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Didactic Game as a Tool for Forming Quantitative Ideas in Preschool Children

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Abstract: Didactic game revealed the importance of forming quantitative concepts in preschool children. The peculiarity of the process of forming quantitative concepts in preschool children with mental retardation and the difficulties in using them in new activities, the need to use didactic games that help more meaningful and conscious mastering of quantitative concepts are shown.

Keywords: Special pedagogy, didactic game, quantitative imagination, mathematics, mentally retarded children of preschool age, correction, role-playing game.

1. Introduction

The problem of formation of mathematical, in particular, quantitative concepts in the literature on special pedagogy L.B. Baryaeva, G.V. Brizhinsky, A.P. Zarin, M. N. Perova, I. V. Chumakova and others are reflected in the research. The authors studied the characteristics of the development of mathematical concepts and conducted research on the most effective methods of their formation in preschool children with intellectual disabilities. At the same time, studies show that preschool children with mental retardation have difficulties applying existing knowledge and skills to new situations, and do not know how to use them to solve new problems. In very rare cases, they cannot independently apply mathematical concepts in independent daily activities (including play activities), which leads to insufficient formation of acquired knowledge. At the same time, practical application of mathematical knowledge in various activities helps them to complete and understand it.

2. The Main Results and Findings

Despite the specific experience of forming basic mathematical concepts of mentally retarded children of preschool age, the issue of improving the ways of forming quantitative concepts in correctional-pedagogical work with mentally retarded children of preschool age is important in the current preschool education organization.
Studying the relevance and practical importance of this problem for the education and socialization of mentally retarded children of preschool age as one of the current issues in the field of preschool education organization, conducting scientific research on the formation of quantitative concepts in mentally retarded children is important in special pedagogy today. is one of the issues. The concreteness of thinking of students with mental retardation and the lack of ability to generalize the observed phenomena lead to the fact that the concept of number and counting is formed very slowly in them. It doesn't even develop enough by the time it goes to 1st grade. Successful learning of mathematics by mentally retarded children depends on their

unique characteristics and difficulties in learning mathematical concepts. Therefore, the use of different methods in the development of mathematical knowledge of mentally retarded children gives good results. In particular, tasks such as providing education to the growing young generation, increasing attention to children in need of special education, and improving educational methods and methods were set.

Play is one of the main activities of children with developmental disabilities. The game always reflects real life. So, as social life changes, its content also changes. Play is a purposeful, conscious activity that has a lot in common with work and serves to prepare young people for work. Educational activity develops in the child based on game activity. The better a child plays, the better he will do in school. Therefore, we should pay attention to the development of children's play activities. Introductory play is the first stage of early childhood play activity, which is object-object-play activity. Its content is complex and delicate movements in handwork. The next stage is the reflection game. If adults carry out educational activities with a certain consistency, children of this age will learn the names of objects and objects, what they are used for, and begin to use this new knowledge in their games. The game of children of this age reflects the activity of the subject in terms of content. Another distinctive feature of children's play is the interconnection of actions, words and images. In the game, the child lives with the emotions, experiences, and actions of the character he is portraying.

The relationship between play and learning changes as the child grows. In a small group, the game is considered the main form of education, and when you go to a large group, the role of education in training increases. When they go to the preparatory group, the children themselves become interested in studying at school.

But the value of the game for children does not disappear, but its content changes. Now children are interested in games that require more intellectual activity, sports-style games (with competitive aspects). The development of logical thinking processes such as analysis, synthesis, generalization, comparison at a much higher level leads to mastering mathematical ideas and concepts, or gives an opportunity to acquire spatial and temporal perceptions of shape and size.

It is necessary to take into account the features of the abstractness of mathematical materials and demonstration-movement and demonstration-image thinking of preschool and elementary school students when choosing the content and methods of knowledge for the formation of elementary quantitative concepts.

The abstractness of mathematical concepts, concepts and laws complicate the process of forming quantitative concepts based on the specific characteristics of the mental activity of children of this category.

Many scientists have confirmed that mastering scientific concepts is very effective in the process of their social activities. It is observed that not only the factor of mental development, but also its source is manifested in the interaction of means and important actions.

Full and conscious acquisition of mathematical knowledge includes not only the acquisition of knowledge and skills in the educational process, but also the ability to apply mathematical knowledge in various activities.

The acquisition of mathematical knowledge is carried out in preschool children in various activities: subject, subject-practical, game, work, and training for the formation of elementary mathematical ideas.

The game is the leading activity of preschool children. Development, education and upbringing of preschool children is carried out in the process of organizing various games. Therefore, the child's game activity is the most important activity for the formation of mathematical ideas and logical thinking.

Didactic games develop children's mental abilities, logical thinking of sensory organs, teach children to be attentive and independent, and have a positive effect on mastering lessons. Only a didactic game should be essentially a game and not resemble training. Only then, didactic games will be fun and will help children to develop a sense of joy and fun.

It is necessary to choose methods aimed at the development of logical thinking from demonstrative-action and demonstrative-image thinking in the initial stage of the process to ensure the mastery of elementary mathematical concepts by preschool children from the concrete to the abstract.

The principle of connecting knowledge and skills with life is the main principle of preparing preschool children for mathematics. This principle includes providing a reference point of the surrounding reality that is close to their own experience and capabilities in the formation of knowledge, skills and abilities of preschool children. The obtained mathematical knowledge becomes more significant and solid if it is used in various types of children's activities: in games, in everyday life, in visual and constructive activities.

Didactic game has a special place in the life of preschool children for a number of reasons:

1) Didactic game, along with other types of games, is one of the main ones for children's mental development and ensures the formation of unique new knowledge. Thus, the intellectualization of cognitive processes and the formation of a functional system take place during the acquisition of methods and means of knowledge. Develops cognitive motives in the child, creates an understanding of the conditionality of the situation, and also frees motives based on accepting and acting on the instructions of adults, self-control, attention and arbitrariness of behavior, implementation of rules self-esteem is developed.

2) Didactic game performs and provides various tasks in preschool age:

- acquiring new knowledge;
- generalization, strengthening of knowledge in different conditions;
- activation of cognitive processes, development of cognitive ability and cognitive activity;
- mastering socially developed tools, mental and practical methods of activity;
- development of moral and voluntary sphere;
- formation of conditions for educational activities;
- overcoming difficulties in the mental and moral sphere;
- creation of favorable conditions for individual communication and individual approach;

3) Didactic games for adults that respond to age characteristics, needs and interests:

- leading knowledge activities without standing in the position of a pedagogue;
- knowing how to influence the activity with the motive of the game, which is effective for the preschool teacher, to attract the child to him, to satisfy his needs and interests;
- setting goals that are directly related to the goal of the game, that are clear and close to the preschool teacher;
- to ensure a wide variety of cases of application of mental abilities and skills;
- encourage the activity of all children.

The connection between play and cognitive activity determines the uniqueness of the didactic game. The uniqueness of the didactic game is that it combines two principles - play and cognitive activity and creates ample opportunities for strengthening, summarizing and familiarization of knowledge.

In mentally retarded children of preschool age, actions with objects are significantly impoverished, due to the specific features of mental development, they are not generalized. It is necessary to create such conditions for them, in which each child will have the opportunity to get his effective and intuitive experience through actions in certain conditions or with certain objects.

The didactic game is aimed at providing the necessary number of repetitions in different materials when having an emotionally positive attitude to the task, thus helping the mentally retarded child learn methods of orientation to the environment, emphasizing and correcting the properties and relationships of objects, he or it provides an opportunity to understand the action.
The special role of didactic game in the educational process of the preschool organization for mentally retarded children is that the game makes the educational process emotional, in which the child gets his own experience of interaction with the outside world. .
Didactic games are based on activation and acceleration of children's activities. They are of great importance in identifying and implementing practical solutions for the realization and development of the child's creative potential.
Didactic games, as one of the components of intellectual methods, lead the child to activate his inner potential, to think, to think freely, to communicate, and to be creative.
In particular, interest in the environment and life increases, how to overcome difficulties and obstacles, and forms critical thinking skills.
The composition of the psychological features of the problem of development of mental activity of mentally retarded children of preschool age is focused on the elimination of these problems. Among all types of children's activities, preschool education plays the most important role in the life of a child. Children's need for this type of activity continues in the first years of their studies.
The unique feature of didactic games is that with their help, the pedagogue can attract the attention of mentally retarded children of preschool age to mathematics in the most convenient and attractive way for them. Since the skills of analysis and synthesis, generalization, comparison, and classification are not sufficiently developed to develop their interest in mathematical knowledge, the pedagogue uses various methods and methods for teaching mathematics, involving children in the active process of acquiring mathematical knowledge. does.
Action role-playing game is distinguished from other types of games (action, didactic) primarily by the presence of a plot. The expanded form of action role-playing game reflects the surrounding reality (family life, adult production activities, social events).
D. B. Elkonin defines the role-playing or creative preschool children's game as "children take on the roles (tasks) of adults and use adult activities and relationships between them in the process of re-play in a generalized form in specially created game conditions." emphasizes. The most attractive activity for children, the game has a positive effect on the formation of all basic mental processes.
Pedagogues can actively use event-based didactic games in various activities, including the formation of quantitative concepts. This is a special type of game that occurs when an event-based role-playing game is combined with a didactic game. In such games, the transfer of knowledge is not carried out directly, but is reflected through the actions of the game and the place of the game.
It is the initial period that creates wide opportunities for the mathematical development of preschoolers. The process of transfer and acquisition of knowledge in mathematics can be carried out in special games and exercises, in the teaching of event-didactic and staged games. It should be noted that in the event-didactic game with a mathematical content, the child chooses a role and re-develops professional actions of adults or stories from the family life, immediate environment, taking into account the studied number, duration and time.
Event-didactic games with a mathematical component have the following features:
1) A new component - the presence of various plots and roles filled with mathematical content.

2) Introducing the mathematical knowledge acquired in the training directly into the game as rules for children to perform a certain role. The teacher has a special role to help children use counting and measuring, to monitor the correctness of their implementation.
3) To develop the ability to apply the mathematical knowledge acquired in the training in new conditions.
4) Team character of the game.
Event-didactic games with a mathematical component allow you to solve the following problems:
Formation and strengthening of perceptions of quantitative characteristics;
- expanding knowledge about the world surrounding the child;
- Formation of orientation skills in the task of the proposed conditions;
- teaching the ability to plan and organize activities over time, taking into account the actions of the partner in the game (the ability to wait, listen);
- Development of emotional and personal sphere.
Due to the inclusion of a mathematical component in action-didactic games, the content of preschool children's games becomes more complex and richer.
The use of event-didactic games with mathematical content has a great developmental effect in large and preparatory groups. Senior Preschool is an event with an extended plot and role-playing game that includes different roles. The main content of the game does not have to be related to mathematics, certain moments of the game involve the acquisition of elementary mathematical knowledge by children and are offered in the form of game rules.
Thus, an event-didactic game is a combination of a story and a didactic game, in which children learn social relations and model conditions from everyday life, and also learn to follow rules and mathematical actions in everyday life.
Mastering mathematical, including quantitative concepts is a powerful factor in the mental development of a preschool child. This also applies to children with mental retardation of preschool age, because the mathematical preparation of children of this category has a very important practical value in their social adjustment.
Number as a basic mathematical category is an abstract concept and is based on logical thinking. In children with mental retardation, lack of formation of cognitive activity, abstract thinking, formation of concepts, and low level of generalization come to the fore.
The process of mastering quantitative concepts of mentally retarded children of preschool age is qualitatively and quantitatively unique. It is expressed by insufficiently formed concepts of quantity, mechanical memorization of natural numbers without matching them with objects, great dependence of quantitative concepts on bright qualitative features and spatial location of objects. These children have difficulty applying their existing knowledge and skills in new situations and do not know how to use them in new situations. In independent activities, such children rarely independently rely on mathematical ideas, they do not understand the meaning of their actions: counting, measuring. Children are unaware of the significance of the actions being performed, leading to a formal mastery of mathematics.
The game is the most effective means of correcting the mental development of mentally retarded children of preschool age. It is important to use event-didactic games aimed at improving and deepening mathematical knowledge, understanding the importance and necessity of calculation actions in everyday life, and developing interest in the quantity of surrounding objects. An important principle of mathematical preparation of preschool children is knowledge and based on the principle of connecting skills with life.
Based on the above, we give an example of the contents of the correctional-pedagogical work. The lessons were based on the program's "Formation of Elementary Mathematical Imagination" and "Teaching to Play" sections of the program.

Step-by-step introduction of event-didactic games for the formation of initial quantitative imaginations, increasing the time allocated for the game during the training, increasing the independence of children in the game, and increasing the complexity of the performed mathematical operations based on

In our Quantitative Thinking lessons, we included action-packed games familiar to children. We relied on action games taught in play sessions and action games familiar to children in the experimental group.

It was carried out as part of the Quantitative Imaging Program. The trainings conducted by us had the character of repetition and generalization, focused on clarification, consolidation and complete understanding of the knowledge acquired by them. We identified the following areas of correctional-pedagogical work:

1) counting in the right and reverse order, counting in sevens with children who learn with difficulty;

2) count pictures depicting objects and objects located in the correct sequence and in different places;

3) matching number and quantity, number and numbers based on numbers in 5;

4) solving examples in 5 by imagination.

Three sessions were conducted for each subject in a fixed order.

In the first lesson, 10 minutes before the end of the mathematics lesson, time was allocated for an event-didactic game. During the first 20 minutes, quantitative concepts were reinforced and then they were involved in the game. All trainings were conducted according to the structure of the game with a plot: a discussion was held on the topic of the game, the plot was determined, roles were distributed among the children, and game attributes were selected in accordance with the chosen role. The pedagogue played the leading role in the first lesson. He led the development of the plot of the game, followed the exchange of roles and the performance of counting operations by each child, developed the ability to apply this knowledge in the process of the game, showed in which conditions to use counting skills.

In the second session, a large part of the lesson (20 minutes) was devoted to an event-didactic game. The topic of the previous training was remembered and roles were distributed. Active children who successfully mastered the concepts of quantity were given a leading role. We played a secondary role in directing children's activities and providing necessary support, and also participated in the game.

The first two sessions had the following structure:

1) Organizational part.

2) Completing mathematical tasks.

3) Action-didactic game.

4) Completion of training.

The third session was held in independent play activities outside of training within the framework of the topic "Formation of elementary quantitative imagination". Children play roles independently in the game aimed at developing quantitative imagination. The defectologist was an active observer, whose role was to monitor the progress of the game and involve less active children in the team game. The defectologist participates as a neutral person and in some cases joins the game and assumes a certain role.

The structure of the third exercise:

1) Organizational part.

2) Choosing a plot.

3) Conversation on the theme of the game.

4) Planning. Distribution of roles. Selection of equipment.

5) Playing the game.

7) Summarize the results by evaluating the performance of each child.
We give a synopsis of the event-didactic game "Fruit and Vegetable Shop" containing mathematical concepts.
In the "Shop" game, the seller of the "Vegetable" and "Fruit" sections provides for the use of calculation operations for the buyer (the seller must know the price of a certain number of goods and count the money).
The purpose of the game: to practice counting objects, their conventional images (sticks, circles) in 6. To develop interest and respect for the sales profession. Compliance with the rules of etiquette in the store.
Preparation for the game: to see the picture "Seller", a series of pictures to familiarize yourself with the seller's work.
Interview in the following order: 1. Name of profession. 2. Workplace.
Materials and tools used in the work process. 4. Work of professionals. 5. The result of work. 6. Importance and necessity of work.
Didactic games that prepare children for story-role play.
Equipment: money, checks, wallets, customer bags, vegetables and fruits, cash register.
Roles and rules of the game: in the game, the roles of sellers and buyers are distinguished. So, the seller must ask the buyer what and how much to buy, give the requested product and charge the right amount. Buyers tell the seller the name of the item they want to buy and how much they want. They count their money, take the products they received and check their amount.
How the game is played: The store consists of a vegetable and fruit section. Each salesperson arranges the products beautifully on the shelves, sets the price tags, and prepares his workplace (cash register and receipts). They wait for customers. The first customer comes and looks at the products in the showcase.
Customer (goes to the fruit section and turns to the seller): it's my daughter's birthday. We are waiting for guests. I need some fruit.
Seller: What do you want to buy?
Buyer: Don't buy too much.
Seller: how many apples will you buy? How many guests are coming?
Buyer: 2 guests and their daughter.
Salesman: So how many apples will you buy? So 2+1?
Customer: 3 apples come out. Give me 3 apples. That's enough for everyone.
Vendor: Buy 3 apples and pay 3 circles for them.
Buyer: takes 3 apples, counts them and gives the money.
The seller: recalculates the "money" and says goodbye to the buyer.

3. Conclusion

Mistakes made by children. During the game, some participants correctly recalculate real objects, their images, "how many?" answered the question correctly. For others, the omission of numbers is characteristic, they do not name the final result, they struggle to explain what they are doing.
Effectiveness of the game: in this game, when performing different roles, children have a practical need to count objects and name the final result (how many apples did you buy? bananas? cabbage?). The question asked to the child makes it necessary not only to count, but also to express the result of the calculation in words.

As a result of correctional and pedagogical work on the formation of quantitative concepts with the help of event-didactic games with mathematical content, it was possible to achieve positive results in the development of quantitative concepts in children with mental retardation of preschool age.

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