ways due to the reflexive organization of the communicative process.

The following *indicators of communication* in the process of the joint work were used:

— the number of participants of the discussion while assembling geometric figures (often the number of participants at the beginning of the collaboration and at its end, as a rule, differs);

— the presence of a clear leader at the beginning and at the end of the joint work;

— various means of communication (despite the prohibition, many groups were looking for additional non-verbal means, for example, they measured their details with a ruler or a finger, described the details in "conventional units", etc.). Fixing of these means allowed to describe specific elements of the language developed by a particular group to solve the problem.

The data obtained using the Puzzle method allowed us to evaluate a set of meta-sub-

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ject results characterizing various aspects of the formation of socio-reflexive competencies of younger schoolchildren, to evaluate them quantitatively and describe qualitatively.

The evaluation of the group solution was carried out in points. For a correctly assembled geometric figure, the group got 1 point. Thus, the minimum number of points in the Puzzle technique is 0, and the maximum is 4. Statistical data analysis was carried out. The samples were compared by means of averages, standard deviations and the percentage of the maximum score.

According to the data obtained, sample 1 significantly differs from sample 2 in the number of correctly assembled figures (Mann-Whitney U-test =179, p<0.01). And sample 1 significantly differs from sample 2 in the number of attempts to assemble a geometric figure (Mann-Whitney U-test =179, p<0.05). As a result, we made the following conclusions about the influence of ways of organizing educational interactions on the development of reflexive and communicative abilities of children 6-10 years old:

1. In the school of developmental education that implements the educational system of D.B. Elkonin—V.V. Davydov (sample 1), we see a more pronounced tendency to search for a joint solution to the task. The students made more attempts to compose a geometric figure from the elements offered to them, than the students from a traditional school. This fact is confirmed by the behavior of the group participants: even after all the elements of the puzzle were laid out on the table (i.e. the students had no more elements left to continue their work), the chil-

dren often stayed and analyzed which figures could be composed, which signs they did not notice or described incorrectly .

2. A smaller number of attempts to compose a geometric figure from a given set of elements in sample 2 could indicate a pronounced reflexive position of the participants if it was accompanied by a group analysis of errors and laying out parts on the table that "burned out" due to an assembly error. However, we didn't fix a reflexive position of the participants in sample 2. In sample 1, 67% of groups after the failure in composing a geometric figure stopped searching for the following geometric figures and fulfilled the error analysis, that demonstrates their reflexive position. During this reflexive stage of the joint work, either the participant himself (who had not laid out his "correct" element of the desired figure), took it out, or other group members suggested doing it. The content of the group communication indicates that the group works out a joint strategy: "Who has the right piece of the triangle left? Throw it away, now you don't need it." Thus, the analysis of an error in the process of completing a task is the most important indicator of the formed reflexive position of the joint work participants.

3. In a school implementing a developmental learning program (sample 1), students follow the instruction better and organize their activity according to it. Throughout the work, they searched for the correct geometric figures. It is probed by the fact that the difference between the number of attempts and the number of geometric shapes is insignificant. Students of the traditional school (sample 2), in turn, often moved from the search

Table 1

**Quantitative Data on the Implementation of the Diagnostic Technique "Puzzle"
in Two Samples of Subjects**

Sampling	Number of attempts	Number of geometric figures	Number of correctly composed figures
Sample 1 (78 groups)	5,3	5,2	2,10
Sample 2 (48 groups)	4,35	3,62	1,06

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for geometric figures to the search for shapes in general. In the protocols of groups from sample 2 we can find "a house with a pipe", "a Christmas tree", "a boat", just a "figure", etc. Thus, by acting together, the participants from sample 1 held the task throughout the entire solution process, and the participants from sample 2 "substituted" the task with a simpler one during the solution process. It allowed them to consider themselves successful in a situation when they actually did not solve the problem. This fact is also confirmed by the behavior of most groups of sample 2. After the end of the experiment, they enthusiastically informed classmates (participants of other groups) that they had composed many different figures. Thus, social success for them turned out to be much more important than the actual success in solving a joint problem. Consequently, the students from sample 2 had significant difficulties in case when the content of the reflexive analysis was not only the subject content of the task, but at the same time the way and means of interaction.

4. In sample 1 there were more correct decisions than in sample 2. On average, students of the school of developmental learning (sample 1) correctly assembled two geometric figures out of four possible ones. In schools with a traditional way of organizing educational interactions (sample 2), the average result is one figure. It means that students of the school of developmental learning built a more productive strategy of the joint problem solving. Productive strategy means that the content of reflexive actions is both a common problem and a way to coordinate individual actions in the process of solving it.

We will specifically consider the distribution of points within each sample of subjects.

Table 2 shows the data on the quantitative distribution of the groups that received from 0 to 4 points in the "Puzzle" method.

The data given in Table 2 allows us to draw the following conclusions:

• In the school of developmental learning (sample 1), most groups collect two geometric figures, that means that in the process of searching for solutions and analyzing failures, they find an effective method of interaction. This method allows the group in the conditions of searching for an uncertain overall result to build an effective solution strategy. Using this strategy participants of the joint work correlate individual elements based on the selection and description of their essential features. It leads to the reconstruction of that common geometric figure, the elements of which each of the group members has. This strategy, in particular, manifests itself in the fact that participants not only describe their elements but also describe what element is needed to compose the intended figure.

• In schools with a traditional way of interaction (sample 2), the largest number of groups either did not make up a single geometric figure at all, or collected one figure (19 and 16 groups, respectively). This means that the participants of the group solution failed to build the strategies for productive interaction, they did not use their mistakes to analyze and highlight the essential features of the puzzle elements, so they repeated an inefficient way of searching for a solution while composing the next figure.In the samples of students from schools with different ways of organizing educational interactions, qualitatively different strategies for the implementation of communicative and reflexive competencies

Table 2

Distribution of Points in the "Puzzle" Method in Two Samples of Subjects

Sample	Score 0	Score 1	Score 2	Score 3	Score 4
Sample 1 (78 groups)	5 groups	18 groups	28 groups	18 groups	9 groups
Sample 2 (48 groups)	19 groups	16 groups	6 groups	5 groups	2 groups

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in the process of solving a joint problem are presented. Thus, the school of developmental learning by the end of the primary education forms the ability to build productive interaction in accordance with the joint task that is offered to students. The main mechanism for building productive interaction is the discovered ability of participants to reflect the situation, which simultaneously takes into account the purpose of collaboration, resources of participants and means of interaction itself. The most important means for building reflective strategy are the "feedback" (in the course of the joint work the group members see the result, can evaluate it and analyze errors) and the restrictions imposed on individual actions by the conditions of the organization of the joint work.

Thus, our hypothesis was confirmed by the results obtained under the conditions of using the Puzzle technique. In the school of developmental learning, communication and interaction are determined by the conditions of solving the problem. Therefore, in the process of solving a joint problem, based on the analysis of intermediate results (correctness or errors in the assembly of previous geometric figures), new means of communication appear, a "common language" for describing puzzle elements is formed, group tools are developed (they allow to describe individual features of elements more adequately using fingers, a pen, drawing on a table, cells in a notebook, etc.), the solution strategy changes (transition from the description of its element to the description of the "missing" element for the joint assembly of a geometric figure, which seems to be correct to the group members). Thus, the most important function of communication in this case becomes a reflexive function — the attribution of one's actions and the actions of partners to the content of the task as well as to the method of its

solution which is developed by the group. In sample 2 — a school with a traditional way of organizing children's interactions — the way of interaction and the content of communication are arranged in groups as separate tasks that are not connected with the content of a joint problem. This conclusion is confirmed by the following features of children's behavior. Firstly, the problem is often replaced in the course of solution: instead of geometric figures, the groups compose just shapes. Secondly, after the failure in laying out of details, participants don't fulfil meaningful analysis of the error, and don't rebuild the method of interaction and content of communication. Thirdly, in the course of the joint work, the participants do not put the elements paired with "burnt" details on the table, i.e. the connection of individual elements in the construction of a common product does not become the content of their reflexive analysis. Fourthly, after the end of the work, the groups do not analyze mistakes, i.e. they don't try to figure out why their way of interacting turned out to be ineffective. Finally, the subjective assessment of the effectiveness of the group work does not coincide with the objective one: the participants either express a great satisfaction with the very fact of working together and in this case evaluate it as more successful than the actual score, or make claims to each other and look for those to blame for the low result of the joint work. Thus, communication does not perform a reflexive function either in the process of solving a problem or after the completion of the joint work and it leads to poor results in the situation of solving a group task. Additional confirmation of our hypothesis is provided by the data obtained in the process of expert analysis of lessons in schools with different ways of organizing educational interactions [6].

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