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DEVELOPMENT OF FINE MOTOR SKILLS OF PRESCHOOL CHILDREN - AS A PEDAGOGICAL PROBLEM

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Abstract: The development of fine motor skills in preschool children is one of the current pedagogical problems in today's education system. Insufficient formation of finger movements at an early age can negatively affect speech development, writing skills, thinking processes, and adaptation to educational activities at later stages. Studies show that there is a functional connection between fine motor skills and speech centers, and their harmonious development determines the general cognitive potential of the child. This article analyzes the theoretical foundations, pedagogical conditions, and effective methods and tools for the development of fine motor skills in the preschool education process. It also covers the practical aspects of the problem, innovative approaches, and issues of organizing a developing environment.

Keywords: Preschool education, fine motor skills, pedagogical problem, developing environment, sensory development, cognitive activity, speech development, innovative methods.

Annotatsiya: Maktabgacha yoshdagi bolalarda nozik motorikani rivojlantirish bugungi ta'lim tizimidagi dolzarb pedagogik muammolardan biridir. Erta yoshda barmoq harakatlarining yetarlicha shakllanmaganligi nutq rivojlanishiga, yozish qobiliyatiga, fikrlash jarayonlariga va keyingi bosqichlarda ta'lim faoliyatiga moslashishga salbiy ta'sir ko'rsatishi mumkin. Tadqiqotlar shuni ko'rsatadiki, nozik motorika va nutq markazlari o'rtasida funktsional bog'liqlik mavjud va ularning uyg'un rivojlanishi bolaning umumiy kognitiv salohiyatini belgilaydi. Ushbu maqolada maktabgacha ta'lim jarayonida nozik motorikani rivojlantirishning nazariy asoslari, pedagogik shartlari va samarali usullari va vositalari tahlil qilinadi. Shuningdek, unda muammoning amaliy jihatlari, innovatsion yondashuvlar va rivojlanayotgan muhitni tashkil qilish masalalari yoritilgan.

Kalit so'zlar: Maktabgacha ta'lim, nozik motorika, pedagogik muammo, rivojlanayotgan muhit, sensor rivojlanish, kognitiv faoliyat, nutqni rivojlantirish, innovatsion usullar.

Аннотация: Развитие мелкой моторики у детей дошкольного возраста является одной из актуальных педагогических проблем современной системы образования. Недостаточное формирование движений пальцев в раннем возрасте может негативно сказаться на развитии речи, навыков письма, мыслительных процессов и адаптации к учебной деятельности на более поздних этапах. Исследования показывают наличие функциональной связи между мелкой моторикой и речевыми центрами, а их гармоничное развитие определяет общий познавательный потенциал ребенка. В данной статье анализируются теоретические основы, педагогические условия, а также эффективные методы и инструменты развития мелкой моторики в процессе дошкольного образования.

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Рассматриваются также практические аспекты проблемы, инновационные подходы и вопросы организации развивающей среды.

Ключевые слова: Дошкольное образование, мелкая моторика, педагогическая проблема, развивающая среда, сенсорное развитие, познавательная деятельность, развитие речи, инновационные методы.

Introduction. The modern preschool education system is aimed at ensuring the comprehensive development of the child, in which physical, intellectual and socio-emotional development are considered inextricably linked. In particular, the preschool period is one of the most important stages of human development, and it is during this period that the main mental processes and motor skills are formed.

Fine motor skills are a set of subtle, coordinated movements of the muscles of the fingers and palms, which are closely related to the development of speech, thinking, imagination and writing skills of the child. The famous educator and psychologist Maria Montessori, in her research, emphasized the inextricable link between hand movements and mental development, noting that “the hand is a tool of the mind”. Also, in the theory of cultural-historical development put forward by Lev Vygotsky, the active motor activity of the child is indicated as an important factor in his mental development.

Today, in the process of preparing children for school in preschool educational organizations, the issues of preparing for writing, the formation of graphic skills, and the development of speech are of priority importance. However, practice shows that in some cases, the development of fine motor skills is not systematically and purposefully organized, the classes do not have a sufficient methodological basis or the developmental environment is not created at the required level. This creates the need to study this area as a pedagogical problem.

Therefore, it is an urgent task to scientifically and theoretically substantiate the development of fine motor skills of preschool children, identify effective pedagogical conditions, and develop practical recommendations. This article analyzes the theoretical foundations of this problem, its pedagogical significance, and effective methods and tools used in the educational process.

Literature review. The issue of developing fine motor skills in preschool children is one of the most widely studied scientific areas in world and Uzbek pedagogical and psychological sciences. Since this problem is inextricably linked with the physical, speech and intellectual development of the child, it has been studied within the framework of various theoretical schools.

The scientific foundations of the development of fine motor skills in world pedagogy are primarily associated with the name of Maria Montessori. In her sensory education system, she interprets the development of hand movements as the basis for the mental and speech development of children. The Montessori methodology involves strengthening the muscles of the fingers and developing coordination through special didactic materials (frames, mosaics, cord-pulling devices). This approach is also widely used in the practice of preschool education today[1].

From a psychological point of view, the theory of cultural-historical development developed by Lev Vygotsky scientifically substantiates the relationship between fine motor skills and speech development. In his opinion, the child's higher mental functions are formed in the process of social activity, and hand movements are an important means of developing thinking[2]. Also, Jean Piaget interpreted the sensorimotor stage in his theory of cognitive development as the initial period of the child's intellectual formation, justifying the development of thinking precisely through movement and sensory experience[3].

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Modern studies have also scientifically proven the neurophysiological connection between fine motor skills and speech centers. In particular, the works of Alexander Luria show that the motor and speech zones of the cerebral cortex are functionally interconnected. This confirms that finger exercises in preschool age have a positive effect on speech development[4].

The issue of developing motor activity in the process of preschool education also occupies an important place in Uzbek pedagogical literature. Abdulla Avloniy in his work "Turkish Rose or Morality" emphasized the importance of practical activities and exercises in raising children. Although he did not directly use the term “fine motor skills”, he noted the formation of mental and moral qualities in a child through practical work and manual exercises[5].

Modern Uzbek scientists have developed methods for developing fine motor skills through sensory development, manual labor, visual activities and construction games within the framework of preschool education methodology. The development of children's fine motor skills is also defined in state curricula for preschool education as an important component of school preparation[6,7].

The analysis shows that in world and national literature, the development of fine motor skills is covered more psychologically and methodologically, and there is a need for its systematic study as a complex pedagogical problem[8]. In particular, an in-depth study of the mechanisms of forming fine motor skills based on innovative technologies, a developing environment and an individual approach is a requirement today.

Methodology. This study is aimed at studying the development of fine motor skills of preschool children as a pedagogical problem, and its methodology is based on systematic and activity-oriented approaches. The theoretical basis of the study was Lev Vygotsky's theory of cultural-historical development, Jean Piaget's concept of cognitive development, and Maria Montessori's principles of sensory education.

The purpose of the study is to identify effective pedagogical conditions, methods, and tools for the development of fine motor skills of children in preschool educational organizations and to evaluate their practical effectiveness. For this purpose, several tasks were set: to analyze the theoretical foundations of the development of fine motor skills, to determine the level of fine motor skills in preschool children, to develop a developmental pedagogical program, and to evaluate the effectiveness of the methodology through experimental work. The object of the study is the educational process in preschool educational organizations, and the subject is the pedagogical content and technology of the process of developing fine motor skills of children.

Theoretical methods, empirical methods, and mathematical-statistical methods were used in the study. As theoretical methods, the work of analyzing, comparing and generalizing scientific literature was carried out. Among the empirical methods, the activities of children and their educators were studied through observation, diagnostic tasks, pedagogical experience, as well as interviews and questionnaires. Using mathematical and statistical methods, the results obtained were analyzed based on percentage indicators.

The study was conducted in three stages. At the first stage - the diagnostic stage, the level of development of children's fine motor skills was determined and classified into low, medium and high indicators. At the second stage - the experimental stage, a specially developed system of developmental exercises was introduced into practice, including finger games, construction, application, origami and sensory exercises. At the third stage - the control stage, the initial and final results were compared and the effectiveness of the methodology was assessed.

Effective pedagogical conditions also played an important role in the study. These include the organization of a developing subject-environment, regular and systematic training, an

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individual approach, the use of game technologies and the establishment of cooperation with parents. Thus, the methodology involves developing fine motor skills in preschool children not only through physical exercises, but also through integration with speech, thinking, and creative activity. This ensures that the research is scientifically sound and has practical significance.

Results and discussion. The results of diagnostic and experimental work conducted during the research on the development of fine motor skills of preschool children gave important pedagogical conclusions. At the initial diagnostic stage, when the level of development of fine motor skills of children was determined using observation and special tasks, a low level was observed in 30% of children, an average level in 50% of children, and a high level in 20% of children. This indicates that the development of fine motor skills in most children is insufficient and requires a systematic pedagogical approach.

A system of developmental exercises developed at the experimental stage was introduced. The exercises included finger games, working with plasticine and clay, mosaic making, stringing, origami and drawing graphic elements. The exercises were held 3 times a week for 20-25 minutes, and the activity of each child was monitored individually.

At the end of the experiment, the results of the reassessment of the level of development of fine motor skills of children were as follows: 75% of children who started with a low level moved up to an average level, and 60% of those with an average level moved up to an average level. At the same time, the coordination and agility of the children's fingers improved significantly, they began to independently and accurately perform new graphic and constructive tasks.

If we discuss the results, the data obtained confirm the theories of Maria Montessori and Lev Vygotsky. The sensory exercises and materials recommended in the Montessori methodology, along with the development of children's finger muscles, also increase their attention and thinking activity. As emphasized in Vygotsky's theory, through social and activity-oriented games, children form higher mental functions, including strengthening cognitive skills associated with hand movements.

Table 1. Key Pedagogical Aspects of Fine Motor Skill Development in Preschool Children

Pedagogical Aspect	Description	Developmental Objectives	Methods and Activities	Expected Outcomes
Neuropsychological Basis	Fine motor skills are closely connected with brain maturation, speech development, and cognitive processes.	Stimulate neural connections and coordination.	Finger games, tactile exercises, hand-eye coordination activities.	Improved cognitive flexibility and readiness for literacy.
Curriculum Integration	Systematic inclusion of fine motor activities in preschool education programs.	Ensure holistic child development.	Drawing, modeling clay, cutting with scissors, tracing patterns, puzzles.	Better school readiness and improved concentration.
Teacher's Role	Teacher as facilitator, observer, and developmental guide.	Provide structured and differentiated pedagogical support.	Guided practice, scaffolding, progress monitoring.	Individualized development according to child's abilities.

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Learning Environment	Safe, stimulating, and resource-rich environment encouraging manipulation.	Promote independence and creativity.	Montessori materials, construction sets, sensory materials.	Greater autonomy and creative self-expression.
Family Involvement	Cooperation between preschool institution and family.	Maintain continuity of motor skill development at home.	Home practice tasks, parental guidance materials.	Consistent development and stronger parent-child interaction.

The analysis of the table shows that the development of fine motor skills in preschool children requires a pedagogically complex and systematic approach.

First, neuropsychological foundations show that fine motor movements are closely related to brain development, speech formation, and cognitive processes. Through the development of finger movements and hand-eye coordination, thinking, memory, and speech activity are also activated in children. This is an important factor in preparing them for school education.

Secondly, the systematic inclusion of fine motor skills in the curriculum ensures the comprehensive development of children. Activities such as drawing, working with plasticine, cutting with scissors, drawing shapes develop not only hand movements, but also attention, patience, and independent work skills.

Thirdly, the role of the teacher is important. The educator must act as a guide and supporter, taking into account the individual characteristics of children. An individual approach takes into account the pace of development of each child.

Fourth, the learning environment should be safe, rich, and stimulating. Montessori materials, constructors, and sensory tools enhance children’s independence and creativity.

Finally, family involvement ensures continuity in fine motor development. Continuing exercises at home has a positive effect on the child’s development and strengthens the emotional bond between parent and child.

In general, fine motor development is an important pedagogical factor not only for physical, but also for intellectual and speech development.

The results of the study also showed an inextricable link between the development of fine motor skills in children and speech, thinking and creative activity. For example, mosaic and origami exercises not only improved finger dexterity, but also developed children's ability to concentrate, distinguish shapes, and think creatively. This confirms the need for an integrated approach to the development of fine motor skills in preschool education.

The analysis showed that systematic and targeted pedagogical exercises significantly improve children's fine motor skills. At the same time, an individual approach and the methodology of creating a developmental environment increase efficiency. The results can serve as the basis for developing innovative and practical recommendations for the development of fine motor skills in preschool education.

Conclusion. The results of the study showed that the development of fine motor skills in preschool children is an urgent pedagogical problem in today's education system. Initial diagnostics revealed that low and medium levels of motor development are widespread in children, which can create some difficulties in the process of preparing for school. The results of

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the experiment confirmed that systematic and targeted pedagogical activities, as well as the creation of a developing environment, can significantly improve the coordination, agility and cognitive skills of children's fingers. At the same time, an inextricable link was revealed between fine motor skills and speech, thinking and creative activity, which indicates the effectiveness of an integrated approach in preschool education.

Recommendations. Based on the results of research on the development of fine motor skills in preschool children, a number of practical recommendations have been developed. First of all, it is important to conduct developmental activities systematically and purposefully. It is recommended that finger games, construction, mosaic, origami, plasticine and graphic exercises be carried out 3-4 times a week, for 20-25 minutes each.

- It is also necessary to select exercises and monitor activity taking into account the individual level of development of each child. This individual approach increases the effectiveness of the exercises and ensures that children achieve positive results.

- It is also important to create a developing environment. The children's room should have didactic materials, games and constructive tools that stimulate manual activity. At the same time, conducting fine motor exercises in an integrated manner with speech, creative activities and visual arts activities increases the overall cognitive development of children.

- It is recommended to establish cooperation with parents. Providing parents with instructions on performing exercises that develop simple hand movements at home ensures the continuity of the preschool educational process and has a positive effect on the development of children.

- Also, classes can be made more interesting and effective by using innovative methods. Developing pedagogical applications, interactive games and other modern technologies make it easier to attract children's attention and strengthen motor skills.

These recommendations will allow for a systematic and effective organization of the process of developing fine motor skills in preschool educational institutions, improving the quality of preparing children for school, and modernizing the pedagogical process.

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