

# The Role of the Didactic Games in Enhancing Cognitive Activity at Preschool Children

## El papel de los juegos didácticos en la mejora de la actividad cognitiva en niños en edad preescolar

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## Summary

The Article is dedicated to learn the impact of increasing cognitive activity in preschool children. 44 children aged 5-6 were selected for the research and the impact on the cognitive activity through didactic games with them were investigated. Different aspects manifested itself in development of cognitive processes, especially mentality during the comparison of methodologies used in conducting didactic games with children on the experimental and control groups in the research process. Unlike the control groups, the experimental groups were more likely to observe cognitive processes and tasks, and the tasks were performed more adequate by the experimental group. It is determined that organization of transforming didactic games into a leading activity in preschool preparation of children and trying to improve the activity of game increases the cognitive activity. The research has shown that there is a significant dependence between increasing the cognitive activity and didactic games.

**Keywords:** Didactic Games; Preschool Children; Cognitive Activity; Game Activity; Preschool Education.

## Resumen

El artículo está dedicado a aprender el impacto del aumento de la actividad cognitiva en niños en edad preescolar. Se seleccionaron 44 niños de 5 a 6 años para la investigación y se investigó el impacto en la actividad cognitiva a través de juegos didácticos con ellos. Diferentes aspectos se manifestaron en el desarrollo de procesos cognitivos, especialmente mentalidad durante la comparación de metodologías utilizadas en la realización de juegos didácticos con niños en los grupos experimentales y de control en el proceso de investigación. A diferencia de los grupos de control, los grupos experimentales tenían más probabilidades de observar procesos cognitivos y tareas, y las tareas fueron realizadas más adecuadamente por el grupo experimental. Se determina que la organización de transformar los juegos didácticos en una actividad líder en la preparación preescolar de los niños y tratar de mejorar la actividad del juego aumenta la actividad cognitiva. La investigación ha demostrado que existe una dependencia significativa entre el aumento de la actividad cognitiva y los juegos didácticos.

**Palabras clave:** Juegos didácticos; Preescolares; Actividad cognitiva; Actividad de juegos; Educación preescolar.

## Introduction

The education should be developing, enrich a child with knowledge and methods of mental activities, form cognitive interests and abilities.

Preschool age is a unique period of a person's life. Its singularity lies in its special sensibility, sensitivity to the assimilation of the surrounding reality; in the research, subject-research, subject-manipulative and cognitive activities of the preschooler.

The knowledge given in an entertaining form of the game is acquired by children faster, stronger and easier than those associated with long "soulless" exercises. A simple and apparently clear idea to everyone, but, as it often happens, it's easy to say, but hard to do. Therefore, the problem of children's play is one of the most actual problems of pedagogy. In connection with this, game forms of training and education, in particular, didactic games, have become crucial.

The game is the main activity of a preschooler. The development of memory, imagination, thinking, emotions, will, character of the child takes place in the process of the game. Didactic games encourage the development of abilities and needs of cognitive character, intellectual moral

and volitional qualities, and the formation of cognitive interest. Applying various didactic games in working with children, one can be convinced that when playing, children better perceive program material and correctly perform complex tasks. The application of didactic games increases the effectiveness of the pedagogical process, moreover, they encourage the development of memory, thinking in children, having a great influence on the mental development of the child. Teaching young children in the process of the game, I strive to bring the joy of games into the joy of learning. Teaching should be joyful!

Didactic and developmental games contain conditions encouraging the personality's development of full value: the unity of cognitive and emotional principles, external and internal actions, collective and individual activity of children. When conducting games, I try to ensure that all these conditions are implemented, i.e. so that each game brings the child new emotions, skills, expands the experience of communication, and develops collective and individual activity. I offer games taking into consideration necessary sequence of stages, from the simplest and most accessible games for every kid, to more complex ones. I rely on what the child already knows and what he loves to do in each game.

Almost each kindergarten group has at least three types of children who behave themselves differently during any activity, including in the playroom, and accordingly require a different approach.

Children of the first type are very active, mobile, prone to strong excitement. They willingly accept any new game and are enthusiastically involved in it. Usually they rapidly catch the objective of the game and strive to take on active roles. But often these children do not pay attention to others, and are busy demonstrating their own abilities. For such children, the most difficult are the rules that hold back their spontaneous activity: to wait for their turn, no to move until a certain signal, to give up the main role or attractive object to others. In addition, the implementation of these rules is especially beneficial for them. When conducting such games, I try to show these children the significance of following these rules and to ensure that they receive satisfaction from their implementation.

Children of the second type are more shy, wardful and cautious. They usually do not immediately understand the objective of the game and are not too willing to switch to a new activity. At first, they hold on tightly without interest, observe the other children's actions. I do not make such a child take an active role until he is ready for this. Watching the game and first taking a passive part in it, he gradually becomes infected by an adult and his peers with an interest in the game and after a while he begins to take the initiative. Surely, this becomes possible with the educator's support and approval.

However, not all children are included in the game, even with the educator's support. In each group there may be dull, passive pupils who lag behind their peers and cannot act on a par with them. Even with repeated repetition of the game, they do not understand its objective and avoid active roles, and taking them upon themselves, they act incorrectly. Such children require special attention. Team, group work with them is not effective. They need personal contact with an adult, their personal attention, explanation, encouragement.

The game does not create a socially important product. The formation of a person as a subject of activity begins in the game, and it has great and intrinsic importance. Surely, other types of activities pour water into the mill for formation of new needs, but in any other activity, there isn't any emotionally filled entry into the lives of adults such an efficient separation of public functions and the meaning of human activity as in a game.

Repeated studies show that a didactic game plays an important role in mental education and training. A didactic game is also a game method of teaching preschool children, a form of

learning, an independent play activity, and, most important of all, it is a means of comprehensive education of the child's personality.

### Development

Analyzing the results of theoretical studies of literature, the excellence of teachers-innovators, modern teachers, psychologists and practical activities on the problem, it might be concluded that the didactic game has been of great importance in the education of preschool children at all times, starting from antiquity. Teachers of all times were worried about the problem of the development of mental and cognitive processes among preschoolers, the stimulation of their activity, in which a great preference was given to the didactic game.

The didactic way of the use of the game was developed in the 18th century by such teachers as I. B. Bazedov, C.G. Salzman, 1981. They used various games in order to make children's education more entertaining, appropriate to their age characteristics.

The didactic way of applying these games is presented in the pedagogy by F. Ferebl, 2000. He gives the game a great educational value in enriching speech, development of thinking, imagination. F. Ferebl (2000) considered the game to be the basis for educating children in kindergartens. He developed various didactic games for children.

A special credit in revealing the role of didactic games, belongs to Tikheeva (Tikheeva, 2013). She fairly believed that the didactic game makes an opportunity to develop the most diversified abilities of the child, his perception, speech, attention, thinking. Tikheeva, (2013) has developed many didactic games that are still used in kindergartens.

According to many researchers, child's play is the meaning of its life in preschool age. It was his refuge from fears, field of battles, the polygon of game, achievements and successes, soothing and dreams (Petrovska, Sivevska, & Cackov, 2013). There come to the fore desires, aspirations, feelings, thoughts and needs of the child for active action in the environment in which it lives. The game satisfies the biological and psychological needs of children and contributes to their mental, emotional, social and moral development. Different roles in the games, although the product of a child's fantasy, allow the child to gain personal experience of good and bad, about what is positive and what is not in behavior. Games are an important form of entertainment for children and adults, through which children organize independently and they have special educational significance. They are a powerful tool for education because through games children acquire knowledge, enrich their experience, and develop skills and habits (Petrovska, Sivevska, & Cackov, 2013).

According to the children's game conception of D.B. Elkonin, playing a role is an expression of a child's growing relationship with the society- special relationship specific to the preschool age. The desire of participating in adult's life of one child in a role-playing game, this couldn't be directly performed due to child's inability and complexity of the tools. D.B. Elkonin showed that playing a role didn't occur immediately. Only in the middle of the preschool age is a form developed. The first conditions are for creating role-playing game (Elkonin, 2011).

Didactic games used in the teaching process are met with growing interest and recognition at schools and in institutions. The recent years have witnessed a some kind of renaissance of games and plays. Learning with them has undisputable didactic merits in comparison to the traditional teaching model (Surdyk, 2007; Kapp, 2012). There are many studies on correlations between the use of didactic plays and games and the effectiveness of teaching many subjects. Johan Huizinga Roger Caillois proved the importance of ludic activity as the basic human activity. It is them that are considered the most eminent precursors of ludology (i.e. science dealing with games) (Surdyk, 2007). Theoretical and practical issues of didactic games were developed (Smolentseva, 1987; Sorokina, 1982; Pidkasti, 1992; Llozina, 2012).

Through traditional games children realize their need to move, acquire some important experiences, develop and experience emotions, experience impressions of what is beautiful, ugly, what makes them happy or unhappy, activate all their senses. Through these games social needs are satisfied, such as contacts with peers and adults; they become their role models, players acquainted with their group or opponents, they socialize, self-organize, discuss and agree in the game, they learn to democratically choose their leader (captain), they collectively rejoice, fit into the group, activate all their senses, develop imagination and abstract opinions (Obradovih, 2012).

While conducting studies, the interconnection between learning and gaming was approved, the structure of the game process, the basic forms and methods of didactic games guides were determined. Thus, despite development lighting adequacy of the cognitive processes of preschool children, and the role in this development of didactic games, this problem remains actual.

## Methods

A didactic game is the main activity of a child at preschool age, and, playing, he learns the world of people and develops. The plan of work with the children of the group includes various didactic games for the development of thinking: desk-printed, verbal and different didactic toys. Games are held both in the classroom and outside of it; as well as some part of the games is available to children for independent gaming activities. The games are held both frontally with a subgroup and individually with children.

In working with children, such didactic games as: “What is more”, “Absurdity”, “Go through the labyrinth” were used.

They also acted as a methodology in the study. The same number of children from the experimental and control groups was 22 children. The age range was 5-6.

## Discussion

The use of game forms is primarily intended to develop cognitive processes.. From this point of view, the development of thinking in children for learning the impact of cognitive processes of the game has been considered. When diagnosing preschool children, first of all, it is necessary to pay attention to cognitive processes. So, for the diagnostics of cognitive processes of children of 4-5 years old, such methods as “Absurdity” and “What is superfluous here?” were used. When applying the “Absurdity” method, the child’s elementary figurative ideas about the surrounding world and the logical connections and relationships existing between some objects of this World, are evaluated. Procedure of this method is as follows: firstly, the child is shown a picture in which there are several ridiculous situations with animals. While viewing the picture, the child receives instructions: “Look carefully at this picture and say whether everything here is in its place and correctly drawn. If something seems wrong to you, out of place or incorrectly drawn, then indicate this and explain why it is not. Then, you will have to say how it really should be. Both parts of the instructions are performed sequentially. Firstly, the child simply calls all the absurdities and points them in the picture, and then explains how it really should be. The exposure time of the picture and the completion of the task is limited to three minutes. During this time, the child should notice as many ridiculous situations as possible and explain what is wrong, why not, and how it really should be.

Evaluation of the results in accordance with the “Absurdities” method. A child can get four or more points in this task only if he/she fully completes the first part of the task within the allotted time, i.e. discovered all 7 absurdities in the picture, but did not manage to either name them or explain how it really should be.

“What is superfluous here?” method is intended to explore the mental operations of analysis and generalization in a child. In the methodology, the children are offered a series of pictures showing different objects, accompanied by the following instructions: “On each of these pictures, one of four objects depicted on it, is redundant. Look carefully at the pictures and determine which subject and why is superfluous.” For the solution to the problem is also given 3 minutes. Assessment of the results of “What is superfluous here?” method presented in Table 1.

**Table 1.**

*Assessment of the results of “What is superfluous here?” method*

Time interval provided for problem solving during the game.	Grade	Experimenta group N=22	Control group N=22	Indications
1. Correct responses to all the pictures in a minute.	8-9s	18	8	Very high
2. Correct solution in 1-1,5 mins	6-7	1	2	high
3. Correct solution in 1.5-2 mins	4-5	1	3	Average
4.. Correct solution in 2-2.5 minutes	2-3	2	6	low
5. Correct solution in 3 minutes		0	3	Very low

As can be seen from Table 1, correct responses to all the pictures in one minute show that the results are 81,9% of children in the experimental group, and higher with 36% of children in the control group. The low indications also changes accordingly. So that, the results are 9% of children in experimental group and 27% of children in control group. The dynamics shows itself during the didactic games proves that the cognitive activity and motivation opportunities increase during the games. Training is developing.

At the same time, they paid attention to the development of children’s visual-movement thinking. At this time, the methodical game of “go through the labyrinth “was introduced as a didactic game.

Consider the methodology for assessing the visual-effective thinking “Go through the labyrinth”

In the “Go through the Labyrinth” method, children are shown a picture of the labyrinth and they are explained that it shows a labyrinth, the entrance to which is indicated by the arrow located at the bottom left and the exit is at the top. It is necessary to help the mouse to get to the cheese through the labyrinth. You need to do the following: take a pencil in your hand, move it over the drawing, go through the entire labyrinth as soon as possible, moving the pencil as accurately as possible, without touching the walls of the labyrinth. All the tasks offered to the children are perceived as a game, they do not exceed 5-7 minutes (maximum 3 minutes), do not require highly developed arbitrary control of their cognitive processes from children, which corresponds to the requirements for psychodiagnostics of preschool children.

As can be seen from Table 2, the children who reached the target of all labyrinth lines correctly within one minute differed in the experimental and control groups. Correctly reaching the target is 15 children in the experimental group and higher with 7 children in the control group. So that the low indication has observed 2 children in the experimental group and 7 children in the control group. This shows that the cognitive activity and concentration of the attention during the didactic game is strengthening.

**Table 2.**  
*Target of all maze lines*

Time interval provided problem solving during the game.	Number of correct lines	Experimental group N=22	Control Group N=22	Indications
1. Reaching the correct point within one minute	6	15	7	Very high
2. Reaching the correct point within 2 minutes	5	3	3	high
3. Reaching the correct point within 3 minute	4	2	5	middle
4. Reaching the correct point within 4 minute	3	2	7	low
5. Reaching the correct point within 5 minute	2	0		Very low

It should be noted that the greatest difficulty in children caused the method of "Absurdity." Children found an average of 4-6 absurdities. Basically, the children did not find "the hat of the goose" absurdity. The implementation of "What is superfluous here?" method did not cause any difficulties; in general, the guys completed the task quickly and accurately. When completing the "go through the labyrinth" method, the main mistake was that the children were in a hurry and, although the tasks were completed quite quickly, the children made many shortcomings. Therefore, despite the fact that the execution time of tasks corresponded to a very high level, the level of performance was reduced.

According to the results of "Absurdity" method aimed at assessing elementary imaginative ideas about the surrounding world, logical connections and relationships in this world, the average level (56% of pupils) prevails in the experimental group, and 44% of children have a high level. The study of the mental operations of analysis, synthesis, comparison, generalization applying "What is superfluous here?" method has revealed a very high level of development of these operations among children in the experimental group (91.7%). Summarizing the results of two methods, it can be stated that the level of development of cognitive processes among children in the experimental group, is high.

The low level of results of "Absurdity" method (100%) is predominant in the control group. During the implementation of "What is superfluous here?" method, children of the control group showed a high level (62.5%), medium and low - 14.3% each. Summarizing the results of two methods, it can be stated that the development of cognitive processes is at an average level among children of the control group.

When implementing the "Labyrinth" method, the children of both the experimental and the control group, made mistakes in the form of a very large number of touches with a pencil on the walls of the labyrinth, which affected the results. Perhaps, the children were in a hurry as a result of the instruction that was not exactly given to them.

Thus, an experimental study confirmed the effectiveness of research on the development of cognitive processes in children of middle preschool age by means of didactic games. Work on the development of cognitive processes of preschoolers will be more effective with the systematic use of didactic games in the work with them.

## Conclusion

Our research has led to the conclusion that the cognitive processes as well as, attention, memory and thinking may be developed by different didactic games. At this time this process may be performed by different didactic games taking the developing training models as a basic. The

research work conducted with the experimental and control groups proved that again. Our research showed that the cognitive activity increases in the groups which the games applied, as well as the development of verbal-logic and visual movement thinking develops in its own way.

The game contributes to more healthy childhood, intellectual development of children and at the same timespeaking abilities stimulation. Through games children show their interests in what surrounds them, they are stimulated to keep researching and investigating so as to find their own solutions in a particular situations.

The essence of the difficulties encountered in the application of educational games is mainly related to the way of training. The mistakes made during the training, as well as the emotional concern of the children don't allow increasing the cognitive activity and cognitive process. This fact shows that training tools and applied techniques should be sorted during the didactic games in conjunction with the learning process.

Our research overlaps with the researches of Petrovska, Elkonin (1999); Erofeeva, Pavlova, and Novikova (1987); Sorokina (1982); Frebel (2000) and other. This proves once again that didactic games is developing characteristic and using them in pedagogical experience may make a necessity to increase the effectiveness of the training.

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